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**An E-transition Model towards Value Co-Creation for Innovation  
in SMEs: A Capability-Based Perspective**

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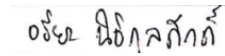
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## **AUTHOR'S DECLARATION**

The work contained in this thesis has not been previously submitted for a degree or diploma at any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person, except where due reference is made. I confirm that the work submitted is entirely my own and have fully referenced my sources as appropriate.

Signed:

Handwritten signature in Thai script, appearing to read "อริศ วัฒนศิริ" (Ariss Wattanasiri).

Date:

7<sup>th</sup> September 2021

## ABSTRACT

Traditionally, firms have focused on '*product-centric business models*', putting products at the forefront of their innovation processes. Potential value is created and delivered solely through internal capabilities and processes, while the customers are just receivers of such value creation. However, this process of value creation may cause product failures as customer needs are not focused on. As a result, firms have shifted to customer-centric business models that focus on aligning customer value with firm value. Social media can act as an enabling platform that allows firms, especially SMEs, to interact and exchange value in the drive for innovation in a cost-effective manner. This transition from a product-centric to a customer-centric approach using social media is termed as an '*e-transition model*'. SMEs can use social media to share information, create conversations, build communities and relationships with customers more quickly, and involve customers in co-creation activities for innovation. Furthermore, there is a need for SMEs to develop key firm-level capabilities to support such a process to successfully implement an e-transition model. Given that SMEs have limited resources, it is often difficult for SMEs to prioritise the types of capabilities to be developed first. Although current studies highlight different capabilities to support value co-creation, current marketing literature lacks an integrated framework that highlights the key capabilities to facilitate such a process. Specifically, the theoretical and empirical understandings on the extent to which SMEs need to efficiently utilise available resources, reconfigure internal competences and integrate external competences to support an e-transition model towards value co-creation is still limited. By drawing on S-D logic and dynamic capability approaches, this research aims to address this gap by focusing on the development of an integrated framework that conceptualises key firm-level capabilities, specifically organisational culture, organisational structure and e-marketing capabilities, to support an e-transition model towards value co-creation for innovation in SMEs. The research focuses on four types of value co-creation, namely co-ideation, co-production, co-process, and co-experience, representing all the stages in the innovation funnel. A mixed method approach is adopted to generate exploratory insights into an e-transition model from a capability perspective and empirically test the structural relationships between the key capabilities and value co-creation in order to develop the required framework. First, the qualitative research aims to understand the role of social media and to identify the key firm-level capabilities required to support an e-transition model using framework analysis. By conducting 28 semi-structured interviews with managers, employees and customers of 8 SMEs, the qualitative findings reveal that only organisational adaptive capability, e-marketing capability and organisational structure capability are considered key firm-level capabilities, while other capabilities are additional capabilities that can be developed to support different aspects of value co-creation for innovation. The identified key capabilities are then tested in the quantitative study. To obtain the data, online survey is responded by managers and employees of SMEs, providing the response rate of 29.6%. PLS-SEM is used to understand both direct (organisational adaptive and e-marketing capabilities) and indirect (organisational structure capabilities) relationships of the key capabilities on value co-creation for innovation. Finally, the research develops an e-transition capabilities model based on the qualitative and quantitative findings in order to guide SMEs to successfully implement an e-transition model towards value co-creation for innovation. The research extends current theory on technology-enabled value co-creation and innovation by highlighting four types of value co-creation in relation to innovation and how each process can be facilitated by different social media and firm-level capabilities, especially in the context of SMEs.

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## LIST OF ABBREVIATIONS

AIC <sub>3</sub>	Modified Akaike's Information Criterion with Factor 3
AIC <sub>4</sub>	Modified Akaike's Information Criterion with Factor 4
AVE	Average Variance Extrated
BCa	Bias-Corrected and Accelerated
BIC	Bayesian Information Criterion
BMI	Business Model Innovation
B2B	Business-to-Business
B2C	Business-to-Customer
CAIC	Consistent Akaike's Information Criterion
CB-SEM	Covariance-Based Structural Equation Modelling
CFA	Confirmatory Factor Analysis
CMB	Common Method Bias
CR	Composite Reliability
CRM	Customer Relationship Management
DV	Dependent Variable
EFA	Exploratory Factor Analysis
EVG1	Eigenvalue Grater than 1
FIMIX-PLS	Finite Mixture Partial Least Square
G-DL	Good-Dominant Logic
GDP	Gross Domestic Product
HTMT	Heterotrait-Monotrait
ICT	Information and Communication Technology
ID	Case Identification
IT	Information Technology
IV	Independent Variable
KMO	Kaiser-Meyer-Olkin
LIV	Latent Instrumental Variable
NFI	Normed Fit Index
NPD	New Product Development
OI	Organisational Innovativeness
OS	Organisational Structure Capability
PCA	Principal Component Analysis
PFA	Principal Factor Analysis
PLS-SEM	Partial Least Square Structural Equation Modelling

RBV	Resource-Based View
RQ	Research Question
R&D	Research and Development
SD	Standard Deviation
S-DL	Service-Dominant Logic
SEM	Structural Equation Modelling
SME	Small and Medium Enterprise
SRMR	Standardised Root Mean Square Residual

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## CHAPTER 1: INTRODUCTION

SMEs are the backbone of the economies (Cravo, Gourlay and Becker, 2012); i.e., their performance often influences the way the economies perform towards human capital, capital investment, business environment, income distribution and spending within and across nations (Beck, Demirguc-Kunt and Levine, 2005). Specifically, an effective integration of social media in their business and marketing processes helps to improve their performance towards innovation, which in turn helps to accelerate the performance of the economies and their national GDP (Dey *et al.*, 2019). Although SMEs are encouraged to transition themselves towards digitalisation and innovation (Müller, Buliga and Voigt, 2018), their performance is often limited by their resource constraints (Heider *et al.*, 2020). SMEs face an increasing number of challenges in the markets as they have limited resources and require to prioritise what they should be focusing first or last; i.e., how they can reconfigure their business models and effectively transition the whole organisation towards integrating customers in business processes (Vargo and Lusch, 2008). Specifically, during the Covid-19 crisis, firms have extensively relied on the use of social media and other digitalised platforms to connect, communicate and collaborate with customers to survive in the market (Herhausen *et al.*, 2020). With an increase in the importance of digitalisation (Drummond, O'Toole and McGrath, 2020), SMEs need to understand how social media can be integrated to better understand customer needs and interact and collaborate with them to jointly create superior value in terms of products, services and/or experiences related to innovation (Reuther, Schumann and Seidel, 2019).

Business model innovation (BMI) is an emerging concept in a firm transformation towards the creation of values and innovation (Taran, Boer and Lindgren, 2015). The term '*business model*' is described as a firm's formal conceptualisation of how it works towards its business goals (Afuah, 2004). SMEs can develop new business models, modify existing ones, or transform one model to another to dramatically disrupt mainstream markets and re-define the existing products and services and the creation of value to customers (Foss and Saebi, 2017). Traditionally, under product-centric business models, firms often define value in monetary terms; i.e. focusing on maximising profits by minimising the costs of production and maximising the price of products in order to generate value in terms of mass production and economies of scales (Mason and Spring, 2011). Specifically, potential value is created and delivered solely by firms through internal research and development (R&D), and production and marketing capabilities, while customers are viewed purely as a means of realising the value of such internal processes (Prahalad and Ramaswamy, 2004). Value creation between firms and customers often includes value-in-use and value-in-offering (Lusch and Vargo, 2006). Value-in-use occurs when customers realise the value created in consumption, judgement and confirmation, while value-in-offering is the proposed value created by firms in its market offerings (Ballantyne and Varey, 2006). However, focusing solely on value-in-use and value-in-offerings may not be sufficient as customer demand is changing towards the gaining of superior experiences; i.e. value-in-experiences (Vargo and Lusch, 2017). To overcome such a challenge, differentiated customer-driven business models are needed (Haaker *et al.*, 2021). Firms need to focus more on customers and involve them in their business processes to address any problems associated with current products and to produce new ones, which lead to greater satisfaction (Sjödin *et al.*, 2020).

Unlike product-centric business models, customer-centric ones focus on the inclusion of customers in innovation activities in order to generate deeper customer insights and to create and deliver superior value (López-Cabarcos, Srinivasan and Vázquez-Rodríguez, 2020). Their aim is to align the competences of firms with customer needs to provide long-term



value (Fornell *et al.*, 2020). Firm's ability to effectively involve customers in business processes enables them to better understand their needs, identify opportunities for value co-creation and thus generate better outcomes in the drive for innovation (Fader, 2020). Social media technologies can be used to help facilitating customer integration in such value co-creation processes, which in turn can help to improve their performance towards innovation (Royo-Vela and Velasquez Serrano, 2021). Although current value co-creation literature emphasises the importance of integrating social media in value co-creation processes (Rashid *et al.*, 2019), firms also need to understand and develop the key firm-level capabilities (hereafter referred to '*the key capabilities*') to facilitate such technology-enabled value co-creation (Haaker *et al.*, 2021). However, there is a research gap in relation to how firms, especially SMEs, can effectively and efficiently utilise their available resources and develop the key capabilities to support an e-transition model for developing value co-creation for innovation (Tian *et al.*, 2021). Although current literature highlights the importance of different capabilities to support such a process, there is still a need to understand the types of key capabilities required to support different value co-creation activities for innovation in a single study (Saarijärvi, Kannan and Kuusela, 2013). This research specifically focuses on four types of value co-creation, namely, co-ideation, co-production, co-process and co-experience. This is because different types of value co-creation may require different sets of capabilities to support the varying types of customer integration at different stages of innovation (Saunila, Ukko and Rantala, 2019). Therefore, the aim of this research is to develop and empirically test an integrated framework that conceptualises the key capabilities required to support such a model.

The following sections discuss the background and justification of this research; i.e. the research motivation and gap; the research aims and questions; the design and methodology; the theoretical underpinnings; the intended research contributions to the value co-creation and innovation literature. Specifically, the research focuses on service-dominant (S-D) logic and the dynamic capability approach to understand an e-transition model towards value co-creation for innovation (hereafter referred to as '*e-transition model*'), from a capability-based perspective. The focus on S-D logic aims to understand the evolving concepts of value, value creation and value co-creation and how firms can integrate social media to better engage customers in various activities aimed at innovation. In addition, discussion of dynamic capability focuses on the need to develop the key capabilities to support value co-creation processes with customers on social media (or an e-transition model) for innovation. As a result, the research highlights the intended contributions, theoretical, methodological and empirical, and practical contributions to current knowledge and practices.

## 1.1 Value Co-Creation Processes for Innovation

Service-dominant (S-D) logic focuses on explaining the exchange of resources between the economic actors involved to better create and deliver value (Vargo *et al.*, 2010). Although current studies often argue that resource exchange does not have to only associate with customers, but also service providers that are involved in the business processes (Grönroos, 2011), the economic actors in this research are firms and customers, and the resources exchanged between them are mainly information, knowledge and skills (Vargo and Lusch, 2008), used to co-create superior value (e.g. experiences and innovation) that mutually benefits both parties (Gummesson, 2008). The concept of S-D logic was originally rooted in good-dominant (G-D) logic in which goods are given the highest priority of value exchange between firms and customers (Vargo and Lusch, 2004), with the value of such products embedded in the transactions made between them (Brodie, Löbner and Fehrer, 2019). However, monetary rewards are not the only issues that concern firms and customers

(Vargo and Lusch, 2004). Instead, customers look for superior experiences, i.e. value-in-experiences, when exchanging resources with firms (Heinonen *et al.*, 2010). Therefore, the definition of value has evolved and the focus of customers has shifted from receiving value-in-consumption to co-producing value-in-experiences (Vargo and Lusch, 2017).

To obtain value-in-experiences, the exchange of skills and knowledge has become a fundamental element in core business processes (Madhavaram and Hunt, 2008). Customers are paying more attention to becoming involved in the way firms produce goods and services, while firms are only offering value propositions and supporting customers with their internal competencies (Lusch and Vargo, 2014). This evolution of value creation to value co-creation has therefore shifted the logic towards S-D logic (Vargo and Lusch, 2004). An integration or co-optation of customer competences in a firm's internal innovation processes therefore allows firms and customers to co-create value (Sjödén *et al.*, 2020). Such value includes creativity and innovation embedded in the products and services, which provide better experiences for both firms and customers (Tynan, McKechnie and Chhuon, 2010). Specifically, firms can involve customers in sharing and exchanging information regarding their needs, problems and expectations to generate greater innovation initiatives (Tajvidi *et al.*, 2020). As a result, firms can reduce the risks of product or service failures (Hock-Doepgen *et al.*, 2020) and gain more sustainable competitive advantages (Grönroos and Ravald, 2011). In other words, the concept of value co-creation lies in solving the problems of both customers and firms by converting them into solutions that allow both parties to achieve goals that otherwise would not have been possible if attempted individually (Romero, Molina and Camarinha-Matos, 2011).

## **1.2 The Role of Social Media Enabling Value Co-Creation Processes**

Although marketing scholars currently highlight the importance of integrating customers in value co-creation processes towards innovation (Loureiro, Romero and Bilro, 2020), Singaraju *et al.* (2016a) argue that the traditional way of involving customers in such processes can no longer sustain businesses. Due to rapid changing technologies, firms need to involve customers and identify new opportunities for innovation in real-time settings (Leone *et al.*, 2020). Recent S-D logic-based studies emphasise the importance of using social media technologies as a cost-effective way to better focus on customers, facilitate rich dialogues with them, and engage them in various co-creation activities in order to produce greater innovation outcomes (Rashid *et al.*, 2019). The integration of social media technologies in a transition from product-centric to customer-centric business models towards value co-creation is termed an '*e-transition*' model (Jeansson *et al.*, 2017). Firms can use different social media affordances to share information, create conversations, and build communities and relationships with customers on social media (Kietzmann *et al.*, 2011), thus facilitating the exchange of resources to co-create ideas, new and/or improved products and services, and value-added experiences (Romero and Molina, 2011). At the same time, firms can also provide the necessary resources and mechanisms to enhance extensive exchanges and various value co-creation activities with customers in the drive for innovation (Jaakkola and Alexander, 2014). Although current scholars view social media as an advantageous tool to facilitate value co-creation processes, there is still a need to understand how they can be used to develop social media capabilities to facilitate an e-transition model to achieve value co-creation (Rashid *et al.*, 2019). Specifically, the use of different social media affordances can support different aspects of value co-creation processes (Singaraju, Nguyen, Niininen and Sullivan-Mort, 2016a).

A number of social media-based scholars have viewed value co-creation as a single process (e.g. Rashid *et al.*, 2019). However, it is often argued that technology-enabled value co-creation does not occur at particular stages of innovation (Russo-Spena and Mele, 2012). Rather, value co-creation activities on social media can be organised and managed to meet the demand of all stages of innovation processes, including idea generation, R&D and commercialisation (Ajaegbu, 2020). According to Saarijärvi (2012), involving customer participation in different stages of innovation processes focuses on different degrees of customer contribution and firms' control levels. For example, involving customers in idea generation processes may require a lower control by firms than involvement at the R&D stage (Hollebeek, Srivastava and Chen, 2019). This is because firms often aim to generate a large number of ideas from customers during the idea generation phase, while requesting detailed information and specific concepts from them during R&D processes (Bugshan, 2015). Therefore, each type of value co-creation involves different degrees of customer selection and contribution processes (O'Hern and Rindfleisch, 2010). Consequently, there is a need to develop a typology of value co-creation to understand different characteristics of the multiple stages of innovation (Sjödin *et al.*, 2020).

### **1.3 Dynamic Capabilities to Support an E-Transition Model towards Value Co-Creation**

Despite the acknowledged benefits of using social media to integrate customers in different value co-creation activities (Rashid *et al.*, 2019), marketing scholars emphasise the need to capabilities to support the way firms interact, collaborate and engage with customers in co-creating various innovation-based ideas and concepts on social media (Leone *et al.*, 2020). Specifically, it needs to be understood how firms can develop dynamic capabilities (e.g. firm-level) and integrate external ones (e.g. social media) to support customer integration in value co-creation processes (Meriläinen, 2017). Dynamic capability can be defined as the firm's ability to reconfigure internal and external competencies to address rapid changes in the markets (Eisenhardt and Martin, 2000). Internal competencies include a reconfiguration of a firm's existing resources to support the implementation of new business models; i.e. an e-transition model (Leone *et al.*, 2020). On the other hand, external competencies are associated with a firm's ability to integrate external knowledge (e.g. customer knowledge) with its internal competencies to better support core business processes towards innovation (Fang, 2008).

Based on the dynamic capability approach, the development of firms' dynamic capabilities helps to facilitate the way they learn about customers (O'Connor, 2008) and exchange and integrate resources with them, which not only allows firms to acquire resources, i.e. knowledge from customers, but also encourages them to further participate in a higher level of value co-creation for innovation (Pinho *et al.*, 2014). With dynamic capabilities, firms are more likely to cope with changing market situations, including changing customer needs, and identify new opportunities to better integrate customers in value co-creation processes for greater organisational innovation (Royo-Vela and Velasquez Serrano, 2021; Uzokurt *et al.*, 2018). Constantly reconfiguring resources in response to changing environment therefore enables firms to generate behavioural orientations towards value co-creation; i.e. to constantly interact and collaborate with customers to co-create value that benefits both parties (Wang and Ahmed, 2007). As a result, firms can differentiate themselves from rivals and survive in the markets (Lanzolla and Markides, 2020).

One of the key capabilities required to support such processes is organisational capability, which includes organisational culture and structure capabilities (Priharsari and Abedin, 2021). The development of organisational culture and structure capabilities helps to enhance a collaborative work environment that shapes employees' behaviours and mind sets towards value co-creation (O'Hern and Rindfleisch, 2010; Songwatanayotin and Bussaracumpakorn, 2017). Organisational culture

and structure capabilities may need to be redesigned in light of customer centricity (Saunila, Ukko and Rantala, 2019). Such a customer-centric organisational culture and structure will encourage employees to focus more on customers, specifically on effective ways to engage them in sharing and exchanging knowledge on the products and services in the search for greater innovation (Marjanovic and Murthy, 2016). Another key capability is a firm's ability to effectively integrate technologies in business processes aimed at value co-creation with customers (Ahuja, Galletta and Carley, 2003). E-marketing capabilities can be a good example of this type of capability, as they support the integration of social media technologies in facilitating the process of customer information management, together with customer interactions and collaboration related to value co-creation (Meriläinen, 2017). In other words, core rigidities in existing processes, people and organisational structures act as significant challenges for adaptations to existing routines and technical systems for customer-centric BMI (Abed, Dwivedi and Williams, 2015).

Although the literature highlights the importance of dynamic capabilities to support customer integration in value co-creation processes, little is known about how firms should reconfigure their business models in order to develop internal capabilities to integrate customers in such processes for innovation via social media platforms (Lenka, Parida and Wincent, 2017). Given their limited resources, firms often find it difficult to develop multiple capabilities at the same time (Chittithaworn *et al.*, 2011), resulting in a decrease in their competitive advantage sources (Löfsten, 2016). Instead, firms can select basic operant resources and develop the necessary capabilities that act as a strong foundation to facilitate an e-transition model (Adams *et al.*, 2014). The conversion of basic operant resources, including organisational, human and technological ones, is therefore considered to be a key capability (Madhavaram and Hunt, 2008). In other words, the development of organisational culture and structure and e-marketing capabilities can be based on the utilisation of basic operant resources to generate the best possible outcomes for value co-creation (Ngo and O'Cass, 2009). Therefore, it is important to identify and understand the key capabilities that need to be developed to better engage customers in value co-creation activities at multiple stages of innovation processes (Haaker *et al.*, 2021). More importantly, the literature on dynamic capabilities calls for an integrated framework that conceptualises such capabilities that are required to support an e-transition model, specifically in different value co-creation types, namely, co-ideation, co-production, co-process and co-experience, in the SME context (De Silva *et al.*, 2021; Randhawa, Wilden and Gudergan, 2021).

#### **1.4 Purpose and Research Questions**

Drawing on S-D logic and dynamic capability approaches, the research aims to develop and empirically test an integrated framework that conceptualises the key capabilities required to support an e-transition model to achieve value co-creation for innovation. It aims to understand how such a model can be implemented in SMEs from a capability-based perspective, and specifically, how SMEs can utilise different social media affordances to develop social media capabilities, as well as using their resources and developing the key capabilities to support customer integration in value co-creation processes. The research explores three key capabilities, those of organisational culture, organisational structure and e-marketing. Following the concept of operant resources, basic operant resources associated with organisational, human and technological resources can be developed into organisational culture, organisational structure and e-marketing capabilities that help to support organisational goals and strategies (Madhavaram and Hunt, 2008). Understanding how SMEs can specifically develop these capabilities will enable the research to gain insights into how key capabilities can support an e-transition model and if they are needed in different forms in different types of value co-creation in relation to innovation.

As a result, it will be possible to provide conclusions on how SMEs can reconfigure their internal capabilities; i.e. organisational culture, organisational structure and e-marketing capabilities, and integrate external competences into organisational resources, namely social media capabilities to engage customers in innovation processes.

Together with the stated research aim, the following research questions will be answered:

- **RQ1:** How do social media affordances facilitate social media capabilities to support an e-transition model in the drive for value co-creation in SMEs?
- **RQ2:** How distinctive firm-level capabilities are required to support four types of value co-creation, namely, co-ideation, co-production, co-process and co-experience, for innovation in SMEs?
- **RQ3:** What are the key firm-level capabilities required to support an e-transition model to achieve value co-creation for innovation in SMEs?
- **RQ4:** What are the impacts of key firm-level capabilities (organisational adaptive capabilities and e-marketing capabilities) on value co-creation for innovation in SMEs?
- **RQ5:** What is the moderating effect of organisational structure capabilities on the performance of key firm-level capabilities on value co-creation in SMEs?

## 1.5 Research Design and Methodology

Based on the above research aim and questions, the study follows a pragmatic paradigm, which focuses on the most appropriate methods from both positivism and interpretivism perspectives to answer research questions (Creswell, 2003). As shown in Appendix 4, recent value co-creation scholars have often adopted either a qualitative or a quantitative methodology to understand how firms can integrate social media into their value co-creation processes and what different capabilities are required to support such processes. There is a need to adopt a mixed methodology to provide additional insights into an e-transition model from a capability perspective, as well as to generate more comprehensive understandings from both positivists' and interpretivists' points of view (Harrison and Reilly, 2011). Under a pragmatic paradigm, researchers emphasise that both objective and subjective perspectives can be used to complement each other (Morgan, 2007). Each method is suitable for answering different types of research questions (Saunders, Lewis and Thornhill, 2009). In other words, a pragmatism paradigm will allow this research to understand a complex phenomenon and to obtain in-depth results in terms of an e-transition capabilities model towards value co-creation (Shannon-Baker, 2016).

Pragmatic research follows an abductive theoretical perspective and a pluralist position to adopt multiple methods to address different types of research gap and questions (Goles and Hirschheim, 2000). In this research, a mixed methodology is adopted to explore an e-transition model from a capability perspective and test their structural relationships on value co-creation to provide a complete framework that otherwise would remain underresearched (Harrison and Reilly, 2011). Specifically, such a methodology will help to extend the findings, which would otherwise be limited to either objectivist or subjectivist aspects, and to generate revealing conclusions on an e-transition model from a capability perspective (De Silva and Rossi, 2018). Multiple research methods allow researchers to develop deeper understanding of complex social phenomena through methodological triangulation (Bryman and Bell, 2015). Data

collected using two or more methods, from both qualitative and quantitative methodology, can be cross-checked in order to develop new theories or extend current theories (Creswell, 2003). More importantly, adopting a mixed methodology will allow this research to overcome the limitations of a single method, which may also limit the scope of the findings and the contributions to the knowledge (Mingers, 2001; Venkatesh, Brown and Sullivan, 2016).

A mixed methodology allows marketing research to reach revealing conclusions of a complex social phenomenon, for example, an e-transition model, which may otherwise have remained overlooked or unsolved (De Silva and Rossi, 2018). To provide such research insights, this study specifically follows an exploratory sequential mixed methodology design. Such a design involves the process of initially conducting qualitative data collection and analysis, whose results are used to inform a quantitative study with its data collection and analysis (Mihas and Odum Institute, 2019). The results of such a design are then developed by integrating the data from the two separate studies (Creswell, 2011). As a result, research insights into an e-transition model and the key capabilities required to support such a process can be developed produce answers to the research aims and questions (Tashakkori and Teddlie, 2003).

**Study 1:** the research adopts qualitative methodology to explore the role of social media in facilitating an e-transition model and identifying the key capabilities required to support such a model, specifically in terms of the four types of value co-creation, namely co-ideation, co-production, co-process and co-experience. The qualitative methodology will allow the research to gain new in-depth insights into the limited theories of an e-transition capabilities model to achieve value co-creation aimed at innovation (Saunders, Lewis and Thornhill, 2012). At this stage, the qualitative study aims to explore the role of social media in facilitating value co-creation processes with customers to provide insights into the overall process of an e-transition model (RQ1). The study then identifies the key capabilities required to support such an e-transition model (RQ2). A typology of value co-creation is also developed to explain the different types of value co-creation processes that represent the four key innovation activities in the innovation funnel. With this value co-creation typology, the qualitative study aims to explore how the key capabilities are required in different ways in the four types of value co-creation processes (RQ3). In other words, the qualitative study aims to understand 'how' firms facilitate an e-transition model, which supports value co-creation with customers to generate greater innovation outcomes.

To obtain the qualitative data, a multiple case study approach is used to study value co-creation as a multi-dimensional process organised to achieve different stages of innovation processes and to explore how an e-transition model actually functions in the real world (Rowley, 2002). In-depth understandings and knowledge can be generated by discovering the meaning of the four types of value co-creation with the use of social media and capability requirements within each cases to generalise and develop a robust theory of technology-enabled value co-creation and innovation (Eisenhardt and Graebner, 2007). Using a multiple case study approach will allow the study to understand and identify the changes in distinctive capabilities, which support each value co-creation process in an innovation funnel. The selection of case studies is based on a research setting; i.e. SMEs in Thailand and is guided by a purposeful sampling strategy (Lindgreen, Di Benedetto and Beverland, 2020). The sample selection is based on the premise that the firms are customer-centric and use social media, specifically Facebook and Instagram, to organise different value co-creation activities with customers for innovation. The case representatives are based on the nature and characteristics of their social media activities with customers, which will be discussed in details in Chapter 4 (Section 4.2). Qualitative data will then be collected using semi-structured interviews with managers, employees and customers of the selected SMEs to gain in-depth insights into the use of social media and the development of key capabilities to support an e-transition model. Framework analysis is used to identify commonalities and differences in the data within and across the cases, and to draw explanatory

conclusions from them by following five framework analysis steps when analysing the data – (i) familiarisation, (ii) identifying a thematic framework, (iii) indexing, (iv) charting and (v) mapping and interpreting, which is discussed in Chapter 4 (Section 4.4) (Ritchie and Spencer, 1994). The qualitative findings are then used to develop propositions and the type of key capabilities to be tested in the quantitative study (Study 2).

**Study 2:** the quantitative study aims to empirically test the relationships between key capabilities and value co-creation for innovation. To generalise the findings, it aims to understand the linkages between key capabilities in a system transition to a technology-enabled value co-creation, and the strengths of each relationship to generate better understandings on this particular phenomenon; i.e. an e-transition to achieve value co-creation. Specifically, this study examines the direct impacts of key capabilities (organisational adaptive capabilities and e-marketing capabilities) on value co-creation (RQ4), and the interaction effects of organisational structure capabilities on the direct relationships of key capabilities and value co-creation for innovation (RQ5). Understanding how these capabilities influence value co-creation for innovation will allow the research to better gain insights into the significant firm-level capabilities that contribute to better value co-creation with customers for greater innovativeness.

To obtain the quantitative data, an online survey was adopted. The questionnaire was designed by taking the existing measurement methods available in the literature and was produced in both English and Thai versions. A pilot study was then conducted to ensure quality data collection, which comprised two rounds conducted with managers and employees of SMEs in order to review and ensure the quality of both versions of the questionnaire. More importantly, translation of the questionnaire was made by the qualified professional to ensure the equivalence of both versions, as well as to control for common method bias. Once the questionnaire was successfully pre-tested, data were collected from the managers and employees of SMEs in Thailand. The sample selection was based on a multi-stage sampling strategy – (i) a stratified sampling method to select samples from sub-groups, and (ii) a random sampling method to randomly select sub-samples from those sub-groups (Ackoff, 1953). Specifically, the samples were obtained from a Facebook SME community page. Once the data collection was completed, PLS-SEM was used to assess the proposed relationships and then find the best model fit. Several statistical analyses were conducted, including descriptive statistics, normality, outliers, EFA, CFA, moderation analysis and a multi-group analysis, to generate an overview of the data and quality outcomes.

Hence, adopting a mixed methodology by following an exploratory sequential design allows the research to address a methodological gap in marketing research (Harrison and Reilly, 2011) and to develop in-depth understanding on an e-transition model and the key capabilities required to support customer integration in such technology-enabled value co-creation for greater innovation. The explorative view on such a model informs the need to develop the capabilities to facilitate it, while the statistical evidence allows the relationships of each capability to be tested to generate additional insights into their significance to effectively develop an integrated framework. With both qualitative and quantitative studies, the research aims to provide a holistic view of the social phenomenon and develop an e-transition capabilities model to achieve value co-creation.

## **1.6 Theoretical Underpinnings and Main Contributions of the Research**

Based on the research aim and questions, service-dominant (S-D) logic and dynamic capability approaches are employed to investigate an e-transition model from a capability perspective. Employing both S-D logic and dynamic capability

approaches allows the research to directly answer the call from Wilden et al. (2017) who emphasise the need for future research to integrate these to better understand strategic approaches towards value co-creation. The research aims to provide additional insights into the existing theories of value co-creation and innovation by considering the enabling role of social media and key capabilities in facilitating an e-transition model to achieve value co-creation aimed at innovation. By understanding how firms, especially SMEs, can utilise social media affordances and generate social media capabilities will help to extend current theorising on S-D logic by integrating the concept of value co-creation and social media. On the other hand, insights into key capabilities, specifically organisational culture, organisational structure and e-marketing capabilities, aim to significantly contribute to the dynamic capability approach in the context of value co-creation (Lenka, Parida and Wincent, 2017). In other words, the aim to develop an integrated framework that conceptualises the three key capabilities required to support an e-transition model will greatly contribute to current knowledge in terms of theories, methodology and practices.

### **1.6.1 Theoretical Contributions**

Although scholars currently and extensively employ the S-D logic and dynamic capability approaches, i.e. in a non-integrated way, this research directly addresses the call by Wilden et al. (2017) by focusing on both theories in order to develop an integrated framework that conceptualises the key capabilities required to support an e-transition model. Specifically, the study provides additional insights into the concepts of S-D logic and value co-creation proposed by Ranjan and Read (2016) by highlighting the importance of value co-creation as a multidimensional process that can occur at different stages of innovation aimed at different outcomes, which can then be facilitated by social media to better exchange resources between firms and customers. In addition, the research extends current knowledge on how firms should reconfigure their business models and develop internal capabilities to integrate customers in social media-enabled value co-creation processes for innovation (e.g. Lenka, Parida and Wincent, 2017). Understandings of the types of capabilities needed to support an e-transition model, specifically in the four types of value co-creation, provide additional insights into how firms can effectively utilise their available resources and develop the necessary capabilities to support such processes. In other words, the development of such a model aims to contribute to a number of areas in the S-D logic and dynamic capability literature.

First, the research extends the current knowledge of S-D logic by shedding light on the importance of an e-transition model. Although a number of marketing studies have demonstrated the benefits of integrating social media technologies in value co-creation processes (or technology-enabled value co-creation) (Rashid *et al.*, 2019), this research argues that different social media affordances enable firms to develop different sets of social media capabilities to support value co-creation activities with customers. The use of social media can be selected in accordance with the nature and objectives of value co-creation activities at different stages of innovation in order to generate different outcomes. Hence, this research provides specific additional insights into technology-enabled value co-creation and contributes to similar research areas, including digital transformation, digital marketing and digital innovation.

Second, the research contributes to the dynamic capability approach by linking the concepts of operant resources and dynamic capabilities to better support the argument regarding key capabilities to fundamentally facilitate customer integration in value co-creation processes aimed at innovation (Mamonov and Peterson, 2020). Given that there is still a



need to sufficiently understand how firms can develop primary capabilities to support an e-transition model to achieve value co-creation (Lenka, Parida and Wincent, 2017), this research emphasises the importance of organisational culture and structure and e-marketing capabilities as primary e-transition capabilities in the development of value co-creation for innovation. Therefore, such insights contribute to the dynamic capability-based literature by showing that the development of the three key capabilities acts as a baseline for firms, especially SMEs, to carefully utilise their resources to effectively engage customers in various co-creation activities to achieve innovation.

Third, this research greatly contributes to the value co-creation and innovation literature by developing a typology of value co-creation that represents the different stages of the innovation processes. The research responds to the call by several researchers (Hoyer et al., 2010; Lenka, Parida and Wincent, 2017; Ranjan and Read, 2016) and strongly argued that value co-creation should be viewed in relation to the innovation funnel, specifically at the stages of idea generation, R&D and commercialisation (Mount and Garcia Martinez, 2014). Based on the proposed typology, four types of value co-creation are suggested to represent multiple stages of innovation processes, namely, co-ideation, co-production, co-process and co-experience. Understanding these types of value co-creation will allow the research to identify different sets of capabilities required to support each value co-creation activity. With such a typology, this research provides new insights into the value co-creation and innovation literature, specifically how firms can involve customers in different types of value co-creation in order to provide different outcomes at different stages of innovation processes, as well as the key capabilities to facilitate each process.

Fourth, the literature continues to lack an integrated framework that explains the types of capabilities required to support the value co-creation processes (De Silva et al., 2021; Randhawa, Wilden and Gudergan, 2021). This research addresses this gap by empirically testing the direct impact of the key capabilities, including organisational culture (specifically, organisational adaptive capabilities) and e-marketing capabilities, as well as the moderating effect of organisational structure capabilities, on value co-creation for innovation in order to develop an e-transition capabilities model. Specifically, during the Covid-19 pandemic, such a model has provided additional insights into how firms can develop key capabilities to better engage customers in value co-creation activities on social media to generate better outcomes related to innovation (Lee and Trimi, 2021). Therefore, the development of an e-transition capabilities model will extend the current knowledge of S-D logic and dynamic capabilities by providing additional insights into the types of capabilities that should be primarily focused upon when implementing an e-transition model (Lichtenthaler, 2011).

### **1.6.2 Methodological and Empirical Contributions**

Based on the methodological review (see Appendix 4), marketing research often adopts a mono-method; i.e. adopting either a qualitative or quantitative approach to examine value co-creation processes with customers and different capabilities to support value co-creation. Although both qualitative and quantitative methods are advantageous in their own ways (Mingers, 2001), it is important to use both methods to understand complex social phenomena and to provide a more solid conclusion in order to generate new insights into current understandings (De Silva and Rossi, 2018). Given that there is limited theory on an e-transition model to achieve value co-creation for innovation, following an abductive approach will allow this research to generate theories that are contextual and generalisable, contributing to the current knowledge of digital value co-creation and innovation (Morgan, 2007). The results from both qualitative and quantitative

studies can be triangulated to provide a comprehensive understanding of e-transition capabilities model, that otherwise would not have been possible if a single method has been adopted. In other words, adopting a mixed methodology, specifically exploratory sequential design, will allow the research to generate better understanding of an e-transition model and key capabilities required to support such processes, which in turn contributes to current theorising in the value co-creation literature.

Specifically, using framework analysis enables the qualitative study to focus on different types of value co-creation throughout the innovation funnel and to understand how these processes on social media are enabled by distinctive capabilities. Although framework analysis is less likely to be adopted in marketing research, this study extends its application in a new discipline (marketing) to better understand marketing strategies (value co-creation), especially when the focus is on the development of a typology of value co-creation (Chemas-Velez *et al.*, 2020). Unlike other qualitative analysis methods (e.g. ethnography), framework analysis enables this research to identify different themes and sub-themes and compare them within and across cases (the four types of value co-creation) to generate deeper insights into an e-transition capabilities model. Specifically, such analysis acts as a methodological tool that enables this research to view value co-creation as a multidimensional process and to identify the core capabilities; i.e. the common key capabilities required in all types of value co-creation, which can be studied and tested in the quantitative study.

At the same time, using PLS-SEM enables the quantitative study to empirically test the significance of the relationships between the key capabilities and value co-creation, as well as generating the best model fit to develop an e-transition capabilities model. Via PLS-SEM, the research is able to gain insights into the structural relationships between key capabilities, which act as a guideline to develop an integrated framework that specifically explains both the direct and indirect effects of such capabilities on value co-creation. As a result, an e-transition capabilities model can be developed to represent the conceptualisation of the key capabilities, which first need to be developed in order to support customer integration in value co-creation processes for innovation. Such quantitative results can then be used to draw a generalisable conclusion on a model for value co-creation that can be applied to firms, especially SMEs, to solve their current problems regarding innovation. Unlike CB-SEM, PLS-SEM can also robustly provide more predictive accuracy, with a much lower risk of chance correlation with a smaller sample size, which is the case in this study (Henseler and Chin, 2010). PLS-SEM helps to predict the effects of key capabilities on value co-creation and provides an estimation with almost no bias (Sarstedt *et al.*, 2016). Therefore, quality results can be produced to provide insights into an e-transition capabilities model and support the current arguments in the value co-creation literature.

Furthermore, based on a review of the academic literature, no attempt has been made to investigate the key firm-level capabilities required to specifically support an e-transition model in the context of SMEs. More importantly, similar studies on market orientation, customer centricity and value co-creation have largely overlooked this area as a potential research setting, specifically from a capability perspective (Rashid *et al.*, 2019). This research addresses this gap by collecting data from SMEs, specifically in Thailand, as a representative of emerging countries that are currently facing difficulties in moving towards value co-creation and innovation (Pongwiritthon and Noiphan, 2014). They still lack a guiding framework on how to effectively and efficiently implement an e-transition model. To shed light on this area, the research therefore focuses on SMEs' ability to develop key capabilities to facilitate such a model, extending the current theories in the value co-creation literature by providing comprehensive understanding in the form of an e-transition capabilities model in the development of value co-creation in SMEs.

### 1.6.3 Practical Contributions

The development of an integrated framework of key capabilities to support an e-transition model will greatly contribute to business practices, especially those of SMEs. Managers could rely on the framework to identify capabilities and their impact on value co-creation, leading to greater innovation. The framework aims to guide firms, especially SMEs, in paying close attention to developing organisational (cultural and structural) and e-marketing capabilities to support a system transition to technology-enabled value co-creation for greater innovation. Understanding key capabilities enables firms to effectively and efficiently utilise available resources in the best possible way to develop the necessary capabilities to support customer integration in the value co-creation processes aimed at greater innovation. As a result, SMEs can gain sustainable competitive advantages and successfully survive in dynamic markets (Tudose, Agafitei and Avasilcai, 2020).

Furthermore, this research also contributes greatly to the performance of emerging economies by highlighting an e-transition model as a way of moving SMEs towards innovation, which will have a great impact on economies (Cravo, Gourlay and Becker, 2012). If an e-transition model is successfully implemented, SMEs can become more customer-centric in achieving value co-creation for innovation, resulting in better firm performance, employment levels, human capital and overall national GDP, accelerating economies towards development and innovation (Beck, Demirguc-Kunt and Levine, 2005). Specifically, during the time of the COVID-19 crisis, societies and businesses around the world have been affected in terms of a reduction in employment and income (Pedersen, Ritter and Di Benedetto, 2020). Firms depend heavily on social media and other digital marketing to connect, communicate and collaborate with customers in order to survive in the market (Herhausen *et al.*, 2020). With an e-transition capabilities model, firms will be able to effectively and efficiently utilise their available resources and develop the necessary capabilities to support customer integration in value co-creation processes aimed at generating greater innovativeness (Lenka, Parida and Wincent, 2017). In addition, innovative firms help to create a more competitive business environment as other firms need to catch up and grow in order to survive in the market (Falciola, Jansen and Rollo, 2020). Therefore, overall economic growth can be improved with the help of an e-transition capabilities model to achieve value co-creation aimed at innovation.

To successfully implement an e-transition capabilities model, the government and policy makers can also rely on this framework to provide additional support to SMEs as an alternative way of helping boost their economies. For instance, the government can focus on providing various training programmes and workshops for SMEs to improve their skills and knowledge of digital transformation to better involve customers in the value co-creation processes (Smallbone and Welter, 2001). Specifically, the government can subsidise the development of core capabilities, including management system adaptive capabilities and responsiveness, as a way of facilitating an e-transition model. With such a model, policy makers can effectively allocate available resources to different institutions, departments or units to manage and facilitate value co-creation processes to generate greater value for both firms and customers.

### 1.7 Organisation of the Thesis

Fundamentally, the presentation of the thesis follows doctoral thesis structure suggested by Perry (1998). It is organised by outlining a broad view of value co-creation, leading to the focus of the research issue. This problem identification follows the exploration of research issues to understand the phenomenon and research setting, which then leads to

empirical testing and conceptual validation. The overall outline of this thesis is therefore discussed in this section. It comprises ten chapters, with an outline of each given below.

**Chapter 1: Introduction** explores the concept of value co-creation, the research background and problems, the research aim and objectives, the design and methodology in brief, the theoretical underpinnings and the main contributions of the research.

**Chapter 2: Literature review** focuses on four major dimensions, which consolidate the review of the theories: mainstream studies of S-D logic; the concepts of value co-creation and technology-enabled value co-creation related to innovation; and a review of the key capabilities, which support such value co-creation processes for innovation. This chapter further develops a typology of value co-creation in relation to innovation, emphasising different aspects of value co-creation activities, rather than focusing solely on the overall concept of value co-creation.

**Chapter 3: Research methodology** covers the overall theoretical presuppositions, relevant issues pertaining to the qualitative and quantitative approaches and how this study overcomes such issues by employing a mixed methodology. Specifically, the study focuses on an exploratory sequential approach to examine an e-transition model to achieve value co-creation from a capability perspective. This chapter includes the overall rationale for the qualitative and quantitative approaches.

#### **Study 1: Qualitative research**

**Chapter 4: Qualitative methodology** gives an overview of the qualitative study (Study 1). The chapter includes the rationale for the qualitative research, sampling, data collection, data analysis (framework analysis), validity, reliability and ethical implications.

**Chapter 5: Qualitative analysis and results** comprises the five major steps of framework analysis undertaken to generate the qualitative results. The results are then discussed in relation to research questions (RQ1, RQ2 and RQ3) in order to understand the role of social media in the shift from product-centric to customer-centric business models to achieve value co-creation and identify the key capabilities, which support such a process, specifically in the four types of value co-creation in SMEs. The chapter also summarises the findings of the qualitative study, based on the three research questions, and develops the propositions to be tested in the second quantitative study.

#### **Study 2: Quantitative research**

**Chapter 6: Theoretical framework** develops a conceptual model with hypothesised relationships, based on the qualitative results and literature review, to examine the direct impact of key firm-level capabilities on value co-creation, as well as the moderating effect of organisational structure capability on value co-creation for innovation.

**Chapter 7: Quantitative methodology** covers the rationale for the quantitative research, the research context, sampling method, sampling size, unit of analysis, selection of key informants, measurement of constructs, data collection, non-response rate, analytic tools of quantitative data, common method bias (CMB) and endogeneity.

**Chapter 8: Quantitative analysis and results** comprises the sample profile, measurement model assessment, structural model assessment, moderating effects, testing of the completed model and remedies for CMB. The sample profile entails the sample demographics, responses, data cleaning and descriptive statistics. For measurement model assessment, all the

construct measures are validated individually to verify their unidimensionality. Construct validity and reliability are also reported in this chapter. Finally, a proposed model is tested using PLS-SEM.

**Chapter 9: Quantitative discussion and conclusion** discusses the findings of the hypothesis testing. The explanatory power of each hypothesis is discussed, and a model fit is demonstrated in order to propose an e-transition capabilities model to achieve value co-creation in relation to innovation.

**Chapter 10: Conclusion** provides the summary and implications of the study. To consolidate the answer to the research questions, the chapter synthesises the overall findings, followed by presentation of the research contributions (theoretical, methodological and practical). In addition, the research limitations are outlined. Based on the findings of the study and the current knowledge in the literature, several future research directions are also suggested.

## CHAPTER 2: LITERATURE REVIEW

As noted in Chapter 1, the key research questions concern (i) exploration of how social media enables SMEs to transition from product-centric to customer-centric business models in the drive for value co-creation for innovation; (ii) investigation of how an e-transition model for value co-creation is supported by the key firm-level capabilities of SMEs; (iii) examination of how the four types of value co-creation, namely, co-ideation, co-production, co-process and co-experience, require specific key SME firm-level capabilities; (iv) understanding of the impacts of these on value co-creation for innovation in SMEs; and (v) examination of the extent to which the relationship between key firm-level capabilities and value co-creation for innovation is positively moderated by organisational structure capability in SMEs.

This chapter aims to explore the theoretical foundation underpinning the research. It provides deeper understanding of the research background, the research gap and the motivation, and sheds light on the importance of an e-transition model of value co-creation for innovation in the SME context, specifically from a capability-based perspective. The review of the literature is made in the context of narrowing the research objectives. This attempt will significantly consolidate business model innovation studies, as well as the literature related to value co-creation and innovation. Specifically, in the literature there are many works pertaining to the theory of service-dominant logic and dynamic capability, which emphasise an e-transition model from a capability perspective.

### 2.1 Service-Dominant Logic

The concept of dominant logic focuses on the exchange of resources between economic actors (Vargo and Lusch, 2004). Over the past decades, marketing scholars have viewed the concept of dominant logic from various perspectives, including goods-dominant (G-D) and service-dominant (S-D), to explain the evolution of value creation and generation (Rashid *et al.*, 2019) (see Appendix 2). G-D logic often focuses on the exchange of commodities between firms and customers to generate value in terms of transactions and profits, whereas S-D logic focuses on the exchange of operant resources (e.g., skills, knowledge and other competences) to co-create value in terms of experiences of innovation (Normann, 2001). With the evolution of dominant logic, S-D logic can best explain why a transition from product-centric to customer-centric business models in the move to value co-creation is necessary in order to implement strategic directions towards value co-creation (Lusch and Vargo, 2014).

#### 2.1.1 Goods-Dominant Logic

The concept of S-D logic is rooted in the traditional and foundation of G-D logic, in which goods is the focus of value exchange (Vargo and Lusch, 2004). This G-D logic is *'closely aligned with neoclassical economics, which views actors as rational, profit- and utility-maximizing economic entities among whom information and resources flow easily within equilibrium seeking markets'* (Vargo, Koskela-Huotari and Vink, 2020, p.6). Scholars view G-D logic as a product-centric view of value creation (Prahalad and Ramaswamy, 2004). Through the lens of G-D logic, firms are placed at the centre of value creation processes, with the aim to create monetary value through firm-controlled production processes

(Normann, 2001). Predominantly, firms focus on customers with the sole purpose of creating satisfied customers and maximising profits (Levitt, 1960). However, value exchange only occurs when there is a distribution and exchange of commodities between firms and customers (Vargo and Lusch, 2008). In other words, G-D logic is often viewed as the logic of the mass production of value-embedded goods that are consumed by mass markets (Mele, Colurcio and Russo-Spena, 2014).

In G-D logic, value is primarily created through operand resources; i.e., resources on which an operation or activity is performed to produce the effects on the products (Constantin and Lusch, 1994). On the other hand, goods are considered as operand resources; i.e., resources on which an operation is performed to generate the effects in which the end products are solely delivered to customers by firms (Prahalad and Ramaswamy, 2004). For example, a commodity is considered as an operand resource and an end product on which value exchange between firms and customers can be performed to generate transactions and customer satisfaction whilst making a profit (Finney, Lueg and Campbell, 2008). As shown in Appendix 2, firms often determine the value to be offered and how such value should be different from that of their competitors, while customers remain excluded from the process of value creation (Mele, Colurcio and Russo-Spena, 2014). Therefore, the development of operand resources is considered a key to success for product-centric firms (Vargo and Lusch, 2004). Hence, value is considered as something that is added to the products in the production process and at the point of exchange at a price (or value-in-exchange) (Lusch and Vargo, 2006).

However, the role of operand resources has started to shift towards operant resources; i.e., intangible resources that directly produce effects, as firms and customers realise the importance of skills and knowledge as keys to success (Madhavaram and Hunt, 2008). Due to the rapidly changing environment, marketing has shifted its dominant logic from the exchange of commodities (or tangible goods) to the exchange of intangibles (or services) in order to provide better solutions to customer problems (Vargo and Lusch, 2004). Skills and knowledge have become fundamental units of exchange and a source of competitive advantage (Narver and Slater, 1990). The need to exchange operant resources with customers has become the solution to the creation and delivery of value propositions (Vargo and Lusch, 2017). However, such a full appreciation of services (or the exchange of operant resources) is often hindered in G-D logic, which has tended to hinder understanding of marketing in present times (Gronroos, 1994). Therefore, a new dominant logic has evolved to support such a paradigm shift in marketing (Lusch and Vargo, 2006).

### **2.1.2 An Evolving Dominant Logic**

A new dominant logic was proposed, known as S-D logic (Vargo and Lusch, 2008). S-D logic focuses on the exchange of resources between multiple economic actors (Vargo *et al.*, 2010). Based on the recent literature, value exchange is no longer about the exchange of the commodities, but rather the exchange of operant resources between involved parties (Lusch and Vargo, 2014). The service providers who develop knowledge and skills to create and deliver value propositions for the benefits of customers, realise such value propositions through their consumption or experience (Vargo and Lusch, 2004). Such value propositions often involve resource reconfigurations, including people, information and technology, to generate human economic exchange in service systems (Peters *et al.*, 2014). This is in line with Gummeson (2008), who claims that S-D logic is concerned with value configurations; i.e., economic and social actors interacting and exchanging across the network (Li and Tuunanen, 2020). Such interactions generate a resource exchange

that can be converted into value-in-use and value-in-offering (Sjödin *et al.*, 2020). Therefore, the performance of a service system lies on the ability of value co-creation, considering that all economic actors are resource integrators in S-D logic (Vargo and Lusch, 2017).

The concept of S-D logic has been conceived in different ways in the marketing discipline (Lusch and Vargo, 2014). Although its original concept was developed in strategic management, marketing scholars have applied it to explain the process of value co-creation between firms and customers (Rashid *et al.*, 2019). That is, the S-D logic of marketing is often viewed as customer-centric (Sheth, Sisodia and Sharma, 2000). This means that collaborating with, and learning from, customers and accordingly adapting to better satisfy their needs, are keys to success (Day, 1999). Value is often co-created with customers, rather than being embedded in output (Vargo and Lusch, 2008). As shown in Appendix 2, the focus of S-D logic is on customers as operant resources, whose role is to actively interact and participate in various activities in the development of value co-creation. Unlike G-D logic, the production of products and services does not end with the firms, but is a continuous process that aims to involve customers in co-creating value (Grönroos and Ravald, 2011). Firms analyse the possibilities of facilitating value co-creation with customers by identifying and understanding their value and goals, and providing them with both mental and emotional experiences (Strandvik, Holmlund and Edvardsson, 2012). As a result, firms can provide goods and services for, and in conjunction with, customer needs (Lusch and Vargo, 2006).

Therefore, this research is positioned within the foundations of S-D logic as an abstraction of value co-creation (Hollebeek, Srivastava and Chen, 2019). Economic actors, in this case firms and customers, can interact by exchanging and integrating operant resources to co-create value that generates mutual benefits (Prahalad and Ramaswamy, 2004). *'S-D logic thus broadens existing perspectives on human economic exchange by implying that all economic actors are service-providing and value-creating entities'* (Breidbach and Maglio, 2016, p.74). Consequently, value co-creation can be described as a cooperative process that involves interactions between firms and customers in creative activities, which often contribute to an increase in customer satisfaction due to the creation of value that better fits their needs (Ramaswamy, 2009).

## **2.2 Value Co-Creation for Innovation**

Based on S-D logic, value co-creation aims to provide methodological and formal practice to generate better outcomes in the drive for innovation (Nam and Lee, 2010). This means that value co-creation is related to understanding the different types of activities at different stages of innovation (O'Hern and Rindfleisch, 2010). Current innovation literature emphasises the importance of value co-creation as an effective way to drive and accelerate firms towards innovation and to gain competitive advantage in the market (Usman *et al.*, 2018). Specifically, the success of innovation depends on the effectiveness of interactions and collaboration between firms and customers (Fan and Luo, 2020). A high degree of interaction leads to the exchange of ideas and other resources (e.g. information, knowledge and skills) between firms and customers (Miller *et al.*, 2016), which creates value-added products, services and/or experiences (Romero, Molina and Camarinha-Matos, 2011). Hence, customer integration in value co-creation processes contributes to firms' innovativeness. In other words, the main focus of innovation is primarily concerned with a firm's ability to integrate customers in various activities throughout the innovation funnel (Voorberg, Bekkers and Tummers, 2015).



Customers are becoming more diverse and in need of more individualised products and services (Tseng and Piller, 2003), while SMEs are required to find ways to increase marketing efficiency to differentiate themselves from their competitors (Ellis, 2007). Recent studies illustrate the importance of shifting the focus of business models to customer-centric approaches, especially in the SME context (e.g. Marjanovic and Murthy, 2016; Moormann and Palvölgyi, 2013; Simon, Van Den Driest and Wilms, 2016; Songwatanayotin and Bussaracumpakorn, 2017). According to Pongwiritthon and Noiphan (2014), SMEs often face difficulties in meeting customer demand and providing suitable products and services due to a lack of resources and capabilities. Adopting customer-centric business models often aligns with the concept of value co-creation (Osterwalder and Pigneur, 2010; Zott, Amit and Massa, 2011). In terms of products and services, SMEs can better understand customers and involve them in sharing and exchanging information regarding their needs, problems and expectations to generate greater innovation initiatives (Sulhaini and Sulaimiah, 2017). Identifying and understanding the true needs of these customers enables firms to provide value-added products and services that improve customer satisfaction (Simon, Van Den Driest and Wilms, 2016), as well as developing relationships with customers, which allow firms to effectively compete with rivals (Sheth, Sisodia and Sharma, 2000). As a result, SMEs can reduce the risks of product and service failures and gain competitive advantage (Hock-Doepgen *et al.*, 2020). At the same time, customers receive value in terms of financial rewards, social benefits, hedonic factors and altruistic factors (Guruge, 2020). Hence, adopting outside-in customer-centric business models is more likely to align customer insights in innovation processes to provide the best solutions in a more individualised manner (Frankenberger, Weiblen and Gassmann, 2013; Hamalainen, 2014).

Firms can obtain customer information by listening to them (e.g., accessing available information on digital platforms); asking them (e.g., requesting customers to contribute their information and knowledge); and creating with customers (e.g., involving them in value co-creation), in order to generate greater innovativeness (Dahan and Hauser, 2002). According to Romero, Molina and Camarinha-Matos (2011), value co-creation was originally defined as a rich web of value co-creation relationships between groups of entities to achieve goals together, which otherwise would not have been possible if attempted individually. Customers are considered as valuable external resources, who share their knowledge and creativity that contribute to new ideas related to innovation, the so-called 'co-innovation' concept (Lee, Olson and Trimi, 2012). Involving customers in innovation processes allows firms to align their competences with the firm's resources and capabilities in order to co-create value, in the form of the products and services, to best serve customers (Harmeling *et al.*, 2017). In other words, value co-creation acts as a foundation stone for innovation (Alves, Fernandes and Raposo, 2016).

However, different firms may organise different types of value co-creation activities with different groups of customers (Sheth, 2019), aiming to achieve different outcomes of innovation at a particular time (Zaborek and Mazur, 2019). For example, manufacturing firms may organise value co-creation activities with an aim to involve customers to co-develop new product concepts to support their R&D process before the final launch of the products (Fuchs and Schreier, 2011; Yenyurt, Henke and Yalcinkaya, 2014). In this type of activities, customers need to be proactive in contributing their knowledge and technical skills in new product development processes (Piller *et al.*, 2004). On the other hand, service firms may focus on co-creating ideas and solutions to solve current problems and boosting customer experiences (Ahn *et al.*, 2020; Simpson and Radford, 2011). Firms and customers can interact and collaboratively share and discuss information on relevant topics in order to generate ideas about service innovation (Hollebeek, Srivastava and Chen, 2019). This often includes a lower level of customer engagement than in a co-production process (Tseng and Piller, 2003).

Table 2.1 summarises how different types of firms may view and focus on different aspects of value co-creation. Although a number of marketing studies view value co-creation in relation to one particular stage of innovation (i.e., the production process) (Ranjan and Read, 2016), this research argues that different types of value co-creation activities with customers can be designed to support different stages of innovation. Specifically, value co-creation can be viewed as a multi-dimensional process that can be organised and managed to suit different objectives of businesses at different stages of innovation processes.

**Table 2. 1: The view of value co-creation in different sectors/industries**

Type of firms	The view of value co-creation	Classification of value co-creation	Actors involved in value co-creation
Industrial firms (e.g. manufacturing and packaging firms)	Interactions between internal and external stakeholders (e.g. customers and suppliers) who share their information and experiences to reach new shared understandings and co-produce unique value propositions (or products) within the ecosystems (Cova, Dalli and Zwick, 2011; Giacomarra <i>et al.</i> , 2019; Kohtamäki and Rajala, 2016; Mostafa, 2016).	Co-production Co-development	Firms, customers, service providers and other stakeholders
Service firms (e.g. healthcare, hotel and consulting firms)	An engagement of customers or other stakeholders in the complex interactions (i.e., perceptive and responsive mechanisms) with service providers to facilitate information and knowledge exchange, develop solutions and improve the current situation of the service and customer experiences (Breidbach and Maglio, 2016; Leone <i>et al.</i> , 2020; Mostafa, 2016; Petri and Jacob, 2016).	Co-ideation Co-development Co-experience	Service providers, customers and other stakeholders
Agricultural firms	An engagement of stakeholders (e.g. farmers, agriculture technology providers, agents and policymakers) in both direct and indirect interactions to co-create knowledge, tools and solutions to current problems, as well as maximise value-in-use and pre-empt value co-destruction (Jayashankar <i>et al.</i> , 2019).	Co-ideation Co-development	Firms and stakeholders
Social firms (e.g. non-profit firms)	An engagement of internal and external stakeholders to discuss social needs and opportunities and co-develop solutions to social problems and generate both social economic value (Babu <i>et al.</i> , 2020; De Silva <i>et al.</i> , 2020; De Silva and Wright, 2019; Sigala, 2019).	Co-ideation Co-development	Firms and stakeholders

### 2.2.1 Typologies of Value Co-Creation for Innovation

In the past decades, S-D logic scholars have highlighted value co-creation in association with product innovation (or new product development) (Ranjan and Read, 2016). However, it is argued that value co-creation should not occur at a particular stage of innovation (Russo-Spena and Mele, 2012). It could be viewed at multiple stages of innovation, aiming to generate different outcomes with different groups of customers in different types of activities (Ajaegbu, 2020). Based on the S-D logic literature, different typologies of value co-creation have been proposed to discuss different forms of value co-creation with different actors in order to generate different value co-creation outcomes related to innovation (Namisango and Kang, 2017). As presented in Appendix 3, different scholars have focused on different typologies of value co-creation (e.g. Füller *et al.*, 2006; Hsu, 2016; Sawhney, Verona and Prandelli, 2005). For example, Pillar, Ihl and Vossen (2010) explain value co-creation with customers based on the degrees of collaboration and freedom in customer contributions throughout the innovation processes. The extent to which value be co-created with customers depends on the level of firms' collaboration with them and how much control the customers have over their contributions at different stages of innovation processes.

Similarly, Pater (2009) argues that the typology of value co-creation is based on its openness and ownership. Openness is the selection process directed by firms; that is, who should be involved in value co-creation activities, and whether all customers or specific groups of customers (e.g. lead users) can be decided by the firms. On the other hand, ownership is the scope of the outcomes that customers contribute; i.e., whether the outcome is owned by the initiators or also by the contributors. This is in line with O'Hern and Rindfleisch's (2010) co-creation typology, which focuses on selection and contribution activities. The former refers to how concepts and ideas should be pursued, which can be led by the firms (firm-led activity) or by the customers themselves (customer-led activity). The contribution activity, on the other hand, refers to how novel concepts and ideas are shared by customers, ranging from open to closed contributions. Therefore, different types of value co-creation activities motivate customers to participate differently (Lee *et al.*, 2010; O'cass and Ngo, 2012).

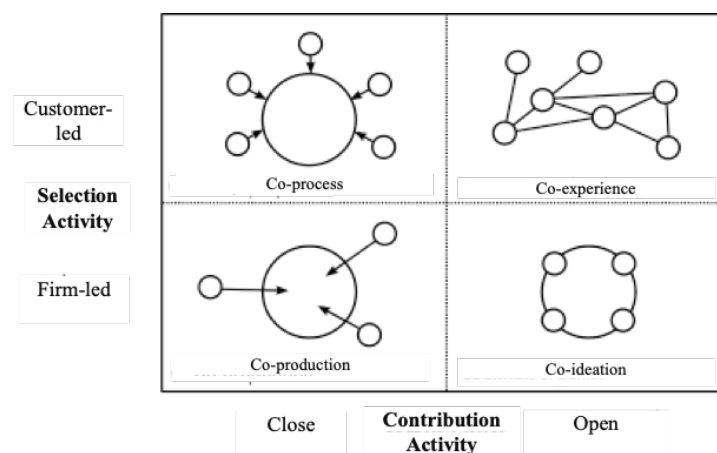
The participation and contributions of customers in various value co-creation activities depend upon the level of customer motivation, which can vary across different types of value co-creation processes (Palma, Trimi and Hong, 2019). For example, customers may be motivated to participate by a sense of connection; they can build connections with firms and other customers when sharing and discussing relevant topics to generate ideas related to innovation (Prahalad and Ramaswamy, 2004). In addition, expertise may act as another key motivator for customers when participating in activities that require a higher level of knowledge (Etgar, 2009; Fang, 2008). Therefore, understanding different types of value co-creation provides additional insights into how SMEs can effectively engage customers in participating in value co-creation processes geared towards innovation. Although several studies discuss value co-creation typologies from different perspectives, there is still a need to understand spatial aspects of innovation activities (Gassmann, Enkel and Chesbrough, 2010). Specifically, research on how customers are inherently related to the degree of contribution in value co-creation processes is limited (Agrawal and Rahman, 2015). The development of value co-creation typologies along with the innovation funnel is therefore necessary (Hoyer *et al.*, 2010).

Although the literature highlights various dimensions of co-creation design, such as the stage in the innovation process, the interaction focus, the scope of the task, or the ownership of the results and openness to contributors, these are similar to each other, in that they all focus on the extent to which firms release control to the contributors (or customers) and the

types of contributors (or customers) who are involved in value co-creation activities (Dervojeda *et al.*, 2014). Therefore, in this study, the typology of value co-creation is based on two dimensions proposed by O’Hern and Rindfleisch (2010): (i) contribution activity, and (ii) selection activity. As discussed earlier, contribution activity can range from being open to all customers or being limited to certain ones, specifically lead users (Pater, 2009). Selection activity, on the other hand, focuses on how the activities and contributions should be led, whether by the firm or the customer. Specifically, firms can select the type of customer, i.e. lead users or general customers, to be involved in value co-creation activities that are organised by either the firms (firm-led) or customers (customer-led). Contribution activity that focuses on involving a group of general customers often aims to generate a large quantity of information (e.g. ideas and experiences), while those focusing on a group of lead users aim to generate in-depth insights into specific sets of topics regarding the products and/or services (Pater, 2009). At the same time, firm-led selection activities are organised to generate new insights for further developments towards innovation, whereas customer-led activities give an opportunity for customers to provide suggestions and feedback to further improve and add value to the products and services and thus a superior experience (Piller, Ihl and Vossen, 2010).

Based on these two dimensions, this research classifies value co-creation for innovation into four types that represent a broader perspective of innovation: (i) co-ideation, (ii) co-production, (iii) co-process, and (iv) co-experience (Figure 2.1). These represent key aspects of innovation that are mainly focused on by scholars to better understand how firms can engage customers in different co-creation activities throughout the innovation process, specifically idea generation, R&D, commercialisation and experience innovation (Mount and Garcia Martinez, 2014). Each type of value co-creation can be organised and managed as an independent collaborative process between the firms and customers to achieve different outcomes at particular stages of innovation (Prahalad and Ramaswamy, 2002). Specifically, each type of value co-creation can be accordingly selected and organised by firms depending upon their goals and objectives towards innovation (Sheth, 2019). Firms, especially SMEs, can focus on utilising their available resources and capabilities in such a way that best serves customers at particular stages of innovation processes, which in turn helps firms to gain a competitive advantage (Hoyer *et al.*, 2010). With this typology, the research provides an understanding of a complete value co-creation process with customers aimed at innovation, starting from idea generation, and progressing to new product development, product improvement, and customer experience innovation.

**Figure 2. 1: Typology of value co-creation for innovation**



*Source: Adapted from Orcik, Tekic and Anisic (2013)*

### ***a) Co-Ideation: Firm-Led Activities with Open Contributions***

Co-ideation is the type of value co-creation representing the activities that aim to support the idea generation process of innovation. It is described as the process of integrating customers in co-creating ideas with regard to innovation (Russo-Spena and Mele, 2012). It involves sharing and exchanging information and knowledge on certain topics to co-create ideas on customer needs and preferences related to products and services (Hollebeek, Srivastava and Chen, 2019). The main aim of co-ideation is to generate a large number of ideas to gain insights into the overall needs of customers, which can later be filtered and reduced to the best ideas that match customer needs and the directions of the firms (Chesbrough, 2005). According to Abhari, Davidson and Xiao (2017), ideas submitted to firms can come through firm-led initiatives, which are created through the firm's request on customer contributions to share and exchange resources and ideas (O'Hern and Rindfleisch, 2010). The aim is to collect relevant information, since firms are in control of the topics being discussed (Marcos-Cuevas *et al.*, 2016). For example, firms can post about their products and services on social media, requesting that customers share information to generate ideas on what they are actually interested in, and accordingly provide them with the information that best serves their needs and wants (Charoensukmongkol and Sasatanun, 2017). Brainstorming sessions can be an example of co-ideation (Ghantous and Alnawas, 2021). Another example is content sharing on social media, where firms and customers exchange information and co-create ideas that can be used to produce value-adding content (Berthon *et al.*, 2012), as well as fulfilling customer needs in the form of future products and services (Helkkula, Kowalkowski and Tronvoll, 2018). In particular, customers have access to the types of information they want, and when they want it, and firms are required to ensure that effective content (or messages) allows customers to interact and create interest with the firms and among themselves (Diaconu, Oancea and Brinzea, 2016). It is important that firms create content that speaks to the needs and interests of customers in order to engage them in future co-creation processes (Brey, 2019). As a result, customers can co-create products and services that best answer their needs and problems, which in turn provide them with better experience, improve customer satisfaction and generate long-term customer value (Vernette and Hamdi-Kidar, 2013).

Although some scholars may view co-ideation as a customer-led activity, with ideas coming through initiatives undertaken by the customers themselves (customer-led) (Agrawal and Rahman, 2015), this study focuses on activities that are firm-led. Focusing on firm-led ones enables firms to ensure that the activities are not one-time events, but a continuous process, which generates information and knowledge with customers (Russo-Spena and Mele, 2012). Therefore, the research considers co-ideation as a form of co-creating activities initiated by firms (firm-led), aimed at integrating the contributions from all customers (or open contributions) in the idea generation shaping phase (Figure 2.2). Customers are openly encouraged to participate by sharing information and knowledge related to the products and services, while firms are in close control of the activities (Marcos-Cuevas *et al.*, 2016). Key customer contributions can be selected and focused on by firms to further convert them into new ideas for their marketing activities (Russo-Spena and Mele, 2012). In this type of value co-creation, customers are often motivated by the affiliation and experiences received when exchanging information with firms (Palma, Trimi and Hong, 2019). Moreover, firms can also use this customer information to confirm or question their current marketing plans and directions towards innovation, which can then lead to an increase in future customer involvement in product design, testing and development (Hoyer *et al.*, 2010).

### ***b) Co-Production: Firm-Led Activities with Closed Contributions***

Due to an increase in competitiveness, obtaining customer information and generating relevant ideas are no longer sufficient, as firms need to translate customer information into new product and service solutions that better satisfy customer needs and problems (Fuchs and Schreier, 2011). The R&D stage of innovation focuses on the development of new products and services (Mount and Garcia Martinez, 2014). Its aim is to bridge the gap between identified ideas and the possibility of finding the best solutions in terms of new products and services (Russo-Spena and Mele, 2012). Involving customers in the activities in which new products and services are produced is termed 'co-production' (Etgar, 2009). The process includes reviewing new ideas and refining others with customers to generate new products or services that best satisfy customer needs (Ghantous and Alnawas, 2021). However, not all customers should be focused on in this type of value co-creation (Fader, 2012). Nambisan (2002) argues that the process of co-production often incorporates the involvement of lead users in designing, testing and developing new products and services. Lead users are described as key customers who actively use the products or services whose needs represent the real needs of customers in the market (Von Hippel, 1986). Involving lead users in co-producing new products and services therefore acts as a source of novel product concepts (Schreier, Oberhauser and Prögl, 2007). Specifically, lead users can actively contribute and select various elements to be included in new products and services in order to better satisfy their unmet needs (O'Hern and Rindfleisch, 2010). For example, firms can organise virtual workshops and campaigns that aim to encourage lead users to simulate the identified ideas and new product concepts in order to finalise them into key concepts for upcoming development of new products or services (Russo-Spena and Mele, 2012). Although the process of searching for and selecting lead users is difficult, developing and exploiting the interactions with this specific group of customers allows firms to better understand the real needs of customers in order to ensure a high quality of next-generation products and services, thus enhancing innovation within the firms (Vaisnore and Petraite, 2011).

In this type of value co-creation, firms are often in control of the activities, ranging from the process of selecting lead users to the types of activity designed (Alexander and Jaakkola, 2015). This is because firms need to engage the right groups of lead users to generate the best possible outcomes, as failure to do so may result in product failure and high costs (Lüthje and Herstatt, 2004). The process of selecting the right lead users often includes two criteria: i.e. they should have an influential impact on the activities, and have relevant knowledge of the topics being discussed (Russo-Spena and Mele, 2012). Therefore, this research conceptualises co-production as a form of co-creating activities initiated by firms (firm-led activities) that aims to integrate the contributions from a specific group of customers (closed contributions) into new product and service development (Figure 2.2). The contributions come directly from lead users whose needs are currently unmet and are positioned to significantly benefit from the new products and services provided (von Hippel, 2005). Firms then have close control over the contributions and can make selections based on the real needs of lead users, accordingly being able to develop new products and services to best satisfy them. In other words, involving lead users in co-production processes will enable firms to effectively gain useful feedback on new product and service concepts and to decide on what is to be included or excluded in the final version of the products to meet unmet demand in the market (Romero, Molina and Camarinha-Matos, 2011; Jaakkola and Alexander, 2014).

### ***c) Co-Process: Customer-Led Activities with Closed Contributions***

Firms can also involve them in product and service improvement processes. These processes often consist of customer involvement in feedback, which can be termed ‘co-process’ (Battarbee and Koskinen, 2005). Kline and Rosenberg (1986) define a feedback loop as a process of recursive cycles of the innovation model. That is, the feedback loop represents multiple activities, with feedback to facilitate the configurations of the products or services (McCarthy *et al.*, 2006). Such a loop allows firms to not only gain insights into real-world situations, but also to identify new opportunities to make significant improvements to the existing standards of products and services (Rauffet, Cunha and Bernard, 2014). Furthermore, customer feedback can comprise opinions, concerns and suggestions to improve existing products and services, which can be in the form of information requests, unsolicited comments or complaints (Romero, Molina and Camarinha-Matos, 2011).

Similar to co-production, lead users are involved in co-processes in order for firms to obtain feedback on existing products or services, as well as insights into what has gone wrong and what should be improved. Although the process of selecting and involving lead users is difficult (Schreier, Oberhauser and Prügl, 2007), they are more likely to provide useful feedback regarding current issues concerning products and services that directly reflect customers’ hidden needs and problems (Vaisnore and Petraite, 2011). Listening to feedback coming specifically from lead users helps firms to generate insights and understanding of a given set of product and service requirements (Bijmolt *et al.*, 2010). They can accordingly modify and adapt their existing versions of products and services to meet the expectations of lead users (Verleye, Gemmel and Rangarajan, 2014). Specifically, any customer dissatisfaction feedback on current products or services should be proactively used as a mechanism for improvement (Fundin and Bergman, 2003). Therefore, the involvement of lead users in the feedback loop process allows firms to not only learn about their customers, but also to continuously adapt themselves in rapidly changing situations (Chirumalla, 2017).

At the same time, co-process is often customer-led in nature; i.e., customer complaints are usually sent to firms as a form of expression of customer dissatisfaction, or suggestions on current products (Fundin and Bergman, 2003). In recent years, customer feedback and complaints can also be posted on online communities for people to express their opinions or indicate issues on products or services (Einwiller and Steilen, 2015). Firms are expected to pay attention to such complaints and take action to solve problems (Balaji, Jha and Royne, 2015). Furthermore, customers are also allowed access to firm’s information and to seek help on product/service improvements (Nam and Lee, 2010). Hence, this research conceptualises co-process as a form of co-creating activities that are initiated by customers (customer-led), which aims to integrate the contributions from lead users (closed contributions) in a feedback loop with the process of improvement of existing products and services in relation to innovation (Figure 2.2). In this type, lead users have a higher degree of control of what they want to share or express, while firms will listen to customer feedback and opinions. In other words, firms tend to rely on such feedback and opinions to improve the current versions of their products and services. Hence overall, this co-process enables firms to better satisfy customers and further create value-added experience for them (Battarbee and Koskinen, 2005).

#### ***d) Co-Experience: Customer-Led Activities with Open Contributions***

Customer experience has become a new business policy that provides customers with value in experience after the consumption of products (Frow and Payne, 2007). Co-experience can be described as a process of the emergence and changing of the meaning of individual experiences as they become part of social interaction (Battarbee and Koskinen, 2005). The concept of co-experience highlights that the physical or virtual presence of customers has an influence on the experiences of other customers and firms (Forlizzi and Battarbee, 2004). Most notably, experience has become a key component in determining firm success (Gentile, Spiller and Noci, 2007). Furthermore, co-experience activities are often driven by customers (or customer-led). Customers are more likely to look for activities in which they can express their personal expertise, opinions and experiences in return for value-added experiences (Palma, Trimi and Hong, 2019). The experience of one customer can have a direct or indirect influence on that of others, leading to a higher level of enjoyment and participation in future co-experience processes (Battarbee, 2004). Hence, service experiences are co-created in the interaction between firms and customers, as well as among customers themselves, and the value of these experiences is brought about by the act of an individual (Vargo and Lusch, 2008).

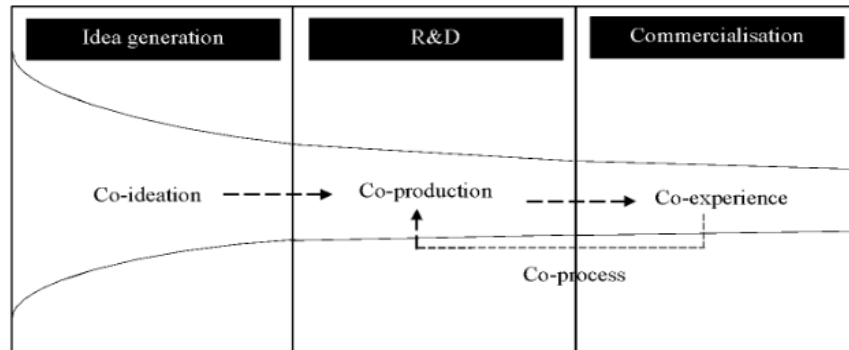
Furthermore, customers can use social media as an online community or as a means to publish and share their experiences of products and services, as well as comparing each other's experience, which influences the future purchasing decisions of customers (Romero, Molina and Camarinha-Matos, 2011). According to Shin, Perdue and Pandelaere (2020), online customers who receive personalised responses from firms are keen to influence the experiences of other customers, leading to value co-creation and better experiences. Specifically, online communities enable transparency, a sense of community, interactivity, trust and motivation to participate in activities, and shared experiences of value co-creation (Priharsari, Abedin and Mastio, 2020). Another example of co-experience is social live streaming; i.e., broadcast video streams in real-time, which foster sociality and communication among customers and with firms, thus co-creating superior experiences (Bründl, Matt and Hess, 2017). Experience sharing between customers and firms, as well as among customers themselves, allows firms to understand customer value after the consumption of products and services, in order to generate richer experiences and long-term value for customers (Agrawal and Rahman, 2015). As a result, firms can gain competitive advantage (Brodie *et al.*, 2011).

Therefore, this research conceptualises co-experience as the co-creating of activities initiated by customers (customer-led activities), which aim to integrate the contributions from all customers (or open contributions) in customer experience innovation (Figure 2.2). Customers have full control over the time and scope of co-creation, and can contribute the content they want to share whenever they want. In return, firms can explore content and the relational ties of customers on social media and accordingly capture and deliver value in the form of value-added customer experiences (Stabell and Fjeldstad, 1998; Battarbee and Koskinen, 2005). Figure 2.2 illustrates how the typology of value co-creation fits into the innovation funnel in this study. First, co-ideation is conceptualised as a firm-led co-creation activity that aims to involve all customers to jointly share relevant information and to generate ideas during the idea generation shaping phase of innovation. Second, co-production is conceptualised as a firm-led activity that involves lead users in the new product and service development stage of innovation. Third, co-process is a customer-led activity that involves lead users in a feedback loop, providing feedback to further improve existing products and services. Finally, co-experience lies in the stage of commercialisation in the innovation funnel. The co-experience process is a customer-led activity that aims to gain insights into customer experience and further involve customers to jointly create value-added experiences. Therefore, understanding these four



key types of value co-creation helps to generate insights into how firms can develop distinctive capabilities to support customer involvement throughout innovation processes, not just at one particular stage (Prahalad and Ramaswamy, 2002).

**Figure 2.2: Value co-creation in an innovation funnel**



*Source: Own elaboration*

Current marketing literature often highlight the use of social media technologies as a tool to facilitate value co-creation processes with customers (Rashid *et al.*, 2019). An integration of social media technologies allows firms to not only save costs in integrating customers in value co-creation, but also improves their performance related to innovation (Royo-Vela and Velasquez Serrano, 2021). For example, digitalised and interactive technologies allow a multiplicity of exchanges in which firms can provide necessary resources and mechanisms to enhance different types of value co-creation activities with customers (Saarijärvi, Kannan and Kuusela, 2013). Although a number of scholars highlight the benefits of using these technologies in value co-creation and marketing-related activities (Rashid *et al.*, 2019), this study specifically focuses on the use of social media technologies to support value co-creation activities with customers in the drive for innovation. Therefore, the concept of technology-enabled value co-creation is discussed in the following section.

## 2.3 Integration of Social Media in Value Co-Creation for Innovation in SMEs

### 2.3.1 Concept of Technology-Enabled Value Co-Creation

Due to rapid changes in technologies, firms need social connectivity to successfully implement marketing activities around value co-creation with customers (Geho and Dangelo, 2012). Technologies not only enable firms to better communicate with customers, but also determine the way firms organise and manage their marketing campaigns on value co-creation (Matthews, 2010). The process of integrating social media technologies in value co-creation is therefore termed ‘technology-enabled value co-creation’ in this research. This concept of technology-enabled business model innovation and value co-creation can be viewed through the lens of S-D logic. Although S-D logic was originally rooted in the exchange of resources between multiple actors in real settings (Vargo and Lusch, 2004), its concept was further developed into an integration of social media technologies (Nilsson and Ballantyne, 2014). Specifically, marketing

scholars highlight the need to bring together S-D logic and social media practice to provide a broader view of how social media can be integrated for different value co-creation activity purposes with customers (Neuhofer and Buhalis, 2017).

Unlike the traditional value co-creation process, technology-enabled value co-creation, specifically on social media, helps firms to create and manage the content of the conversations and interactions with customers in the online environment (Rialp-Criado and Rialp-Criado, 2018). Firms can connect and communicate with customers through personalised messages in order to initiate relationships with a wider network (Lacoste, 2016). Once the initial relationships with customers have been established, firms can generate further rich dialogues (Toppi *et al.*, 2012) and two-way conversations with customers by creating message content that is interactive in nature (Harrigan *et al.*, 2015). Marketing scholars argue that the use of social media enables firms to facilitate quicker exchange of resources between firms and customers in a more cost-effective manner (Rashid *et al.*, 2019). That is, social media is considered a user-centric (or customer-centric) interactive technology that allow firms to avoid unexpected value destruction and increase customer participation in activities (Malar, Arvidsson and Holmstrom, 2019). Firms can better access customer information and understand their problems and needs, thus avoiding the creation of unnecessary or unwanted co-creation activities with them, instead organising and managing activities that are interesting for the customers (Dolan, Seo and Kemper, 2019). With social media, firms can facilitate collaboration among employees and customers in order to generate greater innovative initiatives (Malhotra and Malhotra, 2012). In other words, social media can be considered as a technical solution to overcoming the distance between firms and customers, as well as between customers themselves (Stal-Le Cardinal, Schumacher and Marc, 2011).

Specifically, the use of social media technologies helps firms to facilitate knowledge creation through the process of socialisation, externalisation, combination and internalisation, in the drive towards innovation (Papa *et al.*, 2018). Firms can share tacit knowledge (e.g. product-related information) with customers to co-create concepts (e.g. new product concepts) which translate into explicit knowledge (Rezaei, Allameh and Ansari, 2018). Such knowledge can then be used to combine with the firm's knowledge or competencies to develop new products or services (Bhimani, Mention and Barlatier, 2018). More importantly, the exchange of customer knowledge enables firms to better recognise opportunities emerging in the market, and to address the value generation of customers, thereby creating solutions for innovation in better satisfying customers (Boateng, 2016). Such solutions includes adding value to existing products and services, improvement in the quality of the products and services, or new product development (Chua and Banerjee, 2013; Hitchen *et al.*, 2017). As a result, firms can generate value from innovation and gain competitive advantage (Bonamigo and Frech, 2020), while customers receive value in terms of solutions, support and/or reputation (Dolan, Seo and Kemper, 2019). Therefore, social media enhances real-time conversations between firms and customers and customer engagement in various activities, which help to stimulate real-time problem solving and satisfy customers in the best way (Iankova *et al.*, 2019).

Although current scholars highlight the importance of integrating social media technologies in value co-creation processes with customers (Rashid *et al.*, 2019), how such evolving social media technologies can be effectively used as an enabling tool to facilitate customer integration with value co-creation is unclear (Leone *et al.*, 2020). Since social media technologies are continually evolving, with the introduction of new platforms, applications and features, firms often adopt different social media platforms to support value co-creation processes with customers (Weller, 2016). Facebook and Instagram are common platforms, with different features to allow firms and customers to take different actions towards achieving their different goals (Salo, 2017). Understanding how such social media technologies have evolved over time

therefore enables this research to shed light on the key social media platforms and their roles in facilitating an e-transition model related to value co-creation for innovation (McCann and Barlow, 2015).

### **2.3.2 The Evolution of Social Media Technologies**

With the evolution of more advanced digital technologies (e.g. social media), users are playing a more active role in creating and editing content (Schneckenberg, 2009). Social media is seen as a powerful tool that helps to support value co-creation and innovation processes with customers (Kaplan, 2012). It can be defined as a group of Web 2.0-based applications that allow users to create content, and to interact with each other to share and exchange information online (Ngai, Tao and Moon, 2015). Via social media, firms can request and access customer information and convert it into ideas for better products and services, while customers can access firms' information, express their satisfaction and dissatisfaction, and propose changes in products and services (Kimmel and Kitchen, 2014). With social media, firms can generate different types of communication, interaction and cooperation with customers, while customers can play active roles in the co-creation of value in terms of customer satisfaction, customer loyalty, reputation and increased marketing performance (Hanna, Rohm and Crittenden, 2011). Firms can immediately understand customers and accordingly formulate appropriate responses to their needs and problems, in the form of feedback, services, solutions, suggestions or even new products (Khan, Swar and Lee, 2014; Pérez-González, Trigueros-Preciado and Popa, 2017). Although social media has its downsides, including less control of the messages or information being discussed online (Fournier and Avery, 2011), Piller, Vossen and Ihl (2012) argue that its use often leads to greater efficiencies and effectiveness in co-creation by allowing a large number of customers to contribute to co-creation initiatives, which in turn results in a lower cost of interaction with them. Therefore, the concept of digitalisation promotes a business logic based on the use of digital technologies in implementing new business models for value co-creation and innovation (Teece, 2010). In other words, the evolution of digitalisation is a strategic opportunity for value co-creation with customers aimed at innovation (Tongiani and Luca, 2018).

Social media consists of a wide range of platforms, including social networking sites such as Facebook and Instagram (e.g. Aghakhani, Karimi and Salehan, 2018; Iglesias-Sánchez *et al.*, 2020). These are commonly used by firms and customers as the main sources of social interaction (Salo, 2017). With over 2.7 billion users (Omnicores, 2021a), Facebook is one of the most popular social media platforms used by firms to connect with their customers (Jaman and Anshari, 2019) and engage them in various activities (Schultz and Peltier, 2013). Because Facebook is seen as a platform with a high level of engagement (Krallman, Pelletier and Adams, 2016), firms can create various content that encourages customers to interact and participate, as well as to decide and select the content they wish to see and discuss further (Hill and Moran, 2011). As Facebook offers various features, including news feeds, likes, comments and instant messaging, firms can utilise these to organise different types of value co-creation activities and create continuous interaction and collaboration with customers (Lee, Kim and Ahn, 2014).

Instagram, on the other hand, is an interactive tool that focuses on visual posts, rather than original texts, focusing on the sharing of photos and videos, as well as receiving customer feedback in the form of likes and comments (Huey and Yazdanifard, 2014). With more than one billion active users and around 25 million active firms (Omnicores, 2021b), Instagram has grown in popularity in as a marketing tool, not only because of its growing number of users, but also

because of its characteristics and functionalities that enable firms to easily connect with customers and engage them in business processes (Neher, 2014). Although customers on Instagram prefer ‘liking’ posts to share their interests rather than commenting (Miles, 2013), it is still considered one of the stronger tools to help achieve marketing strategy towards value co-creation (Huey and Yazdanifard, 2014). Interestingly, Krallman, Pelletier and Adams (2016) argue that customers on Instagram are more likely to become involved in interactive and collaborative activities with firms.

Hence, the use of both Facebook and Instagram offers firms different social media functionalities that allow them to create and organise different types of activities with customers (McCann and Barlow, 2015). Customers can participate in these activities and provide different types of information using the varying functions of social media. As a result, firms can gain different perspectives of customer insights and co-create different solutions or outcomes with customers aimed at innovation (Kietzmann *et al.*, 2011). Both on Facebook and Instagram, firms can ask customers (i) to express their opinions, (ii) to participate whenever they want, (iii) to connect and build relationships with each other, and (iv) to play active roles in finding solutions to problems (Majchrzak *et al.*, 2013a). In other words, social media acts as a platform that allows customers to connect, share information and create dialogue among themselves and with firms, enabling resource exchange with each other for improved outcomes (Leek, Canning and Houghton, 2016).

### **2.3.3 Social Media Affordances and Value Co-Creation**

Gaver (1991) defined the term ‘affordances’ as the properties of objects that allow people to potentially take action. Instead of the object itself, the perception of users determines the affordances of the object (Chen *et al.*, 2016). These will vary depending upon the competencies and objectives of individual users; that is, the object may be created for a particular reason, but the way users use it may vary individually, allowing the object to serve different individual purposes, and thus determining the affordances of that object (Gibson, 1977). Although the original concept of was proposed in the field of ecological psychology, its theory has been widely applied to better understand the relationships between technologies and social interactions (Treem and Leonardi, 2013). Specifically, the concept of affordances is widely adopted in social media-based marketing research, and is often known as ‘social media affordances’ (Hafezieh and Eshraghian, 2017). These can be described as the possibilities for actions to be taken at the intersections of users and social media (Cabiddu, De Carlo and Piccoli, 2014). Its concept is associated with the use of different social media functions to enable users to take actions towards their goals, while offering affordances that can be used differently by both firms and customers (Hutchby, 2001). For example, the use of like and share buttons enable customers to show their interests in the topics, while comments can be used to express customers’ thoughts (Stueber and Wurth, 2017). Therefore, social media affordances change according to the perceptions of users, even though their features remain stable (Leonardi and Barley, 2010).

Recent scholars have paid attention to focusing on the use of social media affordances in supporting organisational practices, including knowledge sharing (e.g. Boateng, 2016; Edwards *et al.*, 2017; Sun, Wang and Jeyaraj, 2020), value co-creation (Rashid *et al.*, 2019) and innovation (Bhimani, Mention and Barlatier, 2018). Social media can be used for communication and interaction with customers (Kane, 2015). Firms can create blogs or microblogs as a way of sharing, exchanging and discussing information and ideas with a broad group of customers (Trainor *et al.*, 2014a). This can be in the form of texts, photos or videos. Such information sharing with customers contributes to the accumulation of firms’

knowledge capital (Kwahk and Park, 2016). Firms can gather together customers with the same or similar interests and encourage them to interact, gain experience and build relationships with each other (Foltean, Trif and Tuleu, 2019). With such relationships with customers, collaborative activities can also be created to further request customer participation in creating or editing content (Kane, 2015). It is often argued that the way firms use social media helps to facilitate different types of activities with different type of actors involved for different types of value (Bugshan, 2015).

Although previous studies have examined social media affordances in terms of visibility (to access relevant information), editability (to edit existing information), persistence (to store information) and association (to connect with people) (Treem and Leonardi, 2013), Majchrzak et al. (2013a) argue that social media promotes knowledge sharing in four distinct affordances – (i) meta-voicing, (ii) triggered attending, (iii) network-informed associating, and (iv) generative role-taking. With these, firms are able to not only share knowledge within the organisation, but to also create external interactions with other parties, including customers (Malsbender, Hoffmann and Becker, 2014).

First, **meta-voicing** is associated with reacting online to activities; i.e., sharing opinions and adding meta-knowledge to existing content. It relates to the potential of social media that enables firms to create content, and for customers to react to it (Malsbender, Hoffmann and Becker, 2014). Examples include liking, voting, and commenting on online posts. Posts on different topics can be posted on social media to gain insights from customers (Ghantous and Alnawas, 2021). Likes are a sign of customer satisfaction with the information provided by firms or other customers (Stueber and Wurth, 2017). For instance, firms can share a post (e.g. photos or videos) about their products or services to encourage customers to participate and share their opinions by liking, voting or commenting (Miles, 2013). This post liking or voting of customers helps to confirm or disconfirm the information posted by firms (Hansson, Wrangmo and Söilen, 2013). This insight can be used as a direction to understand what firms should or should not focus on (Romero, Molina and Camarinha-Matos, 2011). Similarly, customer comments represent their interest in topics. Understanding customer preferences and opinions therefore helps firms to better generate marketing practices aimed at value co-creation and innovation (Berthon *et al.*, 2012).

Second, **triggered attending** is the engagement in online knowledge conversations by remaining uninvolved until receiving automated alerts or notifications (Majchrzak *et al.*, 2013b). Examples of this affordance of social media include notifications and reminders. Sometimes, customers prefer to search, receive information and participate in a firm's activities through choice, rather than being bombarded by messages from the firm (Hansson, Wrangmo and Söilen, 2013). With notification and reminder features, customers can customise the types of information they wish to receive and set notifications to remind them when requested (Pucihar *et al.*, 2018). For instance, Facebook allows users to set reminders and notifications when there is an update in the community or topic they are interested in (Stroud, Peacock and Curry, 2020). With this triggered attending affordance, customers can filter and screen out topics they are less likely to discuss, thus focusing on those that they are willing and able to contribute their knowledge to (Pucihar *et al.*, 2018). At the same time, firms can categorise their customers into groups and provide customised information to each group to obtain specific information regarding each one (Charoensukmongkol and Sasatanun, 2017). In this method, firms are more likely to focus on relevant groups, rather than focusing on all customers (Fader, 2012). Consequently, firms can better engage customers in various value co-creation activities aimed at innovation (Romero, Molina and Camarinha-Matos, 2011).

Third, **network-informed associating** is often associated with hashtags and friend tagging, which mean users are only involved when they are informed by content and relational ties (Aghakhani, Karimi and Salehan, 2018). This social media

affordance can easily be seen on Facebook and Instagram. Hashtags are commonly used by customers and firms when posting about something as a way to connect with other customers within specific interest groups (Helkkula, Dube and Arnould, 2018). At the same time, customers can also add hashtags or tag brands (or even their friends) to posts to express their interests, allowing firms to identify the value of their products or services (Buhalis and Sinarta, 2019). In this way, customers can enjoy better experiences, as they are able to connect and interact with other customers with the same or similar interests, while firms can benefit from their discussions under hashtags and accordingly provide different kinds of support (Abeza *et al.*, 2020). As a result, firms can better enhance customer engagement in value co-creation for innovation (Iglesias-Sánchez *et al.*, 2020).

Finally, **generative role taking** is the act of engaging in online knowledge conversations by taking actions in communities to maintain a productive dialogue among participants. Malsbender, Hoffmann and Becker (2014) explain this type of social media affordance as a feature of social media that enables users to engage in activities by expressing ideas and experiences related to products or services. Examples of generative role taking are instant messaging and chat messages (Majchrzak *et al.*, 2013a). In the case of instant messaging, customers can express their concerns over products or services (Singaraju, Nguyen, Niinen and Sullivan-Mort, 2016b). In doing so, it is important to note that firms should provide ways for customers to contribute different types of information in order to gain a better understanding of their needs and problems (Lei, Wang and Law, 2019). This type of affordance allows firms to not only interact with customers and gain insights, but also to express their point of view regarding the problems and explain the actions to be taken (Buhalis and Sinarta, 2019). In this way, firms can create continuous conversations with customers and ask for their contributions in value co-creation processes for innovation (Orcik, Tekic and Anisic, 2013).

Therefore, firms can utilise different social media affordances in varying ways to support customer integration in an e-transition model aimed at value co-creation for greater innovativeness (Treem and Leonardi, 2013). The use of different social media affordances enables firms to create different value co-creation activities with the involvement of different groups of customers to generate different value in terms of innovation (Neuhofer and Buhalis, 2017). In other words, utilising different social media affordances enables firms to develop social media capabilities that enhance the way they co-create with customers (Kargaran *et al.*, 2017). More importantly, social media is considered as a new customer-based tool that enables customers to interact with others and with firms in order to generate superior experiences and greater innovativeness (Kietzmann *et al.*, 2011).

### **2.3.4 Development of Social Media Capabilities to Support Value Co-Creation**

Based on the theory of social media affordances, social media-based scholars emphasise the importance of utilising such affordances to maximise the possible value co-created with customers (Rashid *et al.*, 2019). The use of social media features, such as likes, comments, notifications and messages, enables firms to generate different types of conversations, which aim to tackle different outcomes of value co-creation (Cabiddu, De Carlo and Piccoli, 2014). However, knowledge of different social media affordances to support the development of social media capabilities for value co-creation and innovation is still limited (Salo, 2017; Smith, Smith and Shaw, 2017). For example, Swani *et al.* (2013) argue that an effective way to use Facebook as a tool to communicate with customers is to include emotional sentiments to capture customer value. Firms can use features of social media, such as voting or hashtags, to allow customers to express their

own points of view, in order to better understand their needs and accordingly co-create value with them (Buhalis and Sinarta, 2019). In addition, use of the instant messaging feature may allow customers to further explain their points of views and discuss issues that need to be addressed in order to co-create value with firms (Malsbender, Hoffmann and Becker, 2014). In other words, the use of different features of social media allows firms, especially SMEs, to implement new business models related to innovation (Odoom and Mensah, 2019).

According to Kargaran et al. (2017), the utilisation of social media affordances enables firms to develop five key social media capabilities aimed at knowledge sharing and management: (i) speed and ease of access, (ii) sharing capability, (iii) community capability, (iv) conversation capability, and (v) relationship capability. The use of different features of social media helps to generate different aspects of customer resources, including knowledge and competencies, in order to co-create innovative initiatives (Rashid *et al.*, 2019). More importantly, social media helps to generate ideas, interactions and knowledge, which enable firms to fine-tune products, thus leading to innovation (Wang, Pauleen and Zhang, 2016). In other words, different social media capabilities can therefore be used to support different aspects of value co-creation processes with customers for innovation (Mount and Garcia Martinez, 2014).

#### ***a) Speed and Ease of Access***

Social media is known for its speed and ease of access (Kargaran *et al.*, 2017). Its use enables firm to communicate directly with customers more quickly and at higher levels of efficiency than in traditional ways of communication (Kaplan and Haenlein, 2010). While these traditional ways focus on transmitting messages to customers (e.g. one-way communication), social media allows firms to not only send out messages, but also allows customers to respond by expressing their own opinions on such messages in real-time (Kane, 2015). That is, the use of social media facilitates two-way communication, which allows firms and customers to access relevant information and to simultaneously respond, thus generating resource exchange and value creation in a quicker and more cost-effective manner (Arnott and Bridgewater, 2002). In other words, social media enables firms to reach their customers easily, with less cost and time required (Kaplan and Haenlein, 2010).

According to Siamagka et al. (2015), the perceived usefulness of social media is often based on its ease of use. Marketing scholars highlight the fact that social media platforms provide ease of access to information and reduce the steps and time needed to communicate and interact with customers, thus lowering costs (Brink, 2017). Social media can be used to access available customer information to better understand customer needs and problems (Gonzalez, 2017). For example, firms can generate insights into certain products or services by reviewing discussions among customers on social media or from interactions with the customers themselves (Iankova *et al.*, 2019). Firms can also use audio-visual tools on social media to engage customers and interact with them in order to gain insights into customer demand (Fietkiewicz, Hoffmann and Lins, 2018). This includes the use of photos, images or symbols when communicating and interacting with others, resulting in better understanding in a shorter time (Kromidha and Robson, 2016). Li et al. (2017) argue that the use of video content can also help to facilitate firm-customer interactions, as firms can send out messages about value co-creation activities and engage customers in these in real-time, reducing the gap between when solutions are co-created and their implementation for innovation.

Therefore, firms can create message content in the form of audio-visual or texts, which encourage customers to participate by liking, commenting on or sharing firm-generated content. At the same time, customers can also post their own verbal and visual content on firms' social media pages to express their emotional responses (Hutton *et al.*, 2001). Verbal messages can be defined as any combination of letters, words and sentences, whereas visual messages are any types of pictures, videos or symbols (Bennett and Kottasz, 2000). Therefore, firms can access different types of customer information and accordingly decide the types of information to be presented to customers, as well as searching and interacting with customers on social media to solve problems in value co-creation (Bennett and Kottasz, 2000). Therefore, social media has the potential to facilitate value co-creation processes by reducing transactional costs, enhancing information access and facilitating better communication flows in value co-creation (Olanrewaju *et al.*, 2020).

### ***b) Sharing Capability***

According to Quinton and Wilson (2016), social media is an opportunity for sharing information between firms and customers. Sharing is the extent to which users (firms and customers) exchange, distribute and receive information (Virtanen, Björk and Sjöström, 2017). Marketing scholars often view social media as an enabling tool for firms to create relevant content, and as an interactive environment that encourages customers to participate and share their knowledge (Kargaran *et al.*, 2017). Such information sharing allows firms to generate greater insights into customer needs, preferences, problems and expectations, which can be converted into ideas for innovation (Salo *et al.*, 2013). In other words, firms can utilise social media affordances to encourage customers to share their information and knowledge, which can be analysed and subsequently contribute to the co-creation of value for both firms and customers (Tseng and Chiang, 2016).

Recent social media-based studies explain that firms can create various activities on social media related to products or services that trigger customer engagement via sharing, commenting and liking (Olanrewaju *et al.*, 2020). Examples of social affordances that enable firms to develop sharing capability are posts, blogs, likes, comments and votes (Sood and Pattinson, 2012). For example, the use of photos can help firms to represent their business goals and value; photo posting is more likely to reflect organisational strategic positioning and attract customers to engage in co-creation territories (Zarkada and Polydrou, 2014). Zarkada and Polydrou (2014) specifically emphasise the need to create albums of photos when new products or services are launched to create strong customer reactions on what they like and dislike. Furthermore, Lehtimäki *et al.* (2009) add that video sharing is another way to engage customers in value co-creation processes. That is, firms can post a video promoting challenges by asking customers '*what do you think?*' to encourage customer engagement in contributing ideas and to gain insights into the possible opportunities for greater innovation outcomes (Zarkada and Polydrou, 2014). Similarly, Gonzalez (2017) provides an example of using social media to create videos of exhibition designers and interviews with educators to enable customers to participate and witness the internal processes of museums in order to co-create ideas for future exhibitions.

However, it is important to understand customer interests to identify the type of content that appeals to them in order to encourage them to participate in value co-creation activities (Kietzmann *et al.*, 2011). Such information on customer interests can be found by studying and analysing information shared and available on social media (Brink, 2017). At first, firms may need to identify their targeted customers and try to understand their behaviours on social media (Fader, 2020).



Social media also provides access to demographical breakdowns of individuals who engage online, such as gender and age, which is valuable information, which can be used to better understand customers and target the right groups (Gonzalez, 2017). Once customer interests are identified, firms can then create various types of content that will attract customers to participate in information and knowledge sharing (Bennett and Kottasz, 2000). As a result, firms can listen to customers' opinions and convert these into ideas for future content, products and/or services aimed at innovation (Bernoff and Li, 2008).

### ***c) Conversation Capability***

As well as information sharing, social media also allows firms to create conversations with customers (Kargaran *et al.*, 2017). They can use different social media affordances to talk about and discuss certain topics with customers to gain deeper insights into certain issues. For example, Bernoff and Charlene (2008) explain that the use of blogs on social media can help access potential customers and create various conversations with them to further discuss relevant topics. Blogs allow customers to repeatedly discuss certain topics, while firms can also respond to such discussions to create dialogue with customers (Gonzalez, 2017). Voramontri and Klieb (2019) explain that discussion on social media allows customers to identify and realise their own problems, and express their needs to firms in various forms, including comments, votes and instant messages. Similarly, Zarkkada and Polydorou (2014) add that the use of appropriate images and captions encourages customers to share their personal experiences with other customers and with firms to create lively conversations. In other words, firms can use social media as a tool to generate customer feedback on certain products and/or services, while customers can also ask questions about the products, which firms can respond to in real-time, resulting in continuous conversations (Gonzalez, 2017).

Although some scholars highlight the importance of using bots to create conversations with customers (Wirth, Menchen-Trevino and Moore, 2019), firms still need to create human-to-human conversations in order to effectively generate customer insights and accordingly involve them in value co-creation processes. Social media makes such human-to-human conversations easier by allowing online content to be created which customers can browse, access information and participate in different campaigns in order to express their needs and wants, while firms can quickly respond to any customer reactions (Ahuja and Medury, 2010). Such conversations with customers increase the opportunities to better understand customer needs and wants, which enables firms to increase or relate the topics to customers' circumstances, hence possibly triggering their engagement in activities (Krisviana, 2017). In other words, social media helps to create conversations with customers, which in turn allows firms to engage both current and potential customers in value co-creation processes aimed at innovation (Gonzalez, 2017).

### ***d) Community Capability***

Apart from sharing information and creating conversations with customers, social media can be used to build online communities, in which customers with the same or similar interests can be grouped together (Bernoff and Li, 2008). According to Olanrewaju *et al.* (2020), firms can create, enlarge and strengthen their networks with customers using social

media affordances. That is, they can interact and build communities with customers from different geographical locations at different times (Smith, Smith and Shaw, 2017). Current marketing scholars provide evidence for the positive impact of social media on network connectedness (Song, 2015). Specifically, Quinton and Wilson (2016) argue that firms can develop both strong and weak ties with customers; weak ties help in offering transactional value, while strong ones provide opportunities to further engage customers in value co-creation processes. As a result, firms can generate social capital, which helps to identify and capitalise on opportunities for value co-creation, including the generation of in-depth customer information, and accordingly allocate available resources to support activities with customers for greater innovation (Barnes and Mattsson, 2016).

As a community-based tool, social media helps firms to gather knowledge from customers and for them to provide feedback on products and services (Peppler and Solomou, 2011). Firms can create virtual communities for their current and potential customers in which they can interact with each other and share information and knowledge related to products and services (Zhang, 2011). A good example of a social media affordance that can be used to create virtual communities is the hashtag (Lehtimäki *et al.*, 2009), a symbol that is used to tag messages on social media (Ghenname *et al.*, 2014). The use of hashtags allows firms and customers to store and access relevant information anytime (Helkkula, Dube and Arnould, 2018). Specifically, firms can access customer information to gain better insights, while customers can share and express their own opinions or experiences using different hashtags related to value co-creation (Buhalis and Sinarta, 2019). Another example of a social media affordance, which facilitates community capability is the message post; a firm's ability to develop online communities using social media depends upon the coordination and content of the messages posted on social media (Valos *et al.*, 2015). Choosing the appropriate tone and language for posts determines the number of likes and shares assisted by customers, as well as the effectiveness of customer engagement in communities (Sorensen, Andrews and Drennan, 2017). In other words, social media facilitates the community identities of firms (Gonzalez, 2017). Therefore, social media communities help in strengthening firm-customer interactions and their effectual thinking and behaviours towards value co-creation (Fischer and Reuber, 2011).

### ***e) Relationship Capability***

Social media is often seen as a platform that opens up new horizons for firms in developing significant relationships with customers (Zhang, 2011). It allows for the quick formation of relationships, while existing ones can also be maintained and accessed when required (Quinton and Wilson, 2016). Specifically, social media allows emergent connections and ties to be created and identified (Aghakhani, Karimi and Salehan, 2018). Wang, Pauleen and Zhang (2016) provide evidence showing a positive impact of social media usage in building strong *guanxi* (or relationships/connections) between salespersons and their customers in China. Zarkkada and Polydorou (2014) further add that the use of Facebook acts as the central platform for firms in developing relationships with customers; out of eight important elements on the site, including page name, profile photos and other descriptive sections, consistent wall posts are what determine firm-customer interactions and opportunities for firm to develop relevant relationships with customers.

An example of a social media affordance to facilitate relationship capabilities is blogs; engaging with these has the potential to bring customers back to interact with others repeatedly, resulting in relationship building among participants and with firms in the value co-creation process (Olanrewaju *et al.*, 2020). Although the use of blogs is often seen as a way

to connect and build relationships with customers, it is often argued that they are only effective when the customers involved are familiar with the firms or have specific interests in the topics discussed (Gonzalez, 2017). Therefore, the use of instant messaging may be an alternative way to connect and build relationships with both current and potential customers. This allows firms to not only create conversations with customers, but also to follow up on them to build relationships. For example, firms can send instant messages to ask current and new customers follow-up questions, which increases customer satisfaction and the chances of them participating in future activities. In other words, social media acts as a tool to help firms to build relationships with customers, which further drives value co-creation for innovation (Bhimani, Mention and Barlatier, 2018).

In addition, firms can use social media to support customers by enabling them to connect with each other, as well as with the firms themselves, in order to solve problems (Bernoff and Li, 2008). For example, the Facebook page of firms can act as a medium for customers to come together to discuss certain topics. Customers who actively participate in discussion are more likely to develop connections and relationships with each other. With good relationships, customers can share experiences together on certain issues and solve problems that may otherwise be missed by firms. In this case, building relationships between firms and customers, as well as among customers themselves, allows firms to better engage customers in value co-creation activities for greater innovation.

Therefore, social media can be used to create contacts with potential customers and engage them in knowledge sharing for value co-creation (Salo et al., 2013). The use of different social media affordances enables firms to generate different outcomes related to value co-creation, including problem solving, information sharing, customer endorsement and conversations (Leek, Canning and Houghton, 2016). However, there are no right or wrong ways of selecting social media affordances to support the development of social media capabilities. Rather, the use of such affordances to reach and engage with customers in value co-creation processes may vary from firm to firm, depending upon their desired goals and strategies (Gonzalez, 2017). The utilisation of different social media affordances therefore depends on the preferences and convenience of firms. More importantly, their use allows firms to not only implement new business models, but also to effectively engage customers in value co-creation through their ability to access available information, share information, create conversations, and build communities and relationships with customers. In other words, the development of social media capabilities helps firms to generate a higher level of resource formation through customers' active participation in online activities, allowing both firms and customers to realise their optimal value co-creation potential (Singaraju, Nguyen, Niininen and Sullivan-Mort, 2016a). As a result, firms can increase customer loyalty and improve customer satisfaction, leading to long-term customer value (He, Zha and Li, 2013).

Although the use of social media is beneficial for firms, rapid digitalisation can be complex for them, as they require distinctive capabilities (Day, 2011; Li *et al.*, 2021). Previous studies have emphasised the benefits of integrating social media into value co-creation processes and firm performance towards innovation. However, there is still limited knowledge on how firms can effectively achieve this (Virtanen, Björk and Sjöström, 2017). To successfully integrate social media technologies in value co-creation processes, firms require the development of distinctive capabilities to support the process of interaction and collaboration with customers (Khodakarami and Chan, 2014). Specifically, they need to focus on developing systems that effectively answer customer needs, creating suitable environments to enhance the flow of communication and to access to customer information, and effectively integrate this in innovation processes (Kane, 2015). Therefore, social media technologies alone rarely help firms to effectively co-create value with customers

related to innovation, but instead, social media is most effective when integrated with other firm resources and capabilities (Trainor et al., 2014a).

To understand how firms can effectively facilitate an e-transition model for value co-creation using social media, a number of scholars have argued that there is a need to further consider the concept of dynamic capabilities (Wilden *et al.*, 2017). For example, Drummond, O'Toole and McGrath (2020) argue that the traditional view of marketing is being challenged, as firms must learn to cope with rapid changes in technologies and decide how marketing can effectively be facilitated by these. This includes providing a suitable work environment that encourages the exchange of information and knowledge among employees and with customers, which will enable firms to better find solutions in the form of products and services geared towards innovation (Tseng and Chiang, 2016). Such understandings are often embedded in the approach of dynamic capabilities, which aim to understand how organisational resources can be utilised and converted into a set of capabilities to support customer integration in value co-creation processes (Leone *et al.*, 2020). Although current dynamic capability-based literature highlights different types of capabilities to support value co-creation processes, there is limited understanding of the development of the key firm-level capabilities required to support an e-transition model of value co-creation for innovation (Chekfoung, Sunil and Binita, 2020).

## **2.4 Dynamic Capabilities Supporting an E-Transition Model towards Value Co-Creation for Innovation**

The dynamic capability approach attempts to explain how firms, especially SMEs, can stay competitive within changing environments and market conditions (Eisenhardt and Martin, 2000). According to Teece, Pisano and Shuen (1997), dynamic capability can be defined as *'the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environment'* (p.516). In the last decade, marketing scholars have often related the approach of dynamic capability with the resource-based view (RBV) (Ilmudeen *et al.*, 2020). In parallel with the marketing literature on distinctive capabilities, the RBV explains the link between firms' strategic orientation and accessible resources (Wilden and Gudergan, 2017). This perspective highlights that the development of a firm's resources in ways that are inimitable, rare and valuable, will result in sustainable competitive advantage (Barney, 1991). Although the RBV explains how competitive advantage can be achieved through organisational resources, the theory does not take the context of a fast-changing environment into consideration (Eisenhardt and Martin, 2000). Such an environment is a key determinant of how firms should be developing their core capabilities to support customers in value co-creation processes in the current market environment (Ahmad Zaidi and Othman, 2012). Instead, core capabilities needs to be developed in alignment with the ever-changing environment (Leonard-Barton, 1992). Scholars have thus extended the RBV further to the dynamic capability theory, emphasising the key role of management in adapting, enhancing and realigning organisational resources and strategies in response to changing market conditions (Eisenhardt and Martin, 2000).

Several studies emphasise that dynamic capabilities enable firms to quickly create, enhance, or re-align their resources to create or maintain competitive advantages in a dynamic business environment (Ahmad Zaidi and Othman, 2012; Owoseni and Twinomurinzi, 2019). Although previous research on dynamic capabilities suggests a link to competitive advantage, criticism of this relationship has arisen (Griffith and Harvey, 2001). For example, Helfat et al. (2007) argue that dynamic capabilities are a firm's capabilities *'to purposefully create, extend or modify its resource base'* (p.4), while Zollo and

Winter (2002) define dynamic capabilities as those which develop and adapt organisational routines and knowledge-based resources, resulting in sustainable competitive advantage. Eisenhardt and Martin (2000) extend this argument by illustrating the importance of resource configurations, defining them as a firm's ability to convert available resources into business gains. This is supported by Wang and Ahmed's (2007) definition of dynamic capabilities, as the concept of behavioural orientation to constantly reconfigure resources and capabilities in response to the changing environment, in order to gain sustainable competitive advantages. In this research, resources can be described as tangible (operand resources) or intangible (operant resources) factors used by firms to achieve their business goals and objectives, while capabilities are the organisation's repeatable routines and skills to effectively complete various activities (Finney, Lueg and Campbell, 2008). Examples of resources include capital, personnel, in-house knowledge and processes, while capabilities are built by combining resources (Grant, 1991). A firm's ability to convert operant resources into capabilities therefore acts as a source of sustainable competitive advantage (Arnould, 2008). In other words, dynamic capabilities can be advanced through the development of organisational capabilities (Sanchez and Mahoney, 1996). The latter are generally referred to as a process of identifying, investigating, developing, exploiting and exploring certain products with diverse and unique characteristics, which includes knowledge and routines, distinct from those of competitors within the market (Darsono, Yahya and Amalia, 2016). A firm's ability to exhibit uniqueness in its organisational resource deployment and capability development therefore enables it to adapt to rapid changes and adaptations in the market (Eisenhardt and Martin, 2000). As a result, firms can gain a competitive advantage (Geissdoerfer *et al.*, 2020).

Previous scholars have focused on the dynamic capability-based view to emphasise how organisations can develop capabilities through their reconfiguration of existing resources in order to gain a competitive advantage (Bocconcelli *et al.*, 2018). Such resources include organisational, human and technological ones, which are viewed as 'basic operant resources' (Madhavaram and Hunt, 2008). The utilisation of these enables firms to develop skills and knowledge and increase their chances of engaging customers in value co-creation (Arnould, 2008). For example, a reconfiguration of human resources enables firms to shape employees' behaviours and mind-sets, thus developing organisational culture capabilities related to value co-creation (Dauber, Fink and Yolles, 2012). Reshaping organisational culture enables firms '*to develop a business logic that conceptualises its business mind-set and shapes business decisions*' (Wilden and Gudergan, 2017, p.810). This includes encouraging employees to focus on organisational learning, risk-taking and adaptability to support customer integration in innovation processes (Aggarwal, Posen and Workiewicz, 2017). Ngugi, Johnsen and Erdélyi (2010) argue that reshaping employees in order to develop strong relationships with customers enables firms to better engage them in value co-creation processes. Moreover, rearranging organisational patterns or processes to support customer integration in value co-creation can lead to the development of organisational structural capabilities (Lee and van Dolen, 2015). Akgün *et al.* (2012) argue that firms should develop decentralised (or informal) structures aligned with adaptability to facilitate customer integration in business processes. With a decentralised structure, firms will be able to communicate, coordinate and collaborate within and across departments or units to enable information sharing within the organisation (Walter, Auer and Ritter, 2006), resulting in tacit and explicit knowledge generated for innovation (López-Cabarcos, Srinivasan and Vázquez-Rodríguez, 2020). Such internal capabilities should be developed in alignment with IT capabilities (Owoseni and Twinomurinzi, 2019). The use of IT resources, such as social media, helps to enhance firm-customer interactions in value co-creation (Strauss, El-Ansary and Frost, 2006). Trainor (2011) provides a model that explains how organisational resources and capabilities can be integrated with IT capabilities to better facilitate rich interactions with customers for value co-creation. In other words, these basic operant resources act as the basis of the focus of developing dynamic capabilities (Bocconcelli *et al.*, 2018).

Therefore, the development of organisational capabilities should include other complementary ones, such as IT-integrated capabilities (e.g. e-marketing), to enable an effective transition to technology-enabled value co-creation for innovation. More importantly, there is still a need to develop an integrated framework that conceptualises key capabilities, including organisational culture, organisational structure and e-marketing capabilities, which is required to support an e-transition model of value co-creation for innovation (Garmann-Johnsen, Olsen and Eikebrokk, 2021). Consequently, based on the dynamic capability approach, this research can help understand how firms, especially SMEs, can create new resource and capability combinations to support such an e-transition model (Preikschas *et al.*, 2017; Salunke, Weerawardena and McColl-Kennedy, 2011). A firm's ability to reconfigure internal capabilities (e.g. organisational culture and organisational structure capability) and to combine external knowledge (e.g. customer knowledge) with its resources and capabilities (e.g. e-marketing capabilities) act as a key enabler to facilitate customer integration in value co-creation processes (Fang, 2008). As a result, SMEs can effectively respond to customer needs and support customer involvement activities related to innovation (Eisenhardt and Martin, 2000; Getnet *et al.*, 2019).

#### **2.4.1 Organisational Culture Capabilities**

Every organisation has a unique way of conducting its business, including its values, beliefs and assumptions (Odor, 2018). A firm's ability to redesign the way it operates towards achieving its organisational goals is conceptualised as 'organisational culture capabilities' (Dauber, Fink and Yolles, 2012). According to Jassawalla and Sashittal (2002), such capabilities enable employees and other organisational members to share diverse views and beliefs, which reflect the way they act towards organisational goals, and promote creativity, flexibility, openness and learning-orientation in order to generate greater innovation outcomes (Tidd and Bessant, 2020). In other words, organisational culture capabilities are known as the social and cognitive environment of firms (Kraśnicka, Głód and Wronka-Pośpiech, 2018).

Baron and Warnaby (2011) further explain the significant relationship between organisational culture capabilities and value co-creation in SMEs. Evidence of this positive contribution often shows its contribution to customer orientation (Wilden, Gudergan and Lings, 2019). Adopting a customer-centric organisational culture enables SMEs to communicate visions throughout the organisation, while employees can truly understand the culture that should be used with customers when interacting and engaging with them in value co-creation for innovation (Songwatanayotin and Bussaracumpakorn, 2017). Such a customer-centric organisational culture involves changing employee attitudes, behaviours and desires to capture, select and share knowledge about customers (Marjanovic and Murthy, 2016). Moreover, Sackmann (2011) argues that *'a combination of external and internal orientation is an ideal combination for a direct positive relationship with performance, even though a stronger external focus seems to be more important'* (p.211). In fact, the development of organisational culture capabilities promotes an atmosphere of confidence and risk-taking, which enables employees to act in the best interests of customers and develop good relationships with them (Rahimi, 2017). Therefore, motivating employees in all units to capture, select, use and share knowledge related to customers across the organisation allows SMEs to positively implement an e-transition model for value co-creation (Stefanou, Sarmaniotis and Stafyla, 2003; Waseem, Biggemann and Garry, 2020). Therefore, adapting organisational culture to correspond to changing environmental factors will enable SMEs to perform better in terms of innovation (Baily, 2008).

Organisational culture enables SMEs to shape the way they think, behave and react to changing customer needs and the changing environment (Zheng, Yang and McLean, 2010). According to Denison and his colleagues (Denison, 1990; Denison and Mishra, 1995; Denison, Nieminen and Kotrba, 2014; Fey and Denison, 2003), four key types of organisational culture should be concentrated on to generate organisational effectiveness towards customer centricity: (i) involvement, (ii) consistency, (iii) adaptability, and (iv) mission. Internal integration to solve customer problems and issues is driven by the traits of involvement and consistency, whereas adaptability and mission help to overcome external environmental factors (Gillespie *et al.*, 2008).

### ***a) Involvement***

Involvement focuses on the commitment and sense of ownership of employees; their involvement in the business processes aimed at value co-creation (Fey and Denison, 2003). Many scholars highlight that the involvement of employees in business processes often helps to facilitate a collaborative work environment within firms and with customers suitable for value co-creation (Amin, Ghazali and Hassan, 2020). Such a collaborative work environment enables communication and knowledge exchange among employees, which leads to better understanding of task requirements and better ways to solve problems (e.g. customer problems) in order to achieve goals (e.g. value co-creation) (Yang and Konrad, 2011). To successfully involve employees in such business processes, it is important to first understand and cultivate employee interest and dedication and to involve them in various activities and processes leading towards organisational goals (Cotton, 1993). Being aware of employees' interests and dedication allows firms to understand their needs and to trust them to participate in customer-centric business processes (Mohiuddin Babu *et al.*, 2019; Morgan and Zeffane, 2003). Riordan, Vandenberg and Richardson (2005) explain the organisational culture of employee involvement in four ways: (i) employees should have the power to make decisions; (ii) training and other related programmes should be provided to improve employees' skills and knowledge to complete their tasks; (iii) information should be shared across the organisation; and (iv) rewards should be provided for their participation in decision-making, information sharing and training.

Specifically, firms should provide opportunities to employees to experiment with their ways of serving customers, which in turn will motivate and encourage them to be more involved in value co-creation activities (Vlašić and Tutek, 2017). Participative decision-making is a concept in which employees have control over their decisions, which affects the way they work and take actions, and their motivation towards organisational goals (Nohria, Groysberg and Lee, 2008). However, involving employees in participative decision-making processes alone does not affect the performance and morale of individuals. Instead, they should be developed in alignment with other elements of organisational culture (Phipps, Prieto and Ndinguri, 2013). For example, firms need effective information sharing processes; it is often argued that open communication is required for employees to be able to receive the information needed to make effective decisions (Thomas, Zolin and Hartman, 2009). Without information, it is not possible for employees to act responsively (Schreurs *et al.*, 2013).

Furthermore, firms can also encourage employees to work in teams and improve their skills through various training programmes (Ibarra, Ganzarain and Igartua, 2018). Such programmes enable employees to develop the knowledge and skills required to effectively perform in relation to value co-creation (Amah and Ahiauzu, 2013). That is, training programmes often promote leadership emphasis, peer involvement and employee empowerment, which develop an

organic and sustainable organisational culture for value co-creation (Roscoe *et al.*, 2019). Without sufficient employee skills, it is challenging for a firm to effectively adopt an e-transition model of value co-creation (Lee and Ng, 2020). These skills, such as creativity, can facilitate not only a continuous improvement in employee performance, but also provide radical ideas to make a more effective transition towards technology-enabled value co-creation (Pitchayadol *et al.*, 2018). To promote such skills and knowledge development, firms can also focus on performance-based rewards to encourage employee involvement in a more effective way (Pun, Chin and Gill, 2001). In other words, allowing employees a greater degree of decentralised decision-making will generate a higher level of information dissemination and application, as well as greater learning regarding value co-creation in SMEs, given that they will be rewarded based on their performance (Bamberry, Sabri-Matanagh and Duncan, 2015).

### ***b) Consistency***

Consistency refers to the shared values and efficient systems and processes of organisations, which help to align everything together in order to provide quality outcomes over time (Denison and Mishra, 1995). Leitch (1999) explains the concept of organisational consistency as '*an externally imposed and centrally controlled set of norms about an organisation's visual identity.*' (p. 5-6). The products and services provided by firms must project their core values and standards in order to move the whole organisation towards its goals. Consistent firms are more likely to promote integration, coordination and control within organisational systems (Kotrba *et al.*, 2012). To successfully ensure such consistency, firms need to explain their various methods of doing business and to promote consistency in employee behaviour geared towards value co-creation (Rahimi, 2017). Core values act as a guideline to collaboratively engage customers in value co-creation processes and to gain knowledge of innovation initiatives (Bedarkar *et al.*, 2016).

Based on empirical evidence, scholars have highlighted a positive relationship between organisational consistency and a firm's marketing performance, specifically in terms of value co-creation (e.g. De Chernatony and Cottam, 2008). It has often been shown that organisational consistency strongly influences the way employees work and behave towards collaborating and connecting with customers (e.g. Rahimi, 2017). That is, a firm's ability to maintain consistency in its working style motivates employees to share and exchange knowledge within and across the organisation in a more effective way (Pool *et al.*, 2014). Specifically, consistent firms are more likely to maintain the quality of interaction, collaboration and other related services with customers, which reflect the overall organisation and its value co-creation aims (Olughor, 2014). In other words, consistency lies within the attitudes, actions and working style of employees aimed at value co-creation (Mujeeb, Masood and Ahmad, 2011).

Moreover, firms should also develop internal consistency by constantly focusing on customer needs to ensure that customer demand can be integrated with their competencies in order to provide the best solutions for value co-creation for innovation (Zeraatkar, Roudneshin and Sobhanallahi, 2020). Adopting a teamwork environment is also significant in promoting organisational consistency; i.e., interpreting new information across units, generating a smooth and knowledgeable sharing process (Zheng, Yang and McLean, 2010) and maintaining consistent performance towards value co-creation (Bamberry, Sabri-Matanagh and Duncan, 2015). That is, different organisational functions and units should work together to achieve value co-creation, which enables them to effectively align customer value and integrate it into innovation processes (Halim *et al.*, 2014). As a result, firms can co-create innovation initiatives and ideas with customers (Rahimi, 2017).



### *c ) Adaptability*

Adaptability refers to a firm's ability to translate the demands of the organisational environment into action and to have the capability to create and accept changes (Rahimi, 2017). Adaptability involves understanding customer needs, addressing their problems, and organisational learning in creating changes to better meet demands (Mujeeb, Masood and Ahmad, 2011). The degree to which an organisation can quickly adapt and respond to external changes enables it to better identify, understand and predict customer needs, as well as to translate these into business opportunities (Denison and Mishra, 1995). Based on the dynamic capability literature, adaptability, sometimes called 'organisational adaptive capabilities', enables firms to become more flexible and ready to adapt to any changes in the market, resulting in better implementation of strategies towards value co-creation (Heider *et al.*, 2020). Although most firms focus on being good at particular things, it is also important that they learn how to adapt and implement new developments to generate better outcomes. That is, firms need to quickly read and react to signals of change and accordingly experiment with their ways of improving current situations, including current business models, products and/or services (Reeves and Deimler, 2011). Specifically, adaptability is more likely to encourage employees to be more open to challenges, identify new opportunities and experiment with their ways of doing things, thus influencing their creativity in interacting and collaborating with customers (Zeraatkar, Roudneshin and Sobhanallahi, 2020).

Adaptability can also be seen to comprise three major aspects: (i) market adaptability, (ii) technology adaptability and (iii) management system adaptability (Akgün, Keskin and Byrne, 2012). Since value co-creation for innovation can be viewed in relation to products, service or organisational processes, it is important to develop something new or to implement different approaches to meet such changing situations (Halim *et al.*, 2014). Specifically, firms should be flexible and ready to adapt to any changes in markets, technologies and management systems in order to effectively facilitate customer integration in value co-creation processes aimed at innovation (Ali, Sun and Ali, 2017). In other words, adaptability plays the key role in supporting the integration of technologies in business processes in connecting and collaborating with customers (Rahimi, 2017).

To successfully become adaptive towards such changes, Gavric *et al.* (2016) argue that promoting risk-taking behaviours enables firms to create an open-minded environment in which employees can learn about and adapt to market changes. Employees who are open to challenges and ready to take risks are more likely to learn faster, experiment in different ways and identify opportunities that best suit customer needs and engage them in interactions and value co-creation processes (Staber and Sydow, 2002). Firms can find solutions that are more creative in nature, and which encourage customers to participate, thus resulting in customer engagement in various activities with firms. Therefore, altering employees' behaviours towards adaptability promotes firms' ability to create change, understand customer needs, and continuously learn in order to effectively react to external changes, and allows them to form a customer-centric organisational culture that supports the e-transition towards value co-creation (Jouny-Rivier, Reynoso and Edvardsson, 2017). As a result, firms can stay competitive in terms of innovation (Getnet *et al.*, 2019).

#### ***d) Mission***

Mission refers to a firm's purpose; it guides the whole organisation towards understanding why it exists and where it is heading (Denison and Mishra, 1995) and provides a clear sense of strategic directions and a vision of how a firm should advance towards its goals (Halim *et al.*, 2014). Having a clear purpose and direction that define the organisational goals provided to employees gives clear direction on how they should complete their work (Mujeeb, Masood and Ahmad, 2011). *'A good mission statement must allow for the firms to formulate, analyse and implement a range of feasible alternative strategies without unduly stifling management creativity'* (Kemp and Dwyer, 2003, p.637). Although Babnik *et al.* (2014) argue that a mission can be considered from various aspects, including those of stakeholders, stability, innovation or growth, it is important to understand the role of an organisational mission in supporting the organisational culture aimed at achieving value co-creation (Storbacka *et al.*, 2012). That is, the mission acts as a major tool used to determine resource allocation, management procedures and systems in achieving organisational goals (Pitchayadol *et al.*, 2018). In addition, organisational goals and objectives reflect the priorities and value of firms with regard to value co-creation (Martins and Terblanche, 2003).

A mission often states the values which guide employee behaviours and communicates these to external stakeholders, including customers, in order to collaboratively create solutions for innovation (Wartnaby, 2014). For example, Luu (2019) emphasises the need to develop missions towards corporate social responsibility (CSR) as a 'pull' strategy to influence customers to contribute their knowledge and to co-create value with firms. On the other hand, Kennedy and Guzmán (2016) argue that a firm's mission determines its market and customer orientation and how it integrates customers in developing new products and services in order to differentiate and generate value towards innovation. In addition, it is important for firms to develop missions and strategies that allow the integration of technologies in order to better organise and manage value co-creation activities with customers (Kim and Choi, 2019). To successfully implement missions, visions and organisational goals, Rahimi (2017) argues that implementing team objectives and task orientation are effective ways to start the process; for example, sharing and agreeing on an integrated pathway with employees, which leads to better learning and implementation of innovation. Specifically, firms with a clear strategic direction are more likely to shape their employees towards understanding the purposes of completing their tasks, which enables them to act creatively and innovatively in terms of value co-creation (Sharifirad and Ataei, 2012). In other words, by making employees understand how customer-centric behaviours benefit them, the improvement in their performance will also benefit and help to create an organisational culture that supports an e-transition model of value co-creation for innovation (Arussy, 2013). Therefore, the development of an organisational mission will help to motivate employees to facilitate value co-creation with customers aimed at innovation (Waseem, Biggemann and Garry, 2020).

It can be concluded from the arguments that organisational culture does not directly influence organisational effectiveness, but instead it helps to shape employees' mind-sets and behaviours related to customer centricity (Zheng, Yang and McLean, 2010). Specifically, organisational culture capabilities provide a useful mechanism for firms to create common shared values and assumptions, which allow employees to collaborate and work towards value co-creation with customers (Sharma and Singh, 2017). In short, the development of organisational culture capabilities helps to focus on employees' behaviours (Connolly *et al.*, 2017) and maintain quality management (Sinha and Dhall, 2020) in achieving organisational goals (in this case, value co-creation). Therefore, focusing on these four specific aspects of organisational culture enables SMEs to effectively and successfully reconfigure their internal capabilities from product-centric to customer-centric

business models in order to better understand customers and involve them on social media in value co-creation processes geared towards innovation (Foss, Laursen and Pedersen, 2011). Moreover, Morrison and Teixeira (2004) argue that not only is shaping the state of mind of employees necessary when transitioning from product-centric to customer-centric business models aimed at value co-creation, but also the way firms operate and communicate among themselves and with customers. The development of organisational structure capabilities allows firms to provide optimal support for their processes, which leads to a desirable innovation environment (Pitchayadol *et al.*, 2018). Through organisational structure, firms can facilitate critical information distribution and organisational learning (Odor, 2018). The way firms work within the structure also helps them to deploy dynamic capabilities, which in turn enhance innovativeness (Tran, Zahra and Hughes, 2019).

### **2.4.2 Organisational Structure Capabilities**

Lee et al. (2015) illustrate the importance of organisational structure for the e-transition towards value co-creation. Establishing a better position for firms to satisfy customers and involving them in business processes in turn results in superior performance and firm competitiveness (Gattiker, 1990; Wilden, Gudergan and Lings, 2019). A typical organisational structure is commonly defined as the way an organisation divides its work into distinct tasks, so that employees can coordinate across it (Mintzberg and Quinn, 1991). Its main aim is to facilitate '*market information acquisition and dissemination and the coordinated creation of customer value*' (Narver and Slater, 1990, p.21). Although SMEs often operate with a less complex organisational structure due to their small size, they are more receptive to change and support customers in relation to innovation through their internal structure (Nouicer, Zaim and Abdallah, 2017; Schindehutte and Morris, 2001; Wee and Chua, 2013). For example, redesigning hierarchical relationships, matrix structures and cross-functional teams allows coordination between organisational units, helping them to effectively implement strategies for value co-creation (Galbraith, 2005). Such a decentralised system of control promotes employee productivity and efficiency, which enhances the way they connect and deliver services to customers (Funminiyi, 2018). A decentralised organisational structure also helps to facilitate the distribution of critical information (Odor, 2018) and enhance organisational learning and greater knowledge creation (Turi and Sorooshian, 2019). Therefore, organisational structure capabilities enable firms to create various activities that better connect with customers (Nouicer, Zaim and Abdallah, 2017). Such a structure is often defined by three key constructs: (i) formalisation, (ii) coordination, and (iii) specialisation (Gentile-Lüdecke, de Oliveira and Paul, 2020; Willem and Buelens, 2009).

#### ***a) Formalisation***

Formalisation is the degree to which rules, systems and procedures determine the duties, decisions and working relationships of organisational members (Schminke, Ambrose and Cropanzano, 2000). The rules and procedures provide a guideline on appropriate behaviours, which in turn reduces the cost of mistakes and errors and increases efficiency, as problems can be dealt with more effectively (Olson, Slater and Hult, 2005). Based on dynamic capabilities, a firm's formal structure provides certain mechanism levels, including hierarchical or procedural prescriptions, to complete tasks (Mattes, 2014). Although innovation scholars highlight the positive influence of formalisation on the process of

knowledge sharing and exchange towards value co-creation and innovation (e.g. Yasir and Majid, 2017), they often argue that firms' organisational structure can go beyond the traditional line organisation and start to include a degree of flexibility (Mattes, 2010). That is, if firms focus on formalisation alone, they are more likely to obstruct their impulsiveness and flexibility (Maduenyi *et al.*, 2015), which will limit the creativity of employees in co-creating innovation initiatives with customers (Romero and Molina, 2011).

Recent studies provide evidence showing that both formal and informal organisational structures influence the way firms integrate IT in business processes aimed at innovation (Jonathan, 2020). Although formalisation is often viewed as a strong foundation for organisational structure, there is still a growing demand for some flexibility in it (Flecker and Meil, 2010). It is argued that firms should maintain some formal structures, while providing certain levels of freedom for employees to complete their tasks (Scott, 2013). Relying solely on formalisation may cause employees to become cynical, which will negatively affect the way they work, while being highly decentralised may lead to a loss of control (Alavi *et al.*, 2014). Willem and Buelens (2009) argue that firms with fewer formal hierarchical levels and procedures can eliminate the barriers to working relationships, enabling organisational members to work closely together. With some flexibility, employees are encouraged to share, exchange and transfer knowledge on customer needs (Peters and Batenburg, 2015). A good balance of formal and informal structures enables employees to discuss different topics together in order to generate better insights into the way they can effectively engage customers in value co-creation processes (Chew, Semmelrock-Picej and Novak, 2013). Therefore, the combination of both formal and flexible structures enables firms to focus on adapting work practices, which suitably meet changing customer demand for innovation (Prakash and Gupta, 2008). As a result, such firms can enhance the collaboration between employees and with customers (Funminiyi, 2018), which results in greater innovation (Cosh, Fu and Hughes, 2012).

Moreover, formalisation is often developed in alignment with other aspects of organisational structure capabilities, including coordination and specialisation (Flecker and Meil, 2010). To effectively implement some formal and flexible structures, the literature argues that firms should also focus on communication and coordination within and between organisational units or teams in order to generate organisational learning related to innovation (Mattes, 2014). Coordination allows free flows of formal (or vertical) and informal (or horizontal) communication among employees, which promotes the way they work within rules and regulations to find the best solutions for value co-creation processes. Hence, formalisation is more likely to require coordination to encourage interactions among employees (Rahmat and Ali, 2010).

### ***b) Coordination***

Coordination among employees and organisational units allows firms to share knowledge more smoothly in order to find the best solutions for customers (Bonacchi and Perego, 2011). This ranges from coordination within and across teams, to informal coordination among employees (Galbraith, 2005). With increasing uncertainties in the market and in customer demand, firms may require different types of coordination, including vertical, horizontal and informal types, to develop an information processing capability to manage such situations (Morschett, Schramm-Klein and Zentes, 2010). Vertical coordination occurs when there is collaboration between managers and employees from different hierarchical positions (Cravens and Piercy, 1994). However, this type of coordination has been dramatically reduced and firms instead focus

more on flexibility, decentralised decision-making, knowledge sharing, and teamwork, which can be enabled through the adoption of horizontal and informal coordination among employees (Cosh, Fu and Hughes, 2012).

Recent co-creation studies provide evidence demonstrating a positive effect of organisational coordination on knowledge sharing related to value co-creation (e.g. Khan, Usoro and Crowe, 2020). Although inter-departmental collaboration requires more time and resources, it reduces the risk of coordination failure and enhances value co-creation and innovation performance (Cuijpers, Guenter and Hussinger, 2011). Organisational coordination and collaboration help to leverage interdepartmental relationships and develop capabilities that enable firms to share and exchange knowledge more effectively, as well as finding solutions for better value co-creation processes with customers (Indriastuti, 2019). As a result, firms can generate better innovation outcomes in terms of products and services (Cordon-Pozo, Garcia-Morales and Aragon-Correa, 2006), creating superior value with customers, and thus resulting in competitive advantages (Mukhtar and Azhar, 2020). In other words, a firm's inter-functional coordination plays a significant role in customer-related performance (Mohiuddin Babu, 2018).

Moreover, informal coordination is also important when integrating relevant parties (customers) in business processes. This occurs when there are personal contacts between managers and employees across different units of the organisation (Morschett, Schramm-Klein and Zentes, 2010). Such informal communication and coordination can be encouraged by organisational meetings, trips and personal visits. This type of coordination can be in person or through the use of technologies (e.g. video conferencing and social media). Specifically, informal coordination helps to enhance discussion among employees and knowledge exchange, which can be converted into ideas to integrate customers in value co-creation processes in a better way. In other words, firms can enhance communication flows and knowledge sharing across the organisation by strengthening horizontal coordination (Hinds and Kiesler, 1995).

Therefore, firms with coordination capabilities are keen to identify problems and solve them effectively through discussion among employees. Specifically, coordination helps to facilitate knowledge sharing and exchange among employees to find better ways to integrate customers in value co-creation processes, especially in technology-enabled value co-creation (Chew, Semmelrock-Picej and Novak, 2013). Hence, encouraging all kinds of coordination across an organisation will allow firms to share knowledge and make decisions on customer centricity and value co-creation more effectively (Homburg, Workman Jr. and Jensen, 2000). In other words, coordination within and across organisational units often generates better decision-making processes related to innovation (Mutebi *et al.*, 2020).

### ***c) Specialisation***

Specialisation refers to the degree to which tasks and activities are divided in an organisation (Mintzberg, 1989), and often leads to the development of specific knowledge held by a group of individuals, which is used by organisational units (Hansen, 1999). The concept of specialisation aims to organise and develop individual competencies, and combine them into groups to facilitate knowledge creation and integration (Cosh, Fu and Hughes, 2012). A higher level of specialisation often generates access to knowledge, including discussion and exchange among specialised employees, leading to the creation of substitute and transfer knowledge (Becker and Zirpoli, 2003). Employees in different specialised teams can also work together to generate the knowledge required to fill gaps based on their past experiences. For example, each specialised team can share the issues they face when they interact or collaborate with customers in value co-creation

processes in order to find solutions to how to overcome or prevent such problems arising in the future (Brusoni, Prencipe and Pavitt, 2000). In other words, specialisation enhances the learning process of firms in their pursuit of innovation.

The extent to which firms should focus on specialisation depends on their overall organisational structure. A higher level of specialisation is often adopted in organic organisations (or flexible or decentralised ones) to increase their knowledge base; however, it also increases coordination costs and reduces the flexibility of organisational structure (Cosh, Fu and Hughes, 2012). In the case of these disadvantages, some firms may also choose to implement a lower level of specialisation to avoid incurring costs and to maintain some formal structures (Meijaard, Brand and Mosselman, 2005). Therefore, there is a link between formalisation, coordination and specialisation (Brusoni, Prencipe and Pavitt, 2000). Different specialised units may focus on different aspects of organisations and specialists are given substantial autonomy to complete their tasks related to organisational goals and objectives (Willem and Buelens, 2009). Focusing solely on specialisation may not facilitate knowledge creation and transfer unless all the specialised teams are coordinated with each other, with the support of formal and informal structures. Instead, the quality of such knowledge generation depends upon the cooperation between specialised units (Siva, Gremyr and Halldórsson, 2018). Specifically, when firms co-create with customers, they need to integrate customer knowledge with their specialised skills and knowledge in order to provide customised solutions for innovation (Aarikka-Stenroos and Jaakkola, 2012). Without specialisation, firms are less likely to develop the relevant skills required to support customer integration in value co-creation processes (Wang et al., 2019). In other words, specialisation is a dynamic capability that directly deals with turbulent and hostile environments, enabling firms to collaborate with customers more effectively in such processes (Keeling, Laing and Newholm, 2015). As a result, firms can move towards innovation in a sustainable manner by engaging customers in value co-creation (Siva, Gremyr and Halldórsson, 2018).

Therefore, firms need to restructure themselves, including the development of better coordination between organisational units, utilisation of resources and capabilities, and customer-centric decision making, in order to identify and address customer problems, involve customers in value co-creation processes and accordingly provide the best possible solutions to customers (Bolton, 2004; Shah *et al.*, 2006). The degree to which SMEs formalise themselves, coordinate among themselves and create specialised units determines the level to which they can support value co-creation processes with customers for greater innovation (Husain, 2018). In short, organisational structure capabilities enhance the opportunities for employees and customers to be involved in business processes (Odor, 2018). However, Trainor (2011) further argues that capabilities can also be developed by integrating technologies, and human and business resources. Using technologies in customer-centric business models will enable firms to become closer to customers and involve them in value co-creation processes for innovation (Breibach and Maglio, 2016).

### **2.4.3 E-Marketing Capabilities**

Strauss, El-Ansary, and Frost (2006) highlight the need to integrate technological resources in organisational ones and capabilities. Following the concept of operant resources, technological resources are considered to be basic operant ones that need to be developed at the same time as organisational and human resources (Madhavaram and Hunt, 2008). The definition of technological resources is often associated with intangible ones, including intellectual properties, skills, reputation and networks (Zahra and Kirchhoff, 2005). With such resources, firms are capable of contributing to the

success of innovation by reducing the chances of ‘competency traps’ and increasing the opportunities for value co-creation with customers (Srivastava and Gnyawali, 2011). A firm’s ability to integrate technological resources with organisational ones is more likely to facilitate better strategic implementation towards value co-creation and innovation (Rodríguez-Duarte *et al.*, 2007).

According to Sheth, Sisodia and Sharma (2000), the integration of technological resources includes the use of information technologies to help facilitate market orientation and the way firms interact with customers. The concept of e-marketing comprises both direct and indirect responses to the markets via the use of technologies to assist with this interaction (Taherdoost and Jalaliyoon, 2014). The ability of a firm to effectively use the internet and other information technologies to facilitate rich interactions with customers in order to quickly respond to their needs and to continuously involve them in value co-creation processes towards greater innovation is therefore termed ‘e-marketing capabilities’ (Trainor *et al.*, 2011). The original concept of e-marketing capabilities often focused on the use of the internet, while Brady, Saren and Tzokas (2002) extended the concept beyond internet-based marketing to include marketing research, planning and customer relationship management, which in turn contribute to better customer engagement in value co-creation processes (Day and Bens, 2005). Coviello, Milley and Marcolin (2002) explain that the development of e-marketing capabilities often focuses on real-time dialogue enabled by information technology, which allows firms to generate customer data. The use of social media can be an effective way to generate up-to-date information from interactions with customers (Strauss, Frost and Sinha, 2014). For example, the process can also be conducted through an online network, such as online communities, that bring together individuals with the same interests to share information regarding products and services, allowing firms to create conversations with customers, and replacing the traditional ways of marketing (Brodie *et al.*, 2007). These interactions provide customers with access to firm resources and information, while at the same time firms can obtain customer information that provides a rich set of insights into products and services, as well as developing and maintaining customer relationships (Jayachandran *et al.*, 2005). In other words, with e-marketing capabilities, firms can not only float on online marketing streams, but also take the lead in them (Meriläinen, 2017). As a result, firms can gain competitive advantage (Sarkum and Syamsuri, 2021).

Although a number of scholars have illustrated the importance of technology in interfacing with customers, Trainor *et al.* (2011) focus on how technology is fused with firms’ business processes; i.e., aligning technology, and human and business resources together to facilitate the use of technology in customer integration in business and innovation processes. For example, Harrigan, Ramsey and Ibbotson (2008) illustrate an e-CRM strategy that allows firms to perform better in their marketing on the internet. Harrigan, Ramsey and Ibbotson (2012) argue that to effectively develop e-CRM capabilities, firms also need to develop customer communication and customer information management capabilities. E-CRM has the ability to enhance customer communication capabilities by facilitating quicker and more responsive interactions between firms and customers (Verhoef, Reinartz and Krafft, 2010), which in turn allows firms to personalise specific communications, which leads to more targeted marketing and customer satisfaction (Harrigan, Ramsey and Ibbotson, 2008; Shin, Perdue and Pandelaere, 2020; Verhoef, Neslin and Vroomen, 2007). Firms need an effective customer information management strategy in order to benefit from effective information acquisition and analysis, in order to form decision making towards customer demand (Keh, Nguyen and Ng, 2007). Such a customer information management strategy includes the firm’s ability to track customer interaction and support outbound communication with them (Meriläinen, 2017).

Chong, Man and Zhang (2011) further explain that the development of e-marketing capabilities allows firms to not only develop and maintain relationships with customers (or CRM), but also to gain access to the transparency and visibility of information. Specifically, firms can better understand customer behaviours and accordingly interact with them to implement tactical plans on conducting value co-creation activities with customers (Meriläinen, 2017). Based on the literature review, Herhausen et al. (2020) argue that an integration of social media technologies is more likely to lead to information and knowledge sharing between firms and customers and facilitate customer participation in online activities for greater innovation. Similarly, Trainor (2012) describes social CRM capability as *'the integration of traditional customer-facing activities, including processes, systems and technologies with emergent social applications to engage customers in collaboration conversations and enhance customer relationships'* (p.321). He argues that distinctive capabilities are often created not only by deploying technological resources, but also by integrating them with other organisational resources in order to generate, disseminate and respond to customer information obtained from online interactions (Malthouse *et al.*, 2013). As a result, firms can obtain customer acquisition, conversion and experience more effectively, generating long-term customer value (Meriläinen, 2017). Therefore, combining technological, human and business resources enables firms to integrate the use of social media in an e-transition model in order to better understand customers and involve them in value co-creation processes geared towards innovation (Wu, Mahajan and Balasubramanian, 2003).

## 2.5 Summary

This chapter has explained and discussed the theoretical foundation underpinning the research, with the aim to generate deeper understanding of the research background, gaps and motivation, and shedding light on the importance of an e-transition model of value co-creation for innovation from a capability-based perspective. The literature review has shown that current marketing scholars emphasise the need for a shift from product-centric to customer-centric business models for value co-creation (Geissdoerfer *et al.*, 2020). S-D logic scholars highlight that value co-creation is often viewed as a single process towards new product development; i.e. value co-creation is organised and managed to engage customers in co-creating new products or services towards greater innovation (Ranjan and Read, 2016). However, different types of firms may not always view value co-creation in relation to such a product innovation. Instead, they may require organising different types of value co-creation activities to achieve different aspects of innovation in a given time period. Instead, value co-creation should occur in different ways at different stages of innovation (Lichtenthaler, 2011). To support such customer integration, firms need to integrate the use of social media to connect, interact and collaborate with customers to generate different value that benefits both parties, in terms of products, services and experiences, at different stages of innovation (He and Lu, 2016).

Although current research emphasises the importance of value co-creation on social media as an effective way to achieve innovation (Rashid *et al.*, 2019), it is unclear how firms can successfully implement such business models using social media to achieve greater innovation (Tian *et al.*, 2021). Current value co-creation literature often highlight different types of capabilities to support customer integration in innovation processes in a non-integrated way. However, there is still a need to identify and understand the types of capabilities that are primarily required by firms, especially SMEs with limited resources, to successfully implement an e-transition model to achieve value co-creation (Haaker *et al.*, 2021). This research addresses this gap by focusing on the development of necessary capabilities, rather than combining all relevant



capabilities highlighted in the literature, to support such a process in a single study. Embedded in S-D logic (Vargo and Lusch, 2017) and the dynamic capability approach (Eisenhardt and Martin, 2000), this research aims to develop and empirically test an integrated framework that conceptualises the key capabilities required supporting an e-transition model. It explores the enabling role of social media and key capabilities to facilitate customer integration in value co-creation processes, specifically in the four types of value co-creation, namely co-ideation, co-production, co-process and co-experience. In addition, the research examines both the direct and indirect relationships of the key capabilities of value co-creation in order to develop an e-transition capabilities model.

To address the research aim, a pragmatic paradigm and a mixed methodology to explore and examine the role of social media and key capabilities in supporting an e-transition model of value co-creation are employed. The following chapter discusses the theoretical presuppositions considered in the research (e.g. positivism, interpretivism and pragmatism) and how they informed the decisions on adopting a mixed methodology, specifically exploratory sequential design research.

## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1 Theoretical Presuppositions

Research is often described as a systematic investigation conducted to understand a particular phenomenon through data collection, analysis and interpretation, in order to gain knowledge in the forms of laws, theories or theoretical frameworks (Burns, 1997). This process is often referred to as a 'paradigm' (Bogdan and Biklin, 1998), and was first proposed by Kuhn (1962) as a way of thinking or as an approach to a problem. All paradigms are based on ontological and epistemological beliefs and assumptions of reality and knowledge (Scotland, 2012). Ontology is 'the study of being' (Crotty, 1998, p.10). It is associated with the nature of reality: things that exist, the conditions of their existence, and their relationships (Saunders, Lewis and Thornhill, 2009; Blaikie, 2009), whereas epistemology is concerned with 'the nature and forms of knowledge' (Cohen, Manion and Morrison, 2007, p.10). Epistemological assumptions are often concerned with how knowledge can be created, acquired and communicated to others (Burrell and Morgan, 1979). In other words, an epistemological position is a belief system that influences how research questions can be answered (Morgan, 2007). The ontological and epistemological beliefs of researchers are the determinants of their relationship with participants, the quality of the methods adopted, and their conceptualisation and communication processes with participants/audiences (Killam, 2013). Such beliefs therefore reflect on the research methodology and axiology (Dillon and Wals, 2006).

Methodology refers to a systematic way of discovering knowledge in the social world (Burrell and Morgan, 1979). It is often concerned with why, what, when and how data is collected and analysed (Guba and Lincoln, 1994). It is the strategy of how methods are used in research (Crotty, 1998). Such methods can either be quantitative or qualitative. Quantitative methods are often associated with statistical analysis, whereas qualitative ones aim to produce narrative analysis of the phenomenon (Bryman and Bell, 2015). On the other hand, axiology is concerned with the nature of research values and ethics (Killam, 2013). Values play a significant role in interpreting results, whereas ethical behaviours are important in terms of the quality of data collection, analysis and interpretation (Godfrey-Smith, 2001). Both research values and ethics therefore help to determine the research quality and the overall contribution to the paradigm (Saunders, Lewis and Thornhill, 2009). Therefore, committing to ontological, epistemological, methodological and axiological positions often determines research approaches towards a particular phenomenon (Grix, 2004). According to Saunders, Lewis and Thornhill (2012), research philosophy can be divided into positivism, interpretivism and pragmatism.

#### 3.1.1 Positivist Paradigm

Positivism, or the scientific paradigm (Crotty, 1998), is the study of the natural world (Cohen, Manion and Morrison, 2007, p.10). The term 'positivism' originated in the social evolution proposed by Comte (1975) and has evolved as a methodological positivism of scientific research practices (Steinmetz, 2005). *'Methodological positivism refers to a concept of knowledge, a concept of social reality, and a concept of science'* (Riley, 2007, p.115). Methodological positivism has been used extensively with large datasets, and quantitative and statistical methods of analysis (Benton and Craib, 2001). The inductive theoretical perspective is often followed under this paradigm; i.e. positivist researchers aim

to test the existing hypotheses or theories by confirming or disconfirming statements that represent causal effects of the existence of an independent domain of knowledge (Mingers, 2008). Under a positivist approach, social entities exist externally of social actors (Saunders, Lewis and Thornhill, 2009). That is, the social phenomenon and the researcher are independent entities (Crotty, 1998). According to Ashby (1964), positivist epistemology is based on theory testing in order to generate confirmation or falsification of the observation. Positivist researchers tend to value objectivity in order to discover absolute knowledge in reality (Ryan and Sfar-Gandoura, 2018). They believe that reality is controlled by unchangeable natural causes and is independent of human minds and actions (Blaikie, 2009; Phillips, 1987); objective knowledge can be obtained through scientific methods (Scotland, 2012). As a result, the findings of research are based on data and facts (House, 1991) and are considered to be value-free (Saunders, Lewis and Thornhill, 2009).

Although positivism aims to understand the natural world by simplifying and controlling variables, it is not always directly transferable to other social worlds (Scotland, 2012). Some variables may be hidden and only become known when they have an effect on a particular situation (House, 1991). Focusing only on control variables is one of the limitations of positivism, as the real world can also be influenced by human interaction (Leplin, 1984). That is, positivism fails to focus on empathic understanding of social phenomena from an individual point of view (Rodwell, 1987). Learning about how people live, experience and adjust to the world is therefore essential (Hasan, 2016). In addition, understanding the way individuals attach their own thinking and meanings to social entities is important in better understanding phenomena, specifically in this case the changes required in e-transition capabilities. In other words, rich insights into the complex world are often lost when focusing on only control variables and generalisations (Saunders, Lewis and Thornhill, 2009).

### **3.1.2 Interpretivist Paradigm**

Interpretivism was developed through the critique of positivism from a subjective perspective (Walsham, 1995). It focuses on developing understanding of the world through the interpretation of its participants, including their emotions and experiences (Creswell, 2003), and considers humans as a separate from reality, as they create in-depth meanings which need to be explored (Alharahsheh and Pius, 2020). Interpretivist researchers are said to be hermeneutic in nature and have deductive theoretical perspective; i.e., they focus more on the interpretation of phenomena to develop theories (Mertens, 2005). Social phenomena are said to be created from the perceptions, behaviours and interactions of social actors (Saunders, Lewis and Thornhill, 2009; Orlikowski and Baroudi, 1991) and are shaped by individuals and how they are involved and enact with meaning in a particular phenomenon (Goldkuhl, 2012). Interpretive researchers believe that the social world is prestructured and can only be observed and understood from the viewpoints of individuals who are directly involved in the phenomenon being investigated (Cohen, Manion and Morrison, 2007). Different people may construct meanings in different ways, depending upon their consciousness of the world (Crotty, 1998). In other words, interpretivism aims to understand hidden social forces and structures within a phenomenon to develop theories (Scotland, 2012).

Although the interpretive paradigm focuses on individual meanings, its validity is often questioned. Since reality is subjective and differs from person to person, it is difficult for researchers to approach participants with the same interpretations (Rolfe, 2006; McEvoy and Richards, 2006). This is supported by Granovetter's (1985) statement on the limitations of interpretive methodology, in which researchers often fail to relate discourses to the underlying social

structures that may actually influence individuals' actions. Specifically, interpretivism *'rejects knowledge developed as foundation base shared as a universal law, and questioning its validity, and requires different set of criteria from the ones adopted in the positivist paradigm'* (Alharahsheh and Pius, 2020, p.42). Therefore, knowledge produced by the interpretive paradigm is not transferrable, as the interpretations of qualitative data involve subjective individual constructs (Scotland, 2012). In other words, the data collected and analysed will be less likely to be generalisable through the adaptation of interpretivism (Saunders, Lewis and Thornhill, 2012).

To conclude, positivism focuses on theory testing through observable variables in a controlled environment. However, in reality, human interactions also play a part in particular situations or phenomena. Interpretivism, on the other hand, focuses on understanding the real world through the interpretation and meaning of the participants to develop theories. The interpretation often differs from person to person, which acts as a barrier to generalisation (Scotland, 2012). Hence, both positivism and interpretivism focus on different ontological and epistemological beliefs, and have their own strengths and weaknesses (Saunders, Lewis and Thornhill, 2009). Both can be seen as appropriate at different levels of analysis (Hasan, 2016). Previously, researchers were required to choose either a quantitative or a qualitative approach in a single study to represent a research paradigm; for example, adopting a quantitative approach to represent a positivist paradigm, or a qualitative one to represent an interpretivist paradigm (Bryman and Bell, 2015). However, choosing only one approach may limit the findings (Cherryholmes, 1992). In recent years, there have been debates over the relationship between the paradigm and methodology, or what is termed as the 'paradigm wars', as choosing a particular paradigm often limits researchers to adopting mono-method research (Tashakkori and Teddlie, 2003). According to Mingers (2001), each paradigm has its own strengths and weaknesses that contribute to a different kind of knowledge. The introduction of a pragmatic paradigm aimed to facilitate better answers to research questions and to produce divergent findings (Tashakkori and Teddlie, 2003).

### **3.1.3 Pragmatic Paradigm**

Pragmatism is a paradigm that focuses on selecting the most appropriate method(s) from both the positivist and interpretive perspectives in order to best answer research questions (Creswell, 2003). Unlike positivism and interpretivism, the pragmatist paradigm considers the importance of both claims about the nature of human experiences; i.e., that individual experiences are constrained by the nature of reality, as well as by their interpretation (Morgan, 2014). Pragmatists argue that the research question is the most significant determinant of the research philosophy, as positivism and interpretivism are complementary (Saunders, Lewis and Thornhill, 2009). Pragmatism tends to follow the concept of abduction; that is, moving back and forth between induction and deduction (Shannon-Baker, 2016; Morgan, 2014). Pragmatic epistemology is based on both objectivism and subjectivism (Saunders, Lewis and Thornhill, 2009). Pragmatists believe that theories can be both contextual and objective by maintaining both subjectivity in their own reflections on research, and objectivity in the data collection and analysis (Morgan, 2007). Adopting both concepts of epistemology allows pragmatic researchers to better understand phenomena and provide in-depth insights into the research (Shannon-Baker, 2016). In other words, abductive theoretical perspective allows researchers to convert observations into theories and assess those theories through actions (Venkatesh, Brown and Sullivan, 2016).

Pragmatic methodology usually follows a pluralist position, using whatever methods are most suitable to answer the research questions (Goles and Hirschheim, 2000). Multiple research methods allow methodological triangulation to be employed in order to understand complex social phenomena (Bryman and Bell, 2015). Data collection can be conducted using both qualitative and quantitative methods at the same time (Creswell, 2003). A qualitative approach can be used to explore and understand the context of the studied phenomenon and to develop different propositions or theories that can be tested in quantitative analysis in order to best answer the research questions (Mingers, 2001). In this way, the deficiencies of one method can be overcome by the strengths of the other, thus improving the data collection, analysis and interpretation (Blaikie, 1991), and resulting in breadth and depth of the knowledge (Teddle and Tashakkori, 2003). Its concept is more flexible than solely focusing on either positivism or interpretivism; pragmatism combines different methods from both positivist and interpretivist points of view to interpret the results. Therefore, it can be argued that the pragmatic paradigm can be adopted for the purpose of social and management research with mixed methods (Armitage, 2007). In conclusion, pragmatism can be defined as a deconstructive paradigm that focuses on the use of mixed methods in research to overcome the paradigm wars (Tashakkori and Teddlie, 2003).

Following a pragmatism paradigm (Table 3.1), this research aims to investigate the complex phenomenon of an e-transition capabilities model aimed at value co-creation by being subjective in the reflection on the research, and objective in collecting and analysing the data (Morgan, 2014). Specifically, the research focuses on understanding the perceptions and experiences of firms in order to understand the role of social media in supporting value co-creation processes (RQ1), and on identifying the capabilities needed to support such processes (RQ2), specifically in the four types of value co-creation (RQ3). It is also believed that an e-transition capabilities model for value co-creation can be generalisable to different business settings. To achieve generalisation, the research focuses on the use of scientific methods to test the influence of key capabilities on value co-creation (RQ4), as well as the interacting effects of organisational structure capabilities (RQ5). As a result, an integrated framework can be developed to provide more in-depth insights and to contribute to the literature. In other words, a pragmatist paradigm allows a mixed-method approach to be adopted to simplify the complex and multi-dimensional realities for managers seeking an e-transition model (Shannon-Baker, 2016). As a result, the research will be able to focus on the practicability of data collection and analysis in order to provide more valid results by finding agreement across different research methodologies (Creswell, 2009).

**Table 3.1: Common elements of different paradigm views**

	<b>POSITIVISM</b>	<b>INTERPRETIVISM</b>	<b>PRAGMATISM</b>
<b>ONTOLOGY</b>	Singular reality	Multiple realities	Singular and/or multiple realities
<b>EPISTEMOLOGY</b>	Distance and impartiality	Closeness	Practicability
<b>AXIOLOGY</b>	Unbiased	Biased	Multiple stances
<b>METHODOLOGY</b>	Deductive	Inductive	Abduction
<b>METHODS</b>	Quantitative	Qualitative	Mixed
<b>RHETORIC</b>	Formal	Informal	Formal or informal

*Source: Adapted from Creswell (2009)*

### 3.2 Methodology

This research proposes an empirical setting to investigate the key capabilities required to support an e-transition model of value co-creation for innovation. Based on the pragmatic paradigm, the research employs different methods for different research questions (Jackson and Carter, 1991). As shown in Appendix 4, most marketing scholars in the same or similar fields have often adopted mono-methods to investigate different capabilities to support value co-creation with different actors. Recent studies on value co-creation have often adopted a qualitative methodology to explore the role of social media in value co-creation processes (e.g. Kao *et al.*, 2016; Matarazzo *et al.*, 2021; Sorensen, Andrews and Drennan, 2017) and the different capabilities involved in supporting value co-creation processes with customers (e.g. Marcos-Cuevas *et al.*, 2016; Ngugi, Johnsen and Erdélyi, 2010). A qualitative methodology is often considered appropriate when the focus is on the development of a conceptual framework and identification of key factors (or capabilities) in enabling a new business model for value co-creation (Matarazzo *et al.*, 2021). On the other hand, adopting a quantitative methodology focuses on empirically testing the effects of capabilities on value co-creation; i.e., the extent to which different capabilities significantly influence the performance of firms in the value co-creation process (e.g. Mihardjo *et al.*, 2018; Rahayu, Yuliawati and Fakhruhin, 2020; Rashidirad and Salimian, 2020; Sulhaini and Sulaimiah, 2017; Zhang *et al.*, 2015).

Although adopting either a qualitative or a quantitative methodology may provide different perspectives of a social phenomenon, in this case value co-creation, it is often argued that adopting mono-methods limits the findings and contributions to the knowledge (Mingers, 2001). A mixed methodology allows marketing research to generate revealing conclusions of a social phenomenon that would otherwise remain unsolved (De Silva and Rossi, 2018). However, over the past decades (see Appendix 4), a very limited number of studies on value co-creation have adopted mixed methods to examine the key capabilities required to support customer integration in value co-creation processes on social media for greater innovation. There is mainly a need for marketing research to adopt a mixed methodology to provide better insights and more credibility to the field of marketing (Harrison and Reilly, 2011).

In this research, a mixed methodology is adopted. Such a methodology refers to a method that is used to collect and analyse data, integrate the findings and draw inferences using both qualitative and quantitative approaches in a single study (Tashakkori and Creswell, 2007). Although there is a limited number of studies, which have adopted a mixed methodology, marketing research on value co-creation and similar studies have started to shift their interest to adopting such a methodology in order to better understand value co-creation processes with involved parties (Harrison and Reilly, 2011). The common types of mixed methodology are explanatory and exploratory sequential design mixed methods (Creswell, 2003). Explanatory sequential design focuses on understanding current research progress and problems using a quantitative study, and further explaining or elaborating on the results obtained through the lens of the participants' in-depth views (Ivankova, Creswell and Stick, 2006). For example, Maciuliene, Skarzauskiene and Botteldooren (2018) adopted an explanatory sequential design to develop an early-stage methodological digital co-creation assessment framework. They first conducted a quantitative study to summarise current work on digital value co-creation, developing a framework based on current literature and testing it to understand the relationships between variables, and then used this framework as a guideline to conduct qualitative research. Undertaking qualitative research after the quantitative approach allows them to gain in-depth insights and better explain the framework based on the decision-makers' points of view, leading to better understanding of digital value co-creation for social innovation. In other words, an explanatory

sequential design is more suitable when researchers wish to provide further explanations for existing work or knowledge, thus extending current theories (Tashakkori and Teddlie, 2003).

On the other hand, an exploratory sequential design focuses more on generating new knowledge or theories. A qualitative study is first conducted to explore the topics in a specific research setting in order to generate in-depth insights into the relevance of factors or variables to be studied in the next stage (Creswell, 2011). The identified variables and model are then tested, providing statistical results to confirm or disconfirm the qualitative results using a quantitative methodology (Fetters, Curry and Creswell, 2013). For example, Lan et al. (2017) conducted a qualitative study to explore enabling factors, which encourage people to participate in value co-creation processes in the sharing economy in order to develop an integrated framework to be tested in the next stage. They then conducted a quantitative study to generalise the identified enabling factors of value co-creation behaviours, and subsequently drew conclusions from the findings of both studies. Hence, an exploratory sequential design allows researchers to develop distinct knowledge that may differ from the current literature, thus providing new insights into the research phenomenon (Creswell, 2003).

Therefore, this study follows an exploratory sequential mixed methodology design to extend current knowledge on technology-enabled value co-creation for innovation from a capability perspective. Since, current scholars provide insights into different capabilities required to support value co-creation processes with customers, this research aims to understand and identify the necessary capabilities needed to develop as a foundation when implementing an e-transition model to achieve value co-creation aimed at innovation.

### **3.3 Research Design**

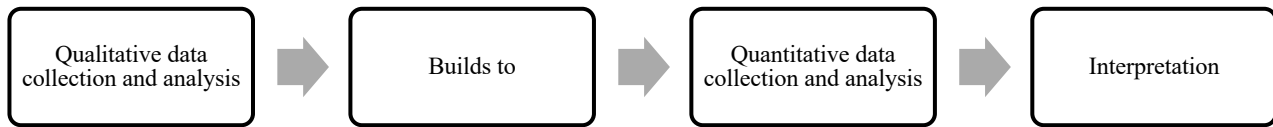
Research design is defined as the *'outline, plan or strategy specifically the procedures to be used in seeking an answer to the research question'* (Christensen, 1997, p.311). Each design has its own utility, procedures, strengths and weaknesses, which are dependent upon the research context (Creswell, 2003). For example, qualitative research methodologies are often used to explore why and how a phenomenon occurs in order to develop propositions or theories, whereas quantitative research methodologies focus on testing those theories and generalising the findings (Fetters, Curry and Creswell, 2013). Designing research by integrating both quantitative and qualitative methods (or mixed methods) helps to overcome any weaknesses and to draw on the strengths of each method to address the research questions (Berman, 2017).

#### **3.3.1 Exploratory Sequential Design**

Based on research aim and objectives, this research follows an exploratory sequential design. This can be defined as a process of initially conducting qualitative data collection and analysis, followed by a study of quantitative data collection and analysis, with a final phase based on integrating the data from the two separate studies (Creswell, 2011). The aim of an exploratory sequential design is to first gather qualitative data to explore a phenomenon and to develop propositions in order to conduct the quantitative data collection and analysis to explain the relationships found in the qualitative data. The rationale is to first explore a topic before deciding what variables should be focused on or measured in the quantitative study (Mihas and Odum Institute, 2019). Specifically, this research adopts an exploratory sequential design to first explore

the implementation of an e-transition model of value co-creation in SMEs and to identify the key firm-level capabilities to be studied in the quantitative stage. The quantitative study aims to empirically test the relationships of these identified key capabilities related to value co-creation in order to develop an e-transition capabilities model of value co-creation for innovation.

**Figure 3. 1: Exploratory Sequential Design (Creswell, 2003)**



As shown in Figure 3.1, the research starts with a qualitative study, with the aim of exploring the role of social media in facilitating an e-transition model aimed at value co-creation with customers (RQ1), as well as identifying the key firm-level capabilities that support such a model (RQ2), specifically from the different types of value co-creation processes, namely co-ideation, co-production, co-process and co-experience (RQ3). Specifically, the qualitative study allows for focus on understanding ‘how’ the use of social media technologies facilitates an e-transition model and ‘how’ different value co-creation activities can be facilitated by key firm-level capabilities. To obtain the qualitative data, the study followed a multiple case study approach to explore the four types of value co-creation, with each case study representing the different co-creation activities. A case study is defined as an intensive study about a group of representatives, with the aim of exploring and understanding a real-life setting through in-depth data collection (Creswell, 2003). Unlike a single case approach, multiple case studies allow researchers to understand the differences and similarities between the cases (Gustafsson, 2017). In this research, multiple case studies help to understand the role of social media and to identify different sets of capabilities, which support the different types of value co-creation. After the process of data collection, framework analysis is used to identify commonalities and differences within and across the cases in order to generate in-depth conclusions (Ritchie and Spencer, 1994), which will be discussed in the following chapter (Chapter 5, Section 5.4). As a result, the qualitative study can develop propositions based on the findings in relation to research questions. Specifically, the qualitative study will develop propositions that focus on core and additional capabilities. The core capabilities are to be tested in the quantitative study to understand the structural relationships between key capabilities and value co-creation, while the additional capabilities are to be integrated later in Chapter 9 to provide additional insights into the development of an e-transition capabilities model.

Once the research has established the propositions, the quantitative study can be conducted. Its aim is to empirically test the identified key capabilities and their impact on value co-creation for innovation. Specifically, it examines the direct impact of these capabilities on value co-creation (RQ4), as well as the interaction effect of organisational structure capabilities (RQ5) in order to understand the structural linkages between the variables to develop an integrated framework of key capabilities. To obtain the quantitative data, an online survey method was adopted. According to Wellman and Haythornthwaite (2008), this type of survey is an advantageous method to access individuals in distant locations, saving cost and time in the data collection process. Using an online survey not only helps to collect a large quantity of data, but also ensures quality data collection by being able to contact participants, which otherwise would have been difficult (Wright, 2005). Once the quantitative data are collected, PLS-SEM is used to examine the structural relationships between the variables and the model fit in order to develop an e-transition capabilities model for value co-creation (Hair *et al.*, 2017).



## **STUDY 1: QUALITATIVE RESEARCH**

## CHAPTER 4: QUALITATIVE METHODOLOGY (STUDY 1)

### 4.1 Qualitative Approach

Following an exploratory sequential design, the first stage of the research explored and generated in-depth understandings of a particular situation or problem; i.e., the role of social media and identification of the key firm-level capabilities supporting an e-transition model of value co-creation (Zikmund, 2003). The research methodology of Study 1 was exploratory and qualitative in nature. According to Denzin and Lincoln (2005), qualitative research is defined as a methodological approach that focuses on interpreting natural settings through the collection and analysis of first-hand data. Using qualitative research is appropriate when there is limited understanding and the requirement of new insights into a particular topic (Saunders, Lewis and Thornhill, 2012). Specifically, there is limited research on e-transition models to achieve value co-creation for innovation (Garmann-Johnsen, Olsen and Eikebrokk, 2021). Although a number of scholars emphasise the need to develop various capabilities to support value co-creation processes, including organisational and marketing capabilities (Rashid *et al.*, 2019), current knowledge still lacks in-depth investigation into the specific sets of capabilities required to support different types of value co-creation for innovation, namely, co-ideation, co-production, co-process and co-experience (Chekfoung, Sunil and Binita, 2020). The use of qualitative methodology therefore helps this research to gain a holistic view of how firms specifically use social media and develop different capabilities to better facilitate such an e-transition model. (Merriam, 2009), so is considered suitable to better understand the topic in question.

Given the limited theory on e-transition capability models for value co-creation (Chekfoung, Sunil and Binita, 2020), the study followed an inductive multiple case study approach. Such an approach is often used in marketing, especially in value co-creation studies (see Appendix 4), to understand how and why such models are implemented within organisations, or among different actors involved in the process (e.g. Kao *et al.*, 2016; Marcos-Cuevas *et al.*, 2016). For example, Junic and Choi (2019) focus on understanding how value is co-created with customers on social media and the possible benefits using a case study methodology. In addition, Breidbach and Maglio (2016) conducted within-case and cross-case analysis to understand different types of actor interactions in technology-enabled value co-creation, while De Silva, Al-Tabaa and Khan (2019) adopted a multiple case study to identify the set of dynamic capabilities required to support business model innovation for social and economic value co-creation. In other words, a case study methodology allows researchers to gain in-depth insights into the overall process of technology-enabled value co-creation with customers including the benefits of integrating social media, the different types of actor involved, and/or the different capabilities required to support such processes. Hence, adopting a case study approach helps to facilitate understanding of '*new research areas or research areas for which existing theory seems inadequate*' (Eisenhardt, 1989, p.548).

Yin (2003) further explains three instances suitable for a case study approach: (i) when asking '*how*' questions; (ii) when the research has little or no control over the phenomenon; and (iii) when the research happens within the existing phenomenon in a real situation. The qualitative method aims to understand '*how*' the use of social media facilitates an e-transition model for value co-creation with customers (RQ1), and '*how*' such a process is facilitated by different capabilities (RQ2), specifically in the four types of value co-creation (RQ3) (Scotland, 2012). To answer these research questions, a multiple case study approach was adopted to understand the perceptions and experiences of individuals within

the contemporary set of events (an e-transition model for value co-creation), over which the researcher herself had little or no control (Yin, 2009). The multiple case study approach allowed the research to examine what actually happens in the real world (Rowley, 2002); i.e., to understand value co-creation as a multi-dimensional process organised to achieve different stages of innovation processes. Unlike a single case study approach, multiple cases focus on generating in-depth understanding and knowledge of the phenomenon by discovering the meaning of different contexts being studied (Gustafsson, 2017). That is, the multiple case study enabled this research to understand the four types of value co-creation with the use of social media and capability requirements within each case to generalise a robust theory of technology-enabled value co-creation and innovation (Eisenhardt and Graebner, 2007). In other words, such an approach helped to identify commonalities and differences in the requirements for supporting the different types of value co-creation activities, namely co-ideation, co-production, co-process and co-experience (Creswell, 2003). The insights gained into these enabling factors were then tested in the quantitative research (Creswell and Plano-Clark, 2007). Therefore, an inductive multiple case study approach was adopted as a revelatory approach for the empirical part of the study in order to better understand the capabilities required in the e-transition towards value co-creation, specifically regarding four key types of co-creation (Yin, 2009).

## 4.2 Sampling

A purposeful sampling strategy was used when selecting the participating SMEs in the qualitative research (Patton, 1990). Such a strategy is defined as a guideline on specifying categories of people to be included in a sample (Robinson, 2014). Unlike a random sampling strategy, a purposeful sampling one is a non-random way of focusing on particular categories of cases within a sample population (Beitin, 2012). In it, researchers assume, based on their theoretical understandings of the topic, that specific categories of individuals may have important perspectives that significantly contribute to knowledge of the phenomenon in question (Mason, 2002). Specifically, studies employ inclusion criteria to help specify the sample population (Patton, 2001), which focus on identifying the attributes that cases must possess to qualify for the study (Robinson, 2014). These include the selection of the research setting and case studies to best answer the research questions (Lindgreen, Di Benedetto and Beverland, 2020). In other words, the sample selection is based on information richness that supports an in-depth study with specific research questions (Kuzel, 1992). This study followed a following set of inclusion criteria:

- The subject companies should be small and medium-sized enterprises (SMEs) operating in Thailand. According to the Ministry of Industry of Thailand, SMEs are companies that operate with 200 or fewer employees (Sevilla and Soonthornthada, 2000). Such SMEs were selected as a research setting that represents emerging countries that are currently facing difficulties in meeting customer demand and providing suitable products and services (Pongwiritthon and Noiphan, 2014). To meet this criterion, the company details were examined online to ensure that they were operating as SMEs. Those operating with more than 200 employees were excluded from the study. Furthermore, the SMEs were contacted to establish their key challenges in meeting customer demand. Although it is relatively difficult for SMEs to be aware of the struggles faced in meeting customer demand (Farsi and Toghraee, 2014), this matter was discussed with them to ensure that they were in fact paying attention to identifying their weaknesses, as this would provide important insights for the research, as well as providing

useful insights into the performance of the SMEs as a whole. As a result, the study was able to focus on those SMEs in Thailand that needed improvement in their performance in relation to innovation.

- Participating SMEs should focus on customer-centric business models. It could either be that they had already made the transition to this approach or were currently doing so, with an aim of engaging them in value co-creation process towards innovation. In meeting this criterion, three steps were followed. First, each SME's social media pages, specifically Facebook and Instagram, were analysed to see if their online activities were customer-focused (Georgescu and Popescul, 2015). Such customer-focused activities include posts or campaigns asking for customer opinions or feedback on certain topics, as well as interaction with customers to generate useful insights. Such customer-focused activities should also have been recently organised, in the past one year, to ensure that the SMEs were currently focusing on customer-centric business models related to value co-creation. Second, a number of online articles were consulted, in which the participating SMEs discussed their business models, vision, goals, and objectives (Ifinedo, 2008). These were in the form of newspaper articles, online magazines or online communities (Poteet, 2000). The articles acted as support documents for their online activities geared towards value co-creation. Third, the two criteria were confirmed with the managers of the respective SMEs through phone calls and emails, to ensure that they were actually focusing on customer-centric business models and value co-creation activities using social media. In addition, the companies' Facebook and Instagram pages were viewed to keep track of their value co-creation activities with customers.
- Each SME was also assigned to a specific type of value co-creation, namely, co-ideation, co-production, co-process, and co-experience, based on their nature and the characteristics of their businesses and activities on social media. Each value co-creation type was also discussed with the companies to ensure that the SMEs were good representations of the respective types. To ensure this, sub-criteria were introduced, based on the definitions of each type of value co-creation (as discussed in Section 2.4.1), as shown in Appendix 5.
- Consequently, the study also aims to gain insights from customer perspectives regarding value co-creation activities on social media in order to confirm that these activities organised by the selected SMEs involve a high level of customer engagement. The selection of customers was based on the frequency of their participation and contributions in these value co-creation activities (Fang, Palmatier and Evans, 2008). Specifically, participating SMEs were asked to refer to their key customers who actively participated in value co-creation activities on social media. The SMEs first contacted these customers to inform them about the interviews with a researcher, followed by emails or telephone calls in which a researcher explained their purposes and how their contributions would help to provide insights into improving the overall performance of SMEs in terms of innovation. It was then confirmed with respective customers that their participation in the value co-creation activities was still active.

Based on these criteria, several SMEs in the region (Bangkok and Metropolitan) were contacted, with careful attention paid to including those that met the criteria discussed above. First, a list of SMEs that were actively on social media was identified, including actively interacting and communicating with customers. Table 4. 1 shows how each SME was chosen

to represent the different case studies in order to understand the capabilities required to facilitate an e-transition model, in terms of co-ideation, co-production, co-process and co-experience.

A sampling strategy was also applied when selecting the interviewees (Robinson, 2014), who were selected based on their position and role within the company. The strategy allowed the research to focus on those who were most likely to provide in-depth insights based on their experiences of an e-transition model for value co-creation. The interviewees representing managerial position were either owners, co-founders or marketing managers, whereas those representing employees were staff who directly interacted with customers on social media, including those working in marketing, sales and social media teams or departments. In addition, customers were selected by SMEs and referred to a researcher based on their engagement in value co-creating activities on social media. Selecting interviewees in the above positions helped to provide a rich picture of how an e-transition process was facilitated by social media and the different sets of capabilities required to involve customers in value co-creation processes.

Table 4. 1: Case study description

Case ID	Role of the interviewees	Company type	Industry	Selection activity	Contribution activity	Co-creation activity
Cases representing Co-ideation						
ID1	Co-founder	Product and service	Fashion	Firm-led	Open	Involving customer into sharing and exchanging information related to the products and related topics in real-time in order to generate ideas.  <b>Social media use – Live videos</b>
ID2	Sale and Marketing	Product and service	Fashion	Firm-led	Open	
ID3	Customer	Product and service	Fashion	Firm-led	Open	
ID4	Co-founder	Product	Skin care	Firm-led	Open	Sharing information and knowledge related to the products in exchange for customer information and insights on social media
ID5	Social media administrator	Product	Skin care	Firm-led	Open	
ID6	Customer	Product	Skin care	Firm-led	Open	<b>Social media use – Video contents</b>
ID7	Customer	Product	Skin care	Firm-led	Open	
Cases representing Co-production						
ID8	Co-founder	Product	Textile	Firm-led	Close	Creating conversations and asking lead users for relevant information, such as problems and suggestions, on social media to gain in-depth insights for new product development.  <b>Social media use – Conversational posts</b>
ID9	Marketing and social media administrator	Product	Textile	Firm-led	Close	
ID10	Customer	Product	Textile	Firm-led	Close	
ID11	Co-founder	Service	Music	Firm-led	Close	Introducing new service concepts on social media to gain feedback on lead users’ preferences for the upcoming service launch.  <b>Social media use – Interactive posts</b>
ID12	Social media administrator	Service	Music	Firm-led	Close	
ID13	Customer	Service	Music	Firm-led	Close	
ID14	Customer	Service	Music	Firm-led	Close	

Table 4.1: Case Study Description (continue)

Case ID	Role of the interviewees	Company type	Selection activity	Contribution activity	Co-creation activity
<i>Cases representing Co-process</i>					
ID15	Co-founder	Service	Customer-led	Close	Lead users are involved in providing feedback on the service launched in order to provide in-depth insights on the service features that need to be improved.
ID16	Marketing and Social media administrator	Service	Customer-led	Close	
ID17	Customer	Service	Customer-led	Close	<b>Social media use – Chat</b>
ID18	Marketing manager	Product and service	Customer-led	Close	
ID19	Social media administrator	Product and service	Customer-led	Close	Lead users provide feedback after consuming the products in order to suggest on the existing product improvement in order to better satisfy their needs.
ID20	Customer	Product and service	Customer-led	Close	
ID21	Customer	Product and service	Customer-led	Close	<b>Social media use – Interactive posts</b>
<i>Cases representing Co-experience</i>					
ID22	Co-founder	Product and service	Customer-led	Open	Using hashtag as a community to exchange customer and firm experiences in order to convert value-in-consumption into value-in-experience.
ID23	Marketing manager	Product and service	Customer-led	Open	
ID24	Customer	Product and service	Customer-led	Open	<b>Social media use - Hashtag</b>
ID25	Owner	Service	Customer-led	Open	
ID26	Customer service employee	Service	Customer-led	Open	Customers publish and review their experiences on the services on social media to add value to their personal experiences, as well as firm and other customer experiences.
ID27	Customer	Service	Customer-led	Open	
ID28	Customer	Service	Customer-led	Open	<b>Social media use – Story-telling posts</b>

### 4.3 Data Collection

The semi-structured interviews were conducted with 28 participants from the eight companies (eight managers, eight employees and twelve customers) over the six-month period from October 2018 to March 2019. The interviews were divided into two rounds. In the first round, twelve participants from four SMEs were interviewed (four managers, four employees and four customers) from October 2018 to December 2018 to gain in-depth insights into the four types of value co-creation and the different capability requirements to support each process. However, it was found that having just one case study to represent each type of value co-creation was not sufficient to generate the patterns of capabilities required to support the value co-creation activities. Since qualitative research is never predictable, it is important for researchers to monitor and be responsive to practical realities when collecting in-depth data (Silverman, 2020). Altering the sample size is therefore a possibility to generate quality results (Robinson, 2014). The second round of interviews was then conducted with four managers, four employees and eight customers over the period between Jan 2019 to March 2019 to represent the four types of value co-creation. On average, each interview in the two rounds lasted between 30-60 minutes for the managers and employees, and 20-30 minutes for the customers.

In total, twelve face-to-face interviews were conducted with four managers, four employees and four customers, and in addition twelve phone interviews with three managers, three employees and six customers); on four occasions (with one manager, one employee and two customers) open-ended questions were completed by the interviewees and sent back because of practical issues (Turner III, 2010). The interviews were conducted in Thai. The interview questions were first designed in English and then translated into Thai. Although English is widely used in business practices in Thailand, having a Thai version of the questions helped to ensure conceptual equivalence in all the interviews (Hoskisson *et al.*, 2000). Specifically, back-to-back translation was used to ensure equivalence in both the English and Thai versions (Brislin, 1970); the interview questions were translated from English into Thai, and then back translated by a bilingual researcher herself. To ensure that both translated versions were equivalent in meaning, the interview questions were reviewed by two bilingual colleagues in the field of management to avoid losing contextual meanings (Barnes, 1996). Each interview was then recorded and transcribed verbatim, then translated using Microsoft Word (Suh, Kagan and Strumpf, 2009).

A semi-structured interview strategy was used as the main data collection instrument, which provided the structure for the topic discussion, as well as enabling flexibility to develop further questions during the interviews (Trainor, 2013). The strategy included informing the interviewees about the overall research purposes, participation involvement and data protection, and the sub-topics to be asked about (Louise Barriball and While, 1994). During the interviews, an interview guide (Appendix 6) with open-ended questions was used to ensure guidance and consistency in the interviewing style (Creswell and Plano-Clark, 2007). The interview questions were carefully designed and asked with the purpose of capturing the capability perspectives of the interviewees; the same order of questioning was not necessarily followed in all the interviews (Merriam, 2009). Each interviewee from the SME perspective was asked a set of questions related to the use of social media and the capabilities required to facilitate an e-transition model process within the companies. On the other hand, each customer interviewee was asked a set of questions specifically on the use of social media in co-creating with the firms, and on the challenges associated with such processes in order to provide additional insights into the development of capabilities for better value co-creation. The interviews with the customers aimed to ensure that the companies they represented actually undertook continuous two-way interaction towards value co-creation. In other



words, understanding of the e-transition towards value co-creation and the capabilities required to enable this dynamic process transition enabled the study to better understand and develop an e-transition capabilities model for SMEs.

Specifically, the interview questions were designed in three main sections: (i) the transition from product-centric to customer-centric business models; (ii) the use of social media in value co-creation; and (iii) the capabilities and challenges required to support such a model. First, the focus was on questions that helped to understand the need to shift from product-centric to customer-centric business models in relation to value co-creation, and how such processes can be facilitated using social media. Asking the interviewees about the benefits of customer-centric business models compared to product-centric ones allowed the research to understand the drivers behind the transition and its benefits for value co-creation. On the other hand, asking about the benefits of using social media in value co-creation made it possible to gain overall insights into an e-transition model. In addition, the questions focused on comparing a traditional transition with an e-transition model (i.e., with the use of social media) aimed at value co-creation to gain deeper understanding of how the integration of social media helps firms to achieve value co-creation related to innovation.

Second, the study also aims to understand the needs to develop distinctive capabilities to support an e-transition model. The interview questions focused on generating insights into what needs to change and what are currently considered problems in order to understand the requirements for developing distinctive capabilities. In particular, the participants' opinions on the importance of distinctive capabilities were sought, together with what they currently lack, in order to identify the capabilities required to support an e-transition model. This included questions on organisational cultural capabilities; organisational structural capabilities; and e-marketing capabilities, as well as the current challenges related to these capabilities. Since each case was selected based on the nature of the activity to represent the four types of value co-creation, the commonalities and differences in capability development could be identified in order to understand the patterns of the key capabilities required to support each process in the different value co-creation types.

Although research questions did not specifically focus on customer perspectives, the interviews with the customers aimed to provide additional insights into the capabilities needed to support value co-creation with them. That is, gaining insight into customers' expectations may lead to greater understanding of the capabilities needed to effectively support value co-creation processes with them. This included questions on the use of social media to co-create with the firms, their engagement in such co-creation activities, the challenges associated with the activities, and the improvements needed. In other words, generating the perspectives of firms may provide insight solely into internal points of view, whereas the customer perspectives allow the research to ensure that the identified capabilities are needed by both firms and customers in order to generate two-way interactions and collaboration.

#### **4.4 Framework Analysis**

As discussed in the previous chapter (Section 3.3.1), framework analysis helps to identify commonalities and differences within and across cases in order to understand the role of social media and to identify different sets of capabilities needed to support the different types of value co-creation processes for innovation. Framework analysis is defined as a qualitative data analysis approach that allows the use of a theoretically-driven framework to structure and explore data (Ritchie and Spencer, 1994). Such analysis is suitable for research that *'has specific questions, a limited timeframe, a pre-designed sample and a prior issues'* (Srivastava and Thomson, 2009, p.72). Its concept fits the aim of this research, as the study

has specific research questions and pre-defined issues that need to be explored. Three research questions (RQ1, RQ2 and RQ3) are also contextual and strategic in nature, which fit within the flexibility of framework analysis. The study also has certain pre-defined areas to be explored, including organisational culture, organisational structure and e-marketing capabilities, but also remains open to the unexpected in order to develop propositions. In other words, framework analysis allows themes to be developed from the research questions and the narratives of the research participants (Rabiee, 2004).

Although framework analysis is often adopted in healthcare and applied policy research (Srivastava and Thomson, 2009, p.72), recent marketing studies have adopted this method, especially when developing or exploring certain typologies of marketing (Chemas-Velez et al., 2020). It is often used to identify patterns in datasets (Perannagari and Chakrabarti, 2019), and in particular helps to combine a priori themes drawn directly from the literature and emergent concepts in order to develop an analytic framework. A priori themes, such as the capabilities required and the challenges faced by firms in an e-transition to achieve value co-creation, can be identified and studied, while allowing for any new concepts to emerge, in order to fully describe and interpret what is taking place in a particular phenomenon. With this method, a researcher can explore what has been discussed in the literature, as well as considering the emergence of new knowledge, to provide extended insights into the context of an e-transition model. In other words, framework analysis offers a systematic and rigorous process enabling exploration of individual perspectives and experiences among different cases using a coding matrix (Ritchie and Spencer, 1994). The process of data analysis, following the five key steps of Ritchie and Spencer's (1994) framework analysis, comprises (i) familiarisation with the interview; (ii) identification of a thematic framework; (iii) indexing; (iv) charting data into the framework matrix; and (v) interpretation of the data, as shown in Figure 4.1.

#### **4.4.1 Familiarisation**

Familiarisation refers to the process of becoming familiar with the transcripts of the data collected in order to gain an overview of the data (Ritchie and Spencer, 1994). This process includes listening to the recorded tapes, reading the transcripts, and reading the observational notes several times. Its aim is *'to immerse in the details and get a sense of the interview as a whole before breaking it into parts'* (Rabiee, 2004, p.657). The process of analysing qualitative data should start with familiarisation in order to gain understanding on their overall context (Bullock, 2016). Although researchers may have some prior knowledge of the data, they still need to take notes during the process of listening to the tapes and reading the transcripts in order to mark the ideas for coding (Braun and Clarke, 2006). At this stage, the notetaking can be done either manually (by creating a long table) or with the help of software (Pope, Ziebland and Mays, 2000). Unlike a long-table approach (Krueger and Casey, 2000), scholars often use Microsoft Word as a tool to help create notes and annotations to the original dataset to save time (Chenail, 2011; Ruona, 2005).

#### **4.4.2 Identifying a Thematic Framework**

Identifying a thematic framework occurs after the researcher has read and generated an initial list of interesting ideas about the data in the familiarisation stage (Ritchie and Spencer, 1994). The researcher starts to recognise and organise the data into meaningful categories (Tuckett, 2005). The process involves identifying important phrases, ideas, concepts or

issues from the texts and beginning to develop categories for each group of concepts (Rabiee, 2004). The aim is to identify interesting aspects of the data that may form the basis of repeated patterns (Braun and Clarke, 2006). In other words, themes and sub-themes can be identified based on the relevant concepts or issues. Although key issues are pre-defined, it is important to allow the data to dictate the themes and sub-themes to systematically allow key concerns to emerge (Gale *et al.*, 2013). That is, the study should not fix the number of themes or sub-themes to be created, but rather remain open to emergent ones when necessary (Pope, Ziebland and Mays, 2000). Specifically, this study focuses on creating themes and sub-themes that address the role of social media and the capabilities required to support an e-transition model of value co-creation for innovation. The study also aims to introduce an 'other' theme for the data that did not fit into the framework, but are still relevant. However, the thematic framework identified at this stage is tentative and can be refined at subsequent stages of analysis (Ritchie and Spencer, 1994).

#### **4.4.3 Indexing**

Indexing is the process of systematically applying the thematic framework to the data (Ritchie and Lewis, 2003). This stage involves sifting the data, highlighting relevant quotes and assigning them into themes and sub-themes (Rabiee, 2004). Its aim is to rearrange important information into respective groups in order to compare within and across cases at a later stage (Ritchie *et al.*, 2013). The indexing of relevant information can be done in the traditional way (i.e. by hand) or with the help of computer software, including NVivo (Krueger, 2014). NVivo is one of many software programmes that enables researchers to effectively highlight relevant quotes and reassign them into the different groups (themes and sub-themes) that they best represent (Bazeley and Jackson, 2013). During the process of indexing, it is important to ensure that the emerging data fits within the established framework, or otherwise reveals a new theme within the framework, by returning to previous transcripts to consider whether new themes are present (Kiernan and Hill, 2018). In other words, the textual data are repeatedly revised to ensure that they are included within the right themes and sub-themes.

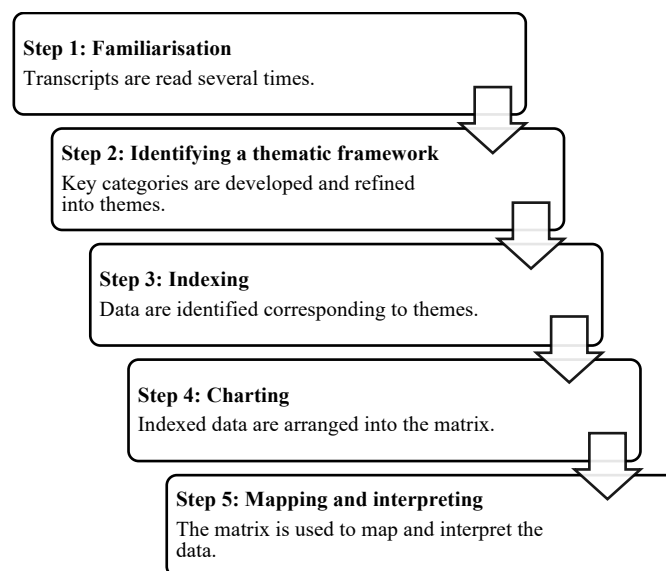
#### **4.4.4 Charting**

Charting takes place when the indexed data from the previous stage are arranged into charts or matrices, which consist of headings and sub-headings that represent the different themes and sub-themes from the thematic framework (Ritchie and Spencer, 1994). Based on the methodological literature, charting is generally a stage of secondary data reduction, in which data are sorted under superordinate themes and sub-themes (Kiernan and Hill, 2018). It is also considered as a way of organising data into more coherent groupings (Ritchie *et al.*, 2013). This stage allows researchers to create a matrix that summarises all the important information related to the key issues and concepts, which makes it easier to be interpreted in the following stage (Rabiee, 2004). Although the data are taken out of their context, they represent the case from which they come, so therefore it is important to put cases in the same order to facilitate interpretation (Ritchie and Spencer, 1994). Specifically, this study aims to create a framework matrix using Microsoft Excel to provide an overview of the data by providing case-by-case key issues on which the study will focus.

#### 4.4.5 Mapping and Interpretation

Mapping and interpretation involve the analysis of key characteristics of the data charted in a framework matrix (Ritchie and Spencer, 1994). It is important to note that this stage not only involves making sense of the important quotes, but also demands imagination and analysis to identify the relationship between them (Kiernan and Hill, 2018). That is, the researcher needs to identify in-depth commonalities and differences within and across the cases to understand each theme and sub-theme and their relationships with each other in order to draw explorative conclusions (Gale *et al.*, 2013). The process of understanding the meanings of each theme and sub-theme and their links allows researchers to generate the overall findings that addresses the research questions (Rabiee, 2004). In this case, the study aims to understand the commonalities and differences between the different types of value co-creation in order to understand the role of social media and the key firm-level capabilities required to facilitate each value co-creation process. In other words, such capabilities can be identified and understood across cases, allowing the development of the propositions to be tested in the quantitative study.

**Figure 4.1: Framework analysis**



*Source: (Ritchie and Spencer, 1994)*

Based on Figure 4.1, the qualitative approach follows five steps in analysing the qualitative data: understanding the overall context of the data; identifying important information; grouping the information into categories; creating themes and sub-themes; indexing the data into respective themes and sub-themes; comparing them across cases; and drawing conclusions from the data. Adopting framework analysis does not only allowed the study to highlight important insights, but also to compare these within and across cases in order to effectively answer the research questions. Specifically, framework analysis allowed the study to ensure the quality of the findings that contribute to the existing knowledge.

## 4.5 Validity and Reliability

According to Patton (2001), validity and reliability are two important factors that should be considered when designing a qualitative study, analysing qualitative results and judging the overall quality. To achieve both validity and reliability, any bias should be eliminated and the trustworthiness of the research propositions increased (Golafshani, 2003). Validity can be defined as the *'extent to which data collection method or methods accurately measure what they were intended to measure and the research findings are really about what they profess to be about'* (Saunders, Lewis and Thornhill, 2012, p.127). Although some researchers argue that validity is not applicable to qualitative studies, they still require some qualifying measure to ensure the research quality (Golafshani, 2003). Specifically, Venkatesh, Brown and Sullivan (2016) emphasise validity should be considered at multiple phases of the qualitative study, including conceptualisation (i.e., theoretical foundations, research purposes and methods), experimental (i.e., data collection and analysis) and inferential (i.e., data interpretation) phases, in order to generate qualitative inference quality.

According to Lindgreen, Di Benedetto and Beverland (2020), validity can be assessed using four tests: (i) construct validity, (ii) internal validity, (iii) external validity and (iv) reliability. Appendix 9 explains four tests in relation to three phases of qualitative study (i.e., conceptualisation, experimental and inferential phases) and remedies taken to control them. For example, the study also follows a purposeful sampling guide, which helps to demonstrate how samples should be selected in relation to the research questions (Guba, 1981). This is to avoid any bias from the perspectives of both the researcher and interviewees when conducting the interviews and data analysis. In the interviews, the researcher also needs to be aware of the effects of reflexivity (DiCicco-Bloom and Crabtree, 2006; England, 1994), which is the ability to examine one's self (Padgett, 2012). To ensure reflexivity, the researcher should be open to a disclosure of concepts and assumptions that may influence the process of data collection (Golafshani, 2003). In addition, an interview protocol should also be used to guide the data collection and analysis process (Appendix 6).

Reliability, on the other hand, is defined as *'the extent to which data collection methods and analysis procedures will produce consistent findings'* (Saunders, Lewis and Thornhill, 2012, p. 128). Its aim is to ensure the quality of the study, which helps to generate appropriate research (Stenbacka, 2001). Subjective bias is evident in qualitative research in a way the researcher perceives and interprets the data, which could affect the findings. To ensure reliable results in this study, an interview guide was used to ensure consistency in all the interviews. In order to encounter the effect of reliability bias, the raw data was shared with external observers. The cross-checking process with observers is used to check interpretations and ensure that the observations are of a high dependability. Hence, reliability can also be called dependability; i.e., researchers' attempts to account for changing conditions in their observations (Trochim, 2005). To increase reliability, field notes were also created, together with the recordings, to ensure that any design decisions, procedures and protocols were recorded and could be accessed by other researchers in the future (Thyer, 2009). Such qualitative data were recorded, analysed and interpreted using NVivo to generate consistency in the findings (Lewins and Silver, 2007).

## **4.6 Ethical Implications**

Each interviewee was provided with a participation information sheet (Appendix 7) and an informed consent letter (Appendix 8) which required their approval, and which explained the research topic, research purposes, and questions to be answered during the interviews. Each interviewee was informed that the interview was confidential and that all answers would remain anonymous throughout the research process. The nature of participation was also explained, including voluntary participation, and participation benefits and risks, in order to provide insights into what the interviewees would gain. Finally, relevant details were provided, including the researcher's university email addresses and a link to data protection information.

## CHAPTER 5: QUALITATIVE ANALYSIS AND RESULTS

This chapter discusses the qualitative findings that directly answer the three research questions – (i) how social media enables SMEs to facilitate an e-transition model; (ii) how an e-transition model for value co-creation can be supported by key capabilities; and (iii) what distinctive capabilities are required to support the four types of value co-creation, namely co-ideation, co-production, co-process and co-experience in SMEs. The results are based on a multiple case study of eight SMEs in Thailand that have transitioned from product-centric to customer-centric business models on social media for value co-creation. The data analysis shows how they have used different social media affordances to develop social media capabilities and to identify the key capabilities needed to support the model, specifically in the four types of value co-creation for innovation. The results are presented following the five steps of framework analysis.

### 5.1 Data Analysis using Framework Analysis

#### 5.1.1 Step 1: Familiarisation with the Data

The interview data were first transcribed and translated from Thai to English verbatim and read repeatedly to become familiarised with the data (Ritchie and Spencer, 1994). This process of familiarisation involves reading not only the transcripts, but also the field notes taken during or after the interviews, to gain overall insight into the data. Specifically, the study highlighted important information while reading the interview data, based on pre-defined issues. These were those being focused in this study, which were drawn from the literature and research framework. Such important information includes (i) the use of different social media functionalities; (ii) the benefits of using social media in involving customers in value co-creation processes; (iii) the need to change organisational culture; (iv) the need to redesign organisational structure; and (v) the need to develop e-marketing capabilities. Although relevant quotes were highlighted based on prior issues, the researcher remained open-minded in also highlighting other relevant information, which may provide further insight into an e-transition model (Gale *et al.*, 2013). In other words, such ‘other’ relevant information may provide additional insights into the development of new emerging knowledge, contributing to current theories on value co-creation.

Table 5.1 shows examples of relevant quotes highlighted during the process of familiarisation. As each transcript was read, it was possible to start to identify important information and get a sense of the interviews as a whole (Rabiee, 2004). For instance, relevant information highlighted to represent the use of social media functionalities was associated with how firms use social media to organise value co-creation activities with customers. This ranges from posting content on the company’s social media pages, allowing customers to like, comment and share their contents, to organising virtual focus groups or sessions to discuss matters in order to gain insights into preferences and expectations. In addition, information related to the benefits of social media focused on its perceived advantageous in facilitating value co-creation activities with customers, ranging from asking for customer feedback before the launch of new products or services, to sharing and exchanging experiences with customers to generate value-added experiences. At the same time, information related to different capabilities (organisational culture, organisational structure and e-marketing capabilities) was

associated with how firms think they should change or are changing to support such customer integration in value co-creation processes. Such information includes current practices, strategic planning and the current challenges that need to be addressed. In other words, the highlighted quotes aimed to represent the overall concepts of the pre-defined issues and the data as a whole.



**Table 5. 1: Examples of relevant quotes highlighted**

Prior issues	Examples of relevant quotes highlighted
The use of different social media functionalities	<p><i>'When we [company] post something [content] on social media, we tend to gain customer engagement...For example, customers once commented on our product – the mat usually has a dent when a furniture is placed on top. We took this problem into consideration and did some research in order to come up with product or design that solves this problem.'</i> (ID9).</p> <p><i>'Sometimes, we [company] post about bands to introduce them to the customers and see their engagement... Thai people usually comment only when they are dissatisfied about something, but what we can actually analyse is customer engagement in terms of like and friend tagging. So, if we post something and a lot of people like...That is the opportunity to see whether people are interested in that particular bands or not. For the comments, people usually complaints regarding to our service... We tried to communicate and asked for the real problems.'</i> (ID11).</p> <p><i>'...teenager customers are very active on online platforms so their participation, in terms of liking, commenting, sharing and tagging friends, is quite important. It gives us insights on their interests. Liking may be a part of it but commenting and tagging friends to see the posts are more important in this case.'</i> (ID12).</p> <p><i>'...we write blogs in our Facebook page to share experiences.... Social media is a channel where customers can actually engage and act as a part of our business. What usually happens is that customers usually responds to comments and posts for us without us having to do so. For instance, someone commented to ask about our branches. Our customers commented with the lists of our branch addresses. So, this is the power of social media.'</i> (ID22).</p> <p><i>'...we had an activity asking for customer opinions and experiences on our rooms and we gave away free gifts for their participation. The idea came from customers – customers always ask us which room is the best. We could not answer that because each room is designed differently using different colours to represent different concepts. So, we used this insights to create an activity online. We asked customers to share their opinions on the room they think is best. So, when customers participated, they did not actually vote for the best room, instead they described the uniqueness of each room.'</i> (ID25).</p> <p><i>'...different platforms can target different groups of customers. With this combination of different platforms, we [company] can better understand our customers and accordingly improve ourselves to better serve them.'</i> (ID18).</p>

**Table 5.1: Examples of relevant quotes highlighted (continue)**

Prior issues	Examples of relevant quotes highlighted
The benefits of using social media in involving customers in value co-creation processes	<p><i>'We [company] have to listen to our customers anyways. If twenty people comment on our design, we have to listen and online platforms enable us to know this within a week ... For example, I [manager] use Facebook to keep track of statistics on the posts, and to see comments in order to better understand customers.'</i> (ID8).</p> <p><i>'It [social media] is a channel that allow customers to be engaged in our processes. Customers can see what we do and engage into those processes by commenting and providing feedbacks.'</i> (ID9).</p> <p><i>'...we [company] usually involve these types of customer-driven focuses. For example, we were planning to introduce [brand] t-shirts so we designed three styles and engaged our customers into providing feedbacks. Customers got excited and were really responsive to our posts. So, we always involve our customers in our processes.'</i> (ID9).</p> <p><i>'We [company] have a donation project where we plan to donate mats to local temples at least once a year and we draw our customers to participate by sending the name lists of local temples. We use social media as a platform to re-target these customers in order to better engage them in more value co-creating activities.'</i> (ID9).</p> <p><i>'We [company] only have Facebook Page to communicate and interact with customers. We use Facebook as a mean to share and exchange experiences with our customers.'</i> (ID25).</p>
The need to change organisational culture	<p><i>'We [company] encourage employees to enjoy serving customers and working with others. We will not step on each other's feet – each employee is encouraged to do things their ways but they have to enjoy it. It is our compromise.'</i> (ID8).</p> <p><i>'I [manager] am always online on weekend so it became our culture that we talk and discuss on weekend. The reason for this is that customers on social media are always active. This therefore affects us to always be online and responsive to them...we adapt ourselves to suit our customers. We also sent our teams for trainings to improve their skills in order to serve our customers.'</i> (ID8).</p> <p><i>'...we [company] let our employees take decisions for their tasks but we support them with relevant information, such as key messages that we have to communicate or hashtag that we have to include.'</i> (ID11).</p>

**Table 5.1: Examples of relevant quotes highlighted (continue)**

Prior issues	Examples of relevant quotes highlighted
	<p><i>'We [company] do not really have a specific culture in our organisation, but I would say we run our business like family. We talk and discuss things with our employees as if they are sisters and brothers. These employees are with us for long time so we respect them in their own tasks.'</i> (ID25).</p> <p><i>'...we [company] want to reduce the boundary gap between the customers and the sellers...we set our core values/brand promises as a guideline for employees to follow in order to serve our customers. Employees can serve customers in whatever way they think it is best within our core values.'</i> (ID22).</p> <p><i>'What we need in our organisational culture is 'move fast' and 'make things' based on our customers. At the end, we try our best to move forward as quickly as possible. We keep learning so if we have to change or adapt, we are ready...We [company] try to encourage our employees to understand customer problems and solve them effectively'</i> (ID15).</p> <p><i>'If organisational members have different sets of skills and knowledge and understand each other, it would not be a problem if there is a change in organisational culture and/or structure.'</i> (ID18).</p>
The need to redesign organisational structure	<p><i>'We [company] do not have organisational structure...I [manager] usually monitor everything online...we let them do their jobs according to their ways and we share profits every month.'</i> (ID8).</p> <p><i>'I [employee] think we do not really have an organisational structure. We are responsible for our own tasks but we do work in teams. We need to be able to support each other across the organisation. Each employee here is multi-tasking, I would say.'</i> (ID9).</p> <p><i>'...we [company] do have calendar checklists for everyone to acknowledge the work process so everyone can do their tasks accordingly. We want to make everyone happy and be able to enjoy their tasks so we do not have specific deadline for each job. We just inform them the deadline for the whole project and we let everyone do their jobs in their ways.'</i> (ID11).</p> <p><i>'Our organisational structure changes every 6-12 months because we [company] want our employees to try new things and learn to develop new skills.'</i> (ID15).</p>

**Table 5.1: Examples of relevant quotes highlighted (continue)**

Prior issues	Examples of relevant quotes highlighted
The need to develop e-marketing capabilities	<p><i>'We [company] have got 2 employees who are responsible for social media interaction with customers. An employee looks at the overall interactions with customers, scans their comments and feedbacks and distributes to another employee, where she is looking at a smaller picture of customer interaction. She individually responds to each comments/feedbacks in order to provide customer satisfaction in terms of future product improvement, services and customer-firm relationships.'</i> (ID8).</p> <p><i>'At the same time, we [company] also need to build relationships with them for further interaction, and this also require marketing capabilities to support.'</i> (ID9).</p> <p><i>'We [company] actually communicate on social media almost every day. Some of the work might not be relevant to me so I [employee] will not be involved in those conversations, but if it is necessary for me to know, we have a group chat to discuss everything together.'</i> (ID12).</p> <p><i>'...if we have more customer data, I think we will be able to do better marketing activities.'</i> (ID22).</p>
Other	<p><i>'...cultural diversity is beneficial. Having different perspectives within the organisation helps us [company] to think out of the box, resulting in better solutions.'</i> (ID9).</p> <p><i>'...seeing things from different perspectives allows us [company] to generate different ideas and solutions. We usually face real-time challenges and being able to share different ideas enables us to better find solutions that we might have forgotten.'</i> (ID12).</p> <p><i>'I [manager] think our challenge is the capabilities to analyse our customer insights and convert it into ideas for further development. This can also be supported by key metrics. Customer needs will keep changing. If we identify their plain problems, we will be able to serve them better.'</i> (ID15).</p> <p><i>'...different ways of thinking and that may affect the way we [company] work. Gen Y does not usually report what they are doing and are quite confident in themselves, whereas Gen X always report to each other, inform their own work progress. So, sometimes, it can create conflicts as there are differences in work styles, behaviours and thinking.'</i> (ID4).</p>

### 5.1.2 Step 2: Theme Identification

Once the data were read and familiarised with, the study extracted the highlighted information and quotes in Step 1 and categorised them into groupings. It placed all the relevant information representing each pre-defined issue/concept together to gain an overview of the data, and named each grouping based on the information highlighted. For example, the theme ‘social media affordances’ was created to represent the features of social media used by the firms to connect and collaborate with customers, ranging from likes, comments, shares, votes and instant messages. In addition, the ‘social media capabilities’ theme represented the benefits of using social media to facilitate value co-creation with customers. Based on the literature, this term can be described as the firm’s ability to use social media to take different actions towards value co-creation with customers (Kargaran *et al.*, 2017). Furthermore, ‘other’ relevant information was further reviewed to categorise it into different groupings/themes. Two themes were created under ‘cultural diversity’ and ‘strategy development’; although these were not pre-defined concepts, they were kept for further analysis and evaluation in case they provided interesting insights into the data. A total of seven key themes were created from the relevant information highlighted in the previous step, as shown in Table 5.2. These themes were identified in relation to the research questions, as well as reflecting previous issues in the dataset (Pope, Ziebland and Mays, 2000).

**Table 5.2: Theme identification**

Focused concepts	Theme identified	Sources of themes
The use of social media functionalities	Social media functionalities/affordances	Pre-defined themes
The benefits of using social media in involving customers in value co-creation processes	Social media capabilities	Pre-defined themes
The need to change organisational culture	Organisational culture capabilities	Pre-defined themes
The need to redesign organisational structure	Organisational structure capabilities	Pre-defined themes
The need to develop e-marketing capabilities	E-marketing capabilities	Pre-defined themes
Other	Cultural diversity Strategy development	Emerging themes

To gain deeper understanding of each theme/issue, further sub-themes were identified by reviewing and categorising the information within the themes. Since each theme consisted of various types of information across the responses, it was important to sub-categorise these to ensure that such information was easy to understand and interpret. Similar to the process of theme identification, the study looked at each theme, grouped similar information/quotes within the theme together, and created sub-themes, based on current theorising in the literature. Table 5.3 summarises all the sub-themes created under each theme. At this stage, the pre-defined issues were kept in mind and the data were allowed to dictate the themes and sub-themes. For example, three sub-themes under the theme ‘e-marketing capabilities’ were identified based

on the nature of the data, information generation, information dissemination and responsiveness. These three sub-themes originated from beyond the pre-defined concepts and were introduced to ensure that the data could best reflect on the key issues of the study. In summary, themes and sub-themes were created to reduce any confusion during the coding process in the next step (Ritchie and Spencer, 1994).

**Table 5.3: Sub-theme identification**

Theme	Sub-themes	Sources of sub-themes
Social media affordances	Meta-voicing, triggered attending, network-informed associating and generative role-taking	Pre-defined sub-themes
Social media capabilities	Sharing capability, community capability, relationship capability and conversation capability	Pre-defined sub-themes
Organisational culture capabilities	Adaptability, consistency, involvement and mission	Pre-defined sub-themes
Organisational structure capabilities	Formalisation, coordination and specialisation	Pre-defined sub-themes
E-marketing capabilities	Information generation, information dissemination and responsiveness	Emerging sub-themes
Cultural diversity	-	
Strategy development	-	

### 5.1.3 Step 3: Indexing and Theme Finalisation

After the themes and sub-themes were identified, the coding process began. This involved moving important phrases or quotations made by the respondents to the corresponding themes and sub-themes. All the coding steps were made using NVivo Pro 11, as an analysis tool to index references and annotations into the identified themes and sub-themes. To ensure that each phrase was coded into the correct theme, time was taken to repeatedly revise the data by going back and forth to decide which theme the data should be put into. The researcher also went through each transcript to ensure that all the themes and sub-themes were relevant and accurate, and to decide if any should be removed or added in order to make sure that the data fitted well within the established framework and answered the research questions (Kiernan and Hill, 2018).

Although cultural diversity was identified when reading the transcripts in Step 2, it was realised that the information explained by the interviewees related to this topic was often associated with how different perspectives of employees can lead to creativity and better problem-solving solutions. This is similar to the ‘involvement’ and ‘adaptability’ sub-themes, whose focus is on providing a team-working environment, and encouraging employees to be flexible and open-minded in relation to changing the environment, and becoming involved in decision-making processes. Specifically, the focus is more likely to be on the firm’s ability to motivate and encourage employees, whose backgrounds, skills and knowledge are different from each other, in order to express their opinions and play an active role in business processes for value

co-creation. Therefore, the theme ‘cultural diversity’ was removed and related information was accordingly coded into sub-themes under an ‘organisational culture capabilities’ theme.

Similarly, the ‘strategy development’ theme was also removed due to the nature of data. Strategy development refers to the process of planning and implementing strategies and value positions that provide insights into how resources should be allocated to complete different set of activities (Lanzolla and Markides, 2020). However, within the dataset, the information related to strategy development often concerns strategic direction, rather than actual strategies; i.e., firms often provide an overview of how they should be doing to achieve value co-creation, rather than providing clear step-by-step guidelines on how value co-creation can be achieved. Such information fits better into the ‘mission’ sub-theme under an ‘organisational culture capabilities’ theme, as it concerns the provision of guidelines and directions that enable the whole organisation to move towards customer centricity and value co-creation.

Relevant quotes that did not fit into the framework were also removed and assigned into an ‘other’ theme to ensure that the study would not miss any interesting insights (Ritchie and Spencer, 1994). These ‘other’ insights were then reviewed again to decide whether to remove or to keep them, and if kept, which themes or sub-themes they would represent. This step was repeated until it was sure that all the coding had been appropriately made and that the final themes and sub-themes represented the framework to answer the research questions. In other words, the data were not forced to fit into a particular pre-defined concept, but instead removed, if necessary, to maintain the quality of the results. Table 5.4 illustrates the revised themes and sub-themes after the process of indexing (or coding). Six themes remained, including the ‘other’ theme, which summarised all the interesting insights that may or may not influence the results.

**Table 5. 4: Revised themes and sub-themes after indexing**

Theme	Sub-themes	Sources of sub-themes
Social media affordances	Meta-voicing, triggered attending, network-informed associating; generative role-taking	Pre-defined sub-themes
Social media capabilities	Sharing capability, community capability, relationship capability, conversation capability	Pre-defined sub-themes
Organisational culture capabilities	Adaptability, consistency, involvement, mission	Pre-defined sub-themes
Organisational structure capabilities	Formalisation, coordination, specialisation	Pre-defined sub-themes
E-marketing capabilities	Information generation, information dissemination, responsiveness	Emerging sub-themes
Other	-	

#### 5.1.4 Step 4: Framework Matrix Creation

At this stage, the indexed data were used to create the framework matrix using Microsoft Excel. This is a summary of all the indexed data with different themes and sub-themes in one dimension, and different cases in another dimension of

value co-creation to understand the patterns. The framework matrix allowed the study to observe how the responses were categorised into corresponding themes and sub-themes and produced key concepts that directly answered the research questions, as well as gaining overall insights into the data and comparing the data within and across cases. Based on the typology of value co-creation proposed in Chapter 2, four cases represent the four types of value co-creation. Each interview response was assigned to represent each of these types. Therefore, all the indexed data were categorised into their respective types or cases. At the same time, all these data in each case were carefully reviewed individually and replaced with keywords. The reason for doing this was that it was impossible to put all the data into the framework matrix, so keywords were used as a form of data reduction. Specifically, the study assigned keywords to represent the meanings of the data. Table 5.5 illustrates examples of keywords, which replaced indexed data. After indexing the data into their corresponding themes and sub-themes, the researcher then looked at individual indexed data and highlighted key sentences, replacing them with keywords. Hence, the use of keywords helped to avoid any confusion that may have arisen, thus helping to reduce the time taken in the process of charting.

Once all the indexed data had been replaced by keywords, they were reassigned into their corresponding cases and a framework matrix created. Table 5.6 illustrates the matrix, summarising the keywords that explain the role of social media in facilitating value co-creation processes (RQ1); i.e., the use of social media affordances to develop social media capabilities to engage customers in the different processes. The meanings of the different keywords is explained in Appendix 10. Based on the framework matrix, it was found that different types of value co-creation often utilise varying sets of social media affordances to develop different social media capabilities to support the range of activities organised with customers (discussed in detail in Section 5.2).

Table 5.7 summarises the different sets of capabilities, including organisational culture, organisational structure and e-marketing capabilities, required to support an e-transition model towards value co-creation (RQ2), specifically in the four types of value co-creation, co-ideation, co-production, co-process and co-experience (RQ3). The keywords used in this table were based on the pre-defined terms discussed in Chapter 2. It was possible to show that different types of value co-creation require different sets of capabilities. For example, under organisational culture, the framework matrix shows that all four types of value co-creation focus on developing adaptability capability, while the co-process remains lacking in consistency and involvement capabilities. Similarly, the co-production requires a mission capability to support an e-transition towards value co-creation. On the other hand, under organisational structure, all four types of value co-creation have a low level of formalisation and a higher level of specialisation in supporting customer integration in innovation processes. Coordination is also present in all the types. Therefore, with the framework matrix, it was possible to summarise the data so that it could easily be compared between the cases and the themes and sub-themes, enabling the study to gain insights into the overall picture of the phenomenon. In addition, information generation, information dissemination and responsiveness were required in all types of value co-creation. In other words, e-marketing capabilities are required to support the e-transition model of value co-creation for innovation in SMEs. Further discussion related to the key firm-level capabilities is presented in Sections 5.3 and 5.4.



**Table 5. 5: Examples of replacing indexed data with keywords**

Theme / Sub-themes	Indexed data	Keywords
<b>Meta-voicing</b>	So, if we post something and a lot of <b>people like</b> ... <i>That is the opportunity to see whether people are interested in that particular bands or not. For the comments, people usually complaints regarding to our service</i> ... <i>We tried to communicate and asked for the real problems,</i> ' (ID11).	Liking and Commenting
<b>Sharing capability</b>	'We [company] only have Facebook Page to communicate and interact with customers. We use Facebook as a mean to share and exchange experiences with our customers.' (ID25).	Experience sharing
<b>Involvement</b>	'We have to improve ourselves (e.g. more trainings and knowledge development), encouraging everyone to build up their dots. When the time goes by, they will start to see that those dots are actually connected. We try to bring out everyone's abilities and skills.' (ID8).	Capability development
<b>Adaptability</b>	'I [manager] am always online on weekend so it became our culture that we talk and discuss on weekend. The reason for this is that customers on social media are always active. This therefore affects us to always be online and responsive to them' (ID8).	Learning to adapt
<b>Coordination</b>	'I [employee] think we do not really have an organisational structure. We are responsible for our own tasks <b>but we do work in teams</b> . We need to be able to support each other across the organisation. Each employee here is <b>multi-tasking</b> , I would say.' (ID9).	Horizontal coordination
<b>Formalisation</b>	'...we [company] do have <b>calendar checklists</b> for everyone to acknowledge the work process so everyone can do their tasks accordingly... We just inform them the deadline for the whole project and <b>we let everyone do their jobs in their ways</b> .' (ID11).	Less formal structure

**Table 5. 6: Framework matrix on social media affordances and capabilities in four dimensions of value co-creation**

Co-creation dimensions	Social media affordances				Social media capabilities			
	Meta-voicing	Triggered attending	Network-informed associating	Generative role-taking	Sharing capabilities	Conversation capabilities	Community capabilities	Relationship capabilities
Co-ideation	- Post content (verbal and video) - Liking - Commenting - Live streaming	-	- Hashtaging - Friend tagging	-	- Content sharing - Information, knowledge and feedback sharing	-	- Community building	-
Co-production	- Blogging - Commenting - Post content - Liking	- Location finding	- Hashtaging - Friend tagging	- Complaining - Customised messaging	- Information, knowledge and feedback sharing	- Quick responses to create conversation - Direct communication to targeted customers	- Community building - A sense of community	-
Co-process	- Commenting - Post content (visual) - Liking	- Notifications	- Friend tagging	- Customised messaging	- Content sharing - Information, knowledge and feedback sharing	- Creating virtual focus groups - Online interactions with customers (informal) - Quick responses to create conversation	- A sense of community	- Potential relationships identification - Relationship building
Co-experience	- Post content (visual) - Commenting - Photo sharing - Blogging	-	- Hashtaging	- Complaining - Recommending	- Information, knowledge and feedback sharing - Experience sharing	-	- Connection and Referrals - Online communities	- Relationship building with firms and among customers

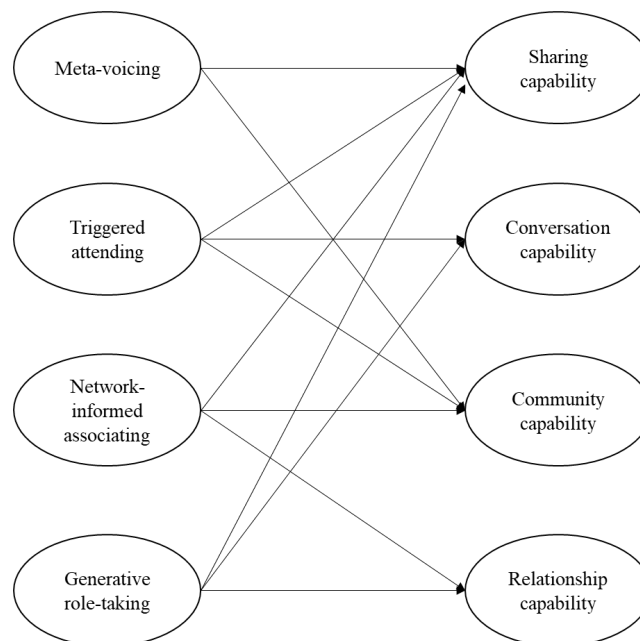
**Table 5. 7: Framework Matrix on Organisational culture, Organisational structure and E-marketing capabilities**

	Organisational culture capabilities				Organisational structure capabilities			E-marketing capabilities		
	Adaptability	Involvement	Consistency	Mission	Formalisation	Coordination	Specialisation	Information generation	Information dissemination	Responsiveness
Co-ideaation	-Creating change -Learning to adapt - Organisational learning	-Coordination	-Empowerment -Team orientation	-Strategic direction	-Less formal structure	-Horizontal coordination	-Specialised units for specific markets	-Well-managed communication	-Discussion among employees, Problem solving	-Quick responses to customers
Co-production	-Creating change -Customers focus	-Coordination -Core values	-Empowerment -Capability development		-Less formal structure -Some formal procedures	-Horizontal coordination -Informal coordination	-Specialised units pro specific markets	-Firm-customer interaction enhancement	-Problem solving	-Quick responses to gain customer satisfaction
Co-process	-Creating change -Customers focus			-Strategic direction	-Less formal structure	-Horizontal coordination	-Specialised units for specific markets	-Relationship building	-Problem solving Tool adaptation	-Quick responses to gain customer satisfaction
Co-experience	-Creating change -Customer focus - Organisational learning	-Coordination -Core values	-Empowerment -Team orientation	-Strategic direction -Goals and objectives	-Less formal structure	-Informal coordination	-Specialised units for specific markets	-Firm-customer interaction enhancement (e.g. more software)	-Discussion among employees	-Quick responses to customers

### 5.1.5 Step 5: Data Interpretation

After the creation of the framework matrix, the data contained within it were interpreted (Table 5. 6 -Table 5. 7) to make sense of and gain in-depth insights into the e-transition model of value co-creation and the key capabilities needed to support the process, specifically the four key types of value co-creation (refer to Section 4.1). At this stage, the interpretation of the data aims to understand the patterns, including the commonalities and differences, among all the types of value co-creation. Specifically, this stage focuses on understanding the commonalities and differences in the use of social media and key capabilities required to support all the types of value co-creation. Based on Table 5.6, the links between social media affordances and capabilities (or the role of social media) are interpreted to generate in-depth insights into how firms can use social media to facilitate an e-transition model towards value co-creation (RQ1). The concept of social media affordances is that actions that can be taken when parties (firms and customers) use social media to achieving different goals and objectives (Cabiddu, De Carlo and Piccoli, 2014). Moreover, social media capabilities can be described as a firm's ability to utilise different social media affordances to organise and complete certain actions or tasks towards achieving its goals (Kargaran *et al.*, 2017). Based on the interpretation, there is a positive relationship between social media affordances and capabilities; i.e., the utilisation of different social media affordances, such as likes, comments and hashtags, can develop different social media capabilities that enable firms to support customer integration in the value co-creation process. To gain further insights into such relationships between social media affordances and capabilities, keywords were compared under both themes, social media affordances and social media capabilities, and the indexed data in each theme reviewed again to ensure that interesting insights were being captured. After the review, a mind map was created to gain the overall insights. Based on Figure 5.1, it is shown that specific social media affordances enable firms to encourage customers to participate and take different actions in contributing their information and knowledge to the co-creation of different outcomes towards innovation, which will be discussed in Section 5.2.

**Figure 5.1: Mind map showing the links between social media affordances and capabilities**



To address RQ2, the data were interpreted based on the framework matrix (Table 5. 7). The findings show that four aspects of organisational culture capabilities (involvement, adaptability, consistency and mission) are required to facilitate customer integration into value co-creation processes. These four aspects help firms to reshape employees' mind-sets and behaviours towards value co-creation with customers through training, organisational learning, team orientation and strategic orientation. On the other hand, three aspects of organisational structure capabilities (formalisation, coordination and specialisation) help to support the way firms work and process towards integrating customers in value co-creation processes. The development of decentralised structures is more likely to influence the way employees collaborate with each other to find the best solutions to better engaging customers in participating in activities towards value co-creation and innovation. Although the findings on organisational culture and structure capabilities support the current literature, it is further argued that e-marketing capabilities should be viewed in terms of information generation, dissemination and responsiveness, specifically in the context of value co-creation. Since e-marketing capabilities related to these three aspects are often viewed in light of customer relationship management (CRM) (e.g. Trainor et al., 2014b), the study provides additional insights by linking the concept with the process of technology-enabled value co-creation. Further discussion is provided in Section 5.3.

However, the findings show that not all aspects of the three capabilities are required to support every type of value co-creation. To address RQ3, the study further investigated each type of value co-creation and the capabilities required to support each process. It was found that different sets of capabilities are required to support specific activities at different stages of the innovation process, and that different aspects of capabilities are needed to support customer integration in co-creating different outcomes aimed at innovation. Based on Table 5. 7, another table was created, which summarises the key capabilities in each type of value co-creation. Table 5.8 summarises all the key capabilities supporting the four specific types of value co-creation. Specifically, some capabilities are required in all the types, while others may be required for particular types of co-creation activities at particular stages of innovation. The capabilities that are required in all types of value co-creation are viewed as 'core capabilities', whereas those required to support specific types are considered as 'additional capabilities'. The discussion of both core and additional firm-level capabilities is extended in Section 5.4.

**Table 5. 8: Summarised table on key firm-level capabilities supporting different dimensions of value co-creation**

Co-creation dimensions	Social media capabilities				Organisational culture capability				Organisational structure capability			E-marketing capabilities		
	Sharing capability	Community capability	Relationship capability	Conversion capability	Adaptability	Involvement	Consistency	Mission	Formalisation	Coordination	Specialisation	Information generation	Information dissemination	Responsiveness
Co-ideation	X	X			X	X	X	X	X	X	X	X	X	X
Co-product ion	X	X		X	X	X	X		X	X	X	X	X	X
Co-process	X	X	X	X	X			X	X	X	X	X	X	X
Co-experience	X	X	X		X	X	X	X	X	X	X	X	X	X

## 5.2 Social Media as an Enabling Tool to Support an E-transition Model in SMEs

The first research question (RQ1) aims to understand the role of social media in facilitating an e-transition model of value co-creation for innovation. Based on the framework matrix (Table 5. 6), the qualitative findings reveal that different social media affordances enable SMEs to develop different sets of social media capabilities to facilitate customer integration into value co-creation processes for innovation (Appendix 11). The use of specific affordances allows SMEs to take certain actions with customers, while customers can respond to firms' activities using the different features of social media to generate conversations and collaboration. With limited resources, SMEs can choose the types of social media affordances they wish to use to focus on developing specific social media capabilities to support value co-creation with customers. According to Figure 5.1, it is not always strictly one type of social media affordances that facilitates a certain type of social media capability. Instead, the study highlights the common linkages between social media affordances and capabilities geared towards value co-creation in SMEs.

### 5.2.1 Meta-Voicing for Sharing and Community Capabilities

The *meta-voicing* affordance is associated with sharing opinions and adding information to existing content (Malsbender, Hoffmann and Becker, 2014). It often involves posting content regarding different topics to gain insights from customers through their liking, voting, and commenting on the online posts (Ghantous and Alnawas, 2021). The use of such features enables firms and customers to share relevant information, knowledge and other related resources (e.g. skills) to generate greater insights into issues, thus developing a *sharing capability* to support customer integration into value co-creation processes. For example, in the case of respondent four (ID4), the company posts various content videos related to its products, for example coconut oil-based skincare, and its correct use for different purposes. The company randomly talks about different topics, such as dieting, hair care and skincare, in exchange for customer responses in terms of likes and comments. Customers tend to like or comment when the topics are of interest to them or represent current problems that they wish to solve (e.g. ID9, ID12 and ID25). As a result, the company gains overall insights into customer interests and lifestyles, therefore allowing them to modify the content of their videos in accordance with customer demand, and to attract them to be involved in value co-creation activities for innovation (e.g., ID1 and ID4). Based on the ID4 case, the company uses such customer insights and converts these into exciting campaigns with topics that customers are most interested in. Therefore, such customer insights gained also allow companies to further improve their marketing activities and campaigns, as well as their innovativeness.

On the other hand, ID22 highlights the importance of blogs as a means of creating online communities for their customers. The firm posts about its experiences associated with the products and services, expecting customers to respond by sharing their own experiences in order to create an overall superior experience (e.g., ID23, ID25 and ID27). Customers also become engaged in such posts by not only sharing their experiences, but also by responding to other customers by providing answers to questions asked related to the products and services (e.g. ID22). Specifically, customers participate in such activities to co-create value; i.e., they receive value in terms of expertise and reputation, while firms gain value in terms of connectedness. More importantly, firms are able to build a community that brings together customers who are ready to support them and willingly act as a part of the business, thus generating *community capability*. In other words,

firms can gather together customers with the same or similar interests in order to exchange relevant information, creating a strong connection between the firms and customers, as well as among the customers themselves.

### 5.2.2 Triggered Attending for Sharing, Community and Conversation Capabilities

The **triggered attending** affordance is associated with the use of social media to notify and remind people to participate in online knowledge conversations. Customers are able to select the types of activity they want to participate in, search and receive information they are interested in by using the notification and reminder features (Hansson, Wrangmo and Søylen, 2013). Based on the interpretation, the study found that the use of such notifications and reminders enables firms to share information, create communities and generate in-depth conversations with customers. For example, one customer (ID17) follows the company's Facebook page to receive notifications on any updates regarding the firm and its services. The customer customises the information she wishes to receive and sets notifications to receive such information. The customer immediately participates in co-creation activities after she receives notifications, checking out new updates and making comments to express her opinions, and sometimes trying out the services to provide feedback, without having to browse for such activities (e.g. ID10 and ID14). In doing so, she is able to maintain connections with other customers during her participation. *'We [customers] receive connections because these activities usually involve experts and skilled golfers. So, engaging in these activities would provide us the opportunity to meet these people and interact with them'* (ID17). Therefore, firms can benefit from the use of triggered attending and develop **sharing and community capabilities** to support customer integration in value co-creation activities on social media.

Furthermore, firms can also create conversations with customers when they are notified to participate. Firms tend to be notified when customers express their opinions through likes and/or comments, allowing them to quickly tackle any problems and respond to customers, resulting in continuous conversations (e.g., ID6 and ID11). In the case of ID21, the firm received notifications after a customer complained about the service. It turned this opportunity into a chance to apologise about such an incident and quickly responded in order to create in-depth conversations with its customers. Specifically, *'the company commented back apologising and asking for more information in order to check if the situation was really that. Then, they contacted back to clarify the problems and took them into consideration for further improvements, so that the same problem won't happen again'* (ID21). In other words, triggered attending provides an opportunity for firms to develop **conversation capability** aimed at value co-creation. As a result, they can gain insights and feedback from customers and convert these into ideas for further improvements towards innovation (e.g. ID15).

### 5.2.3 Network-Informed Associating for Sharing, Community and Relationship Capabilities

The network-informed associating affordance is linked with the use of hashtags and friend tagging to involve others to participate through content and relational ties (Aghakhani, Karimi and Salehan, 2018). Firms can gain benefits from creating and involving hashtags in their posts in order to effectively share, store and access information with customers under specific keywords at any time. For example, ID11 highlighted the use of hashtags alongside posts related to their services was a great way to encourage customers to participate in value co-creation activities. Companies can use hashtags as a means of creating a community for customers, in which they can share and exchange information relevant to the



services. At the same time, customers can also create hashtags by themselves and share information and experiences with the firms and customers (e.g. ID22). In the case of ID26, customers use the company's online community as a hub to share experiences and gain relevant information, as well as to tag friends to participate in various activities, thus generating *sharing and community capabilities* to facilitate customer integration in value co-creation processes. Specifically, the network-informed associating affordance enables firms to create online communities, in which customers can share relevant information on whatever topic in order to co-create ideas and solutions to improve current products (e.g. ID4), services (e.g. ID11 and ID14) or experiences (e.g. ID22, ID23, ID25, ID26 and ID27).

Moreover, the findings reveal that the use of network-informed associating affordances can also bring customers together to discuss topics in order to build networks and relationships among themselves and with the firms. For example, friend tagging enables customers to further involve their friends in co-creation activities, generating greater insights and connectedness between individuals. In the case of ID20, customers often tag their friends to participate in co-creation activities. *'I [customers] sometimes do engage in these activities by commenting and tagging friends in order to invite them to see the posts and try new flavours [products] together'*. Friend tagging not only allows customers to build relationships with their friends, but also allows firms to develop relationships with potential customers (e.g., ID9). Therefore, the use of hashtags and friend tagging allows firms to develop not only sharing and community capabilities, but also a *relationship capability* to support customer integration in value co-creation processes for innovation. In other words, firms can benefit from the use of network-informed associating affordances to understand the relational ties between firms and customers, as well as among themselves. Understanding customers' emotional links to value co-creation activities allows firms to maintain relationships with existing ones, whereas relational ties allow firms to build relationships with potential customers.

#### 5.2.4 Generative Role-Taking for Sharing, Conversation and Relationship Capabilities

The generative role-taking affordance is associated with users taking actions in communities by engaging in online conversation to maintain a productive dialogue among participants (Malsbender, Hoffmann and Becker, 2014). With this type of social media affordance, customers can share their feedback or complain about certain issues with products and services (Majchrzak *et al.*, 2013b). Based on the analysis, it was found that this affordance is often used in value co-creation activities that require a higher level of customer participation; i.e., customers need to be willing to discuss matters with firms to create mutual understanding and find solutions that best satisfy both of them (e.g. ID6). For example, in the case of ID21, the customer shared his experience and complaints about the products and services that he received on social media. The company then reached back to customers and responded to the complaint, apologising and explaining the issue (e.g. ID18). Therefore, the generative role-taking affordance enables firms to develop a *sharing capability* between them and their customers. In addition, firms can also respond to customer complaints by asking them to further discuss matters in order to gain in-depth understanding of the problems. Often, customers who express their concerns about products and services are willing to provide more detailed information to firms through conversations, hoping that they will take these into consideration (e.g. ID15). This act of discussing and creating further conversations with customers allows firms to develop a *conversation capability* to support customer integration in value co-creation activities and further improve or develop new products and services.

Furthermore, the generative role-taking affordance provides an opportunity for firms to develop relationships with customers. In the case of ID18, the company always tries to build relationships with every customer who contacts it, especially when customers are actively taking a role in knowledge sharing, in order to gain customer insights to further engage them in value co-creation processes. Customers who willingly take action by contacting firms are more likely to be open to discussion, which leads to relationship building as the process of discussion progresses (e.g. ID11). This is in line with a number of respondents who highlight a positive linkage between the affordance of generative role taking and relationship building towards value co-creation (e.g., ID15 and ID16). Therefore, firms can benefit from generative role taking and develop a *relationship capability* to support customer integration in value co-creation processes aimed at innovation. Firms with strong customer relationships are more likely to successfully encourage customers to further participate in sharing and exchanging in-depth information, knowledge and ideas that may otherwise not be possible. In the case of ID15, the company always shape its employees towards interacting and building relationships with customers to further develop key understanding of customer needs and how to further involve them in effectively co-creating value for innovation: *‘customers with close relationships would provide us [the company] with unexpected information (information that general customers wouldn’t provide)’*. Therefore, with these social media capabilities, firms can better organise and manage value co-creation activities with customers aimed at innovation.

Therefore, the utilisation of different social media affordances enables firms, especially SMEs, to develop different sets of social media capabilities to facilitate an e-transition model of value co-creation for innovation (Appendix 11). Such a finding is supported by Harmeling et al.’s (2017) statement on the utilisation of different social media functionalities to engage customers in amplifying, connecting, and providing feedback and creativity to firms in order to co-create ideas, products, services and experiences. Understanding how each social media affordance enables firms to complete certain tasks and develop different sets of social media capabilities provides insights into how firms can better facilitate customer integration in value co-creation activities for innovation.

### 5.3 Key Capabilities to Support an E-transition Model in SMEs

The second research question (RQ2) aims to identifying the distinctive capabilities required to support an e-transition model of value co-creation for innovation. Following the analysis of the qualitative data, the findings reveal that three capabilities, organisational culture, organisational structure and e-marketing capabilities, are required to facilitate such an e-transition model. The development of each capability focuses on several aspects of the internal processes to support customer integration in value co-creation activities on social media. Based on the findings, four aspects of organisational culture capabilities (adaptability, involvement, consistency and mission), three aspects of organisational structure capabilities (formalisation, coordination and specialisation) and three aspects of e-marketing capabilities (information generation, information dissemination and responsiveness) are focused on in the following sections in order to gain insights into how each aspect of capabilities is needed to support the utilisation of limited resources of SMEs towards value co-creation processes with customers.

### 5.3.1 Organisational Culture Capabilities for Value Co-Creation in SMEs

#### *a) Adaptability for Value Co-Creation*

Based on the qualitative findings, it was found that the most significant organisational culture capability to support customer integration in value co-creation processes is adaptability. Being flexible in response to changes in customer demand enables SMEs to quickly adapt to continuously serve customers, which contributes to a higher level of competitive advantage than for those who are slow adaptors. For example, in the case of ID2, the company was unable to provide the solution to customers in time due to its lack of adaptability. Although the company used social media to involve customers in value co-creation processes and gain ideas on customer preferences in order to provide better solutions to them, it was not able to satisfy customer needs in time, resulting in a lower level of customer satisfaction. This shows that adaptability plays an important role in the way SMEs co-create solutions with customers aimed at innovation (e.g. ID11). This is in line with the response of ID15, who highlights the importance of adaptability to order to 'move fast' and 'make things' in responding to customer demand and differentiating themselves from competitors. The respondent further explains that firms that are more flexible are more likely to survive in the market, especially in a rapidly changing environment.

Unlike large companies, SMEs often operate with fewer employees in a family-like environment (e.g. ID25). *'Actually, I used to work in a proper [large] organisation, but in this company [SMEs], we [company] are more open [...]'* (ID19). That is, SMEs are more open-minded to learning and adapting to changes in market situations (e.g. ID8, ID16, and ID21). Such changes, including customer demand, directly influence the way SMEs interact and collaborate with customers. In the case of ID11, the company promotes flexible ways of working among employees in order to better serve different customer demands and continuously engage them in value co-creation processes. On the other hand, ID18 reshapes the way employees work towards value co-creation with customers by integrating technology (social media) in the process. However, ID2 argues that adaptability is not only associated with the external environment. SMEs also need to adapt internally (e.g. ID26), to be able *'to adapt to each other so that we can come up with best solutions for customers, especially the way we communicate with customers'*. Hence, the ability to adapt to both internal and external changes is significant for SMEs to support the system transition to technology-enabled value co-creation. Encouraging employees to focus on customers enables SMEs to better learn and identify opportunities to better engage them in value co-creation without being tied to the working style and processes within the organisation (e.g. ID8, ID15). Such findings on adaptability are in line with current knowledge on organisational adaptive capabilities, including the work of Akgün, Keskin and Byrne (2012), who highlight the significance of market, technology and management system adaptive capabilities on firm performance aimed at innovation.

#### *b) Involvement for Value Co-Creation*

Involvement is the firm's ability to effectively involve employees in various business processes to better generate outcomes towards its organisational goals (in this case, value co-creation with customers) (Amin, Ghazali and Hassan, 2020). The qualitative study has found that SMEs often try to involve employees in business processes, especially

decision-making processes, in order to find the best solutions for customers. In the case of ID12, the company gives authority to its employees to have control of and make decisions in their respective tasks. *'We [company] let our employees take decisions for their tasks but we [company] support them with relevant information, such as key messages that we [company] have to communicate or hashtags that we [company] have to include'* (ID11). Providing authority in these decision-making processes therefore motivates employees to share their expertise and contribute to greater value co-creation with customers (e.g. ID8 and ID25).

Team orientation is a common method used in SMEs to facilitate employee involvement in value co-creation (e.g. ID5 and ID19). Promoting employees to work and accomplish in teams often allows them to collaboratively share, discuss and develop solutions that are based on the combination of knowledge and skills of those involved, resulting in better value co-creation performance (e.g. ID25). For example, ID26 always encourage employees to sit down and discuss different problems together to find solutions that best answer customer needs. In teams, employees are more likely to participate and be involved in discussion, which leads to establishing what is good or bad for customers in value co-creation. *'I [manager] always discuss with others so that they [employees] feel involved in the decision making process. I do not want them to feel isolated or just be trying to complete their own work, but encourage them to feel that they are all representatives of the brand'* (ID4). ID8 further argues that providing training and other skill development programmes helps to improve employees' skills and knowledge to effectively participate, be involved and contribute useful solutions to teams. Without additional training, employees would continue doing the same things and not be able to effectively participate in business processes aimed at value co-creation with customers. In SMEs, the working style is more flexible, allowing employees to express their thoughts and ideas on how they think problems should be solved (e.g. ID19). The involvement of employees in business processes helps to generate solutions from different perspectives that can be combined and refined into one definitive solution that will best satisfy customer demand. As a result, refined solutions can be focused on and applied to facilitate customer integration in value co-creation processes. Therefore, developing an involvement capability enables SMEs to create an enthusiastic work culture and environment, which encourages the whole organisation to move towards value co-creation for innovation.

### ***c) Consistency for Value Co-Creation***

Consistency is defined as shared value and efficient ways of working to align everything together and provide quality value co-creation outcomes (Kotrba *et al.*, 2012). Based on the qualitative findings, it was found that maintaining consistency in serving customers is what determines their satisfaction level, which in turn influences their participation in value co-creation processes. In the case of ID4, the company set a standard level of working culture in which everyone is required to have basic knowledge of the brand and products. No matter what position they are in, they have to be able to work at the same standard level, not only responding to customers, but also interacting with them and taking in-action decisions. Similarly, ID8 follows the principles of start-up businesses, producing products that are 'scalable, repeatable and predictable'. Therefore, employees focus on these three principles when interacting and collaborating with customers in order to generate ideas that meet company objectives. Therefore, SMEs can maintain consistency during the process of customer integration in value co-creation.

Moreover, developing efficient procedures throughout the organisation allows SMEs to maintain an internal and stable focus on better supporting customer integration in value co-creation processes. For example, ID23 encourages employees to maintain consistency in the products and services in order to maintain customer satisfaction levels. To maintain such consistency, the company set up core values and communicated these across the organisation. Employees within the organisation then follow such values and use them as a guideline on how their work should be done and is consistent with organisational goals (e.g. value co-creation) (e.g. ID11). ID22 further highlights that employees do not necessarily need to apply the same methods to complete their tasks. Instead, they are encouraged to use the methods that they think best fit their working style in line with the core values to generate the best possible innovation outcomes. To support such a process, SMEs commonly use a form of calendar checklist as a platform for sharing individuals' work-in-progress in collaboratively completing projects aimed at value co-creation more effectively (e.g. ID4). In other words, the development of consistency is important in firms, especially SMEs. Unlike large organisations, which have a number of processes to go through to ensure consistency in their business processes, SMEs need to maintain consistency in the way they work collaboratively with customers in order to generate better innovation outcomes. Therefore, consistency is more likely to facilitate the standard and quality of processes when integrating customers in various value co-creation activities.

#### ***d) Mission for Value Co-Creation***

Mission is a firm's purpose, which guides and provides the whole organisation with a clear sense of strategic direction and vision for how it should drive towards its goals (Halim *et al.*, 2014). The qualitative study has found that setting a clear mission that guides the organisation in the same direction enables SMEs to shape the organisational culture towards value co-creation. For example, in the case of ID23, apart from setting up core values to maintain consistency, the company also set a clear mission that aimed to reduce the boundary between customers and the firm in order to provide a better customer experience. To achieve this mission, the company encourages employees to focus mainly on the services provided to customers (e.g. interaction), rather than hard selling, so that employees can work efficiently within the scope of value co-creation (e.g. ID22). By following this mission, employees are able to continuously interact with customers, and utilise their skills and expertise in involving customers in value co-creation activities.

Similarly, ID4 promotes a strategic direction that encourages employees to focus more on interacting with customers online to gain customer information and co-create solutions for improving its products and services. Providing a clear mission and strategic direction, and communicating these across the organisation, enables SMEs to effectively engage customers in value co-creation activities that aim to achieve the firm's overall goals and objectives (e.g., ID9 and ID25). For instance, the key vision of company ID15 is to provide better services to customers. To meet this vision, the company aims to reduce the time gap in services. With this aim, employees are encouraged to first understand customer demand for and expectations of services, and to find effective ways to interact with them to gain insights and further involve them in co-creating solutions to improve current services and/or develop new ones to better satisfy customer demand (e.g. ID21). At the same time, messages promoting value co-creation activities on social media also reflect the vision of the company (e.g. ID12). As a result, SMEs can better facilitate value co-creation processes with customers to help generate greater innovation. Therefore, a clear mission and vision act as a guideline for the whole organisation to perform towards value co-creation with customers.

Consequently, the development of organisational culture capabilities, in terms of adaptability, involvement, consistency and mission, are considered important in facilitating an e-transition model of value co-creation for innovation in SMEs. Different organisational culture capabilities help to support different aspects of business and value co-creation processes. Specifically, adaptability is associated with a firm's ability to learn about and adapt to changing internal and external environments. SMEs require employee involvement in such business processes to effectively learn, adapt and identify new opportunities for value co-creation with customers. This includes the firm's ability to enhance and strengthen employees' skills and knowledge of value co-creation. To support all these actions, SMEs also need to maintain consistency within its processes; employees should work in a synchronised way with each other to provide quality value co-creation outcomes. The roles of a clear mission and vision can help to support the overall working style and processes of the organisation.

### **5.3.2 Organisational Structure Capabilities for Value Co-Creation in SMEs**

#### ***a) Formalisation for Value Co-Creation***

Formalisation is the firm's ability to develop rules, systems and procedures that help to determine the duties, decisions and working relationships of organisational members (Schminke, Ambrose and Cropanzano, 2000). Based on the qualitative results, the study found that formalisation, or the setting up of formal systems or procedures for value co-creation processes will generate quicker interactions and responses, which in turn will result in effective customer integration in such processes. Unlike large organisations, SMEs often have less complex structures, so are more decentralised, with few formal systems and procedures to support employees' work (e.g. ID4, ID9, ID16, ID22 and ID23). Decentralised structures, in this case, are associated with the provision of authority for employees to take decisions related to their respective tasks. However, the final work draft still needs to be approved by managers or higher-level coordinates to ensure the quality of the work (e.g., ID5). ID15 highlights the importance of redesigning organisational structure capabilities every 6-12 months to enhance job rotation and encourage employees to work from various perspectives in order to generate new ideas for value co-creation. Promoting a more decentralised structure therefore helps SMEs to create more friendly systems and procedures that bring out the best in employees, while moving in the same direction (value co-creation) (e.g. ID8).

With such decentralised structures, SMEs often emphasise the importance of working in small teams to enhance collaborative work processes (e.g. ID2 and ID12). Although they work in such small teams, rather than departments, employees are often encouraged to discuss and share ideas related to their work with each other to develop better solutions for value co-creation processes (e.g. ID1). In the case of ID11, the company created checklists which employees are required to update whenever they completed tasks, so that the overall work process can be tracked, monitored and maintained by organisational members. The checklists allow the company to not only update the work-in-progress of employees, but also to create the working procedures for the whole organisation towards value co-creation. As a result, employees are aware of the tasks completed and what needs to be done, and utilise their resources, skills and expertise to complete unfinished tasks in order to produce greater value co-creation outcomes. Similarly, ID12 highlights the use of emails to inform about the work-in-progress of individuals and to ensure that the end results are up to standard. Therefore, the qualitative results indicate that it is important for SMEs to develop a more decentralised structure with some formal

systems and procedures to support customer integration in value co-creation processes. This is in line with a number of studies, which have highlighted the significance of combining formal and informal structures to generate the best possible value co-creation and innovation outcomes (Maduenyi *et al.*, 2015; Prakash and Gupta, 2008).

### ***b) Coordination for Value Co-Creation***

Coordination occurs when employees across organisational units work together to share knowledge and to find the best solutions for customers (Bonacchi and Perego, 2011). The qualitative findings reveal that such coordination often contributes to problem solving to generate better solutions for customers (e.g. ID26). ID2 highlights the ability to multi-task and support each other within the organisation. Multi-tasking allows employees to fill any gaps that may arise during the process of customer integration in value co-creation processes. Although employees are aware of their own tasks and responsibilities, they should be able to support each other when needed in order to provide the best solutions possible for customers (e.g. ID9 and ID25). For example, in the case of ID12, the company employs social media platforms, including Facebook and the Line application (chat application), to communicate with each other on projects, to discuss any issues employees are facing, and find the best solutions to overcome problems together and thus move the whole organisation towards value co-creation. Moreover, ID8 emphasises the need to reduce the boundaries between managers and employees and set the example of focusing more on problems, rather than individual goals and objectives; i.e., promoting not only coordination among employees (horizontal coordination), but also between managers and employees (vertical coordination) to generate better value co-creation outcomes.

By adopting a decentralised structure, SMEs can better facilitate coordination within the organisation. They often involve both horizontal and vertical coordination, which is less likely to be adopted in large organisations due to their hierarchical levels of management. ID25 emphasises the two types of coordination in SMEs as ‘family-like coordination’, in which employees and managers continually discuss and exchange ideas whenever they want to enhance the free flow of communication within the organisation. This is in line with current thinking on knowledge management (e.g. Khan, Usoro and Crowe, 2020). That is, coordination within organisations is more likely to facilitate knowledge sharing, thus reducing coordination failures and leading to better performance towards value co-creation (Cuijpers, Guenter and Hussinger, 2011). In other words, coordination within and across organisational teams or units enables SMEs to provide more solid solutions that better satisfy customer needs and problems (e.g. ID12).

### ***c) Specialisation for Value Co-Creation***

Specialisation refers to the degree to which tasks and activities are divided in an organisation based on the development of the specific knowledge of a group of individuals (Cosh, Fu and Hughes, 2012). Unlike large organisations, SMEs may not require the development of new specialised departments. Rather, they are encouraged to assign individuals or groups of individuals to specifically be responsible for specific areas or markets; for example, creating teams that are specialised in certain areas, such as finance, accounting, marketing and social media content, which enables SMEs to work in more effective ways. The qualitative results show that obtaining specialisation or setting up specialised teams or units to support specific groups of customers or tasks allows SMEs to better understand customers and involve them in value co-creation

processes. For example, in the case of ID8, the company needed to set up a specialised team specifically to look after Japanese customers to better understand, respond to and engage with them in the value co-creation process. The respondent further explained that since Japanese customers have different cultures and backgrounds, which influence the way they think and behave, it was important that the company created a specialised team to specifically learn about them, understand their background, generate useful insights and find the best ways to engage them in various co-creating activities.

Similarly, ID1 highlights the need to develop a specialised team when the business enters e-commerce. Since e-commerce is a totally different platform to physical retail (e.g. Lestari, Muhdaliha and Putra, 2020), it is important for SMEs to develop specialised skills and knowledge to master it, in order to understand the needs and problems of online customers, identify new opportunities to engage them online and to provide effective processes for them from start to finish. To support this argument, ID8 further explains that SMEs require specialisation to support firm-customer interactions on social media aimed at value co-creation. The respondent highlighted that creating specialised teams that look after customers enables SMEs to better understand and facilitate continuous interactions with them. Specialised employees are specifically trained to review customer comments, approach customers (if needed) and respond to customer needs to encourage their participation in co-creating ideas and solutions towards innovation.

Therefore, the development of organisational structure capabilities can positively support the process of value co-creation with customers. Although individual SMEs may have their own ways of redesigning their organisational structure, focusing on these three aspects of related capabilities will enable them to redesign their routines and patterns with regard to value co-creation for innovation. The way SMEs work, coordinate with each other, and support customers helps to determine the way they integrate customers in value co-creation processes.

### **5.3.3 E-marketing capabilities**

#### ***a) Information Generation for Value Co-Creation***

Information generation is the firm's ability to use social media technologies to collect and generate information from customers and markets (Trainor et al., 2014a). Based on the qualitative analysis, the study found that the use of social media is commonly focused on SMEs as an effective way of collecting and generating information from customers and markets. For example, ID11 and ID23 emphasise the importance of using social media to collect customer information to better understand them and accordingly to generate marketing activities, including value co-creation. Customer information collected on social media enables SMEs to analyse demand and effectively segment them into different groups that may require different methods of engagement in value co-creation processes (e.g. ID5). ID12 argues that the use of online content also helps SMEs to better generate customer information; i.e., effective online content often draw customers into commenting and providing information that may be relevant for firms. Failure to create effective content may lead to a lack of communication, which may in turn result in a lower customer participation (e.g., ID16).

Furthermore, ID9 emphasises the importance of CRM capability in building relationships with new customers, as well as maintaining relationships with existing ones to better generate information and accordingly engage them in value co-creation processes. Having strong relationships with customers often contributes to information generation, as they



are more open and willing to share information in detail, which can be converted into relevant innovation initiatives (e.g. ID18). ID22 specifically highlights the use of the CRM system to collect more data, and to store and manage them (or the process of information generation), which allows SMEs to better utilise such data in value co-creation processes. Although SMEs often lack the financial resources to adopt CRM systems to support the process of information generation (e.g. ID8), they can still utilise social media as a means of generating customer insights, developing relationships with them and more effectively attract them to participate in value co-creation activities. In other words, the development of an information generation capability allows SMEs to better understand customers and adopt suitable methods to integrate them in value co-creation activities on social media for greater innovation.

### ***b) Information Dissemination for Value Co-Creation***

Information dissemination is the firm's ability to use social media technologies in distributing customer and other relevant information across the organisation (Trainor et al., 2014a). Although the qualitative findings emphasise the importance of integrating social media in the process of information generation, the study also highlights the effectiveness of using it as a means of communicating, sharing and exchanging information related to customers across the organisation (e.g. ID11). For example, ID12 highlights the process of using emails and social media platforms as a medium through which all employees can discuss and exchange customer-related information to provide insights into current customer needs and problems. *'We [company] actually communicate on social media almost every day. Some of the work might not be relevant to me [employee] so I will not be involved in those conversations, but if it is necessary for me to know, we [company] have a group chat to discuss everything together'* (ID12). The firm's ability to effectively distribute customer information across the organisation using social media helps to facilitate the way SMEs solve problems and find solutions that bridge customer needs and their own competencies (e.g. ID5, ID8 and ID24). Specifically, ID15 argues that the firm's ability to develop tools or methods to better analyse and evaluate customer information and support the information dissemination process also allows SMEs to facilitate better customer integration in value co-creation processes.

Since SMEs often operate in a more decentralised structure (as discussed in Section 5.3.2), they are more flexible in using both offline and online platforms to make their communication and information distribution processes more effective and efficient. Using social media enables SMEs to collect customer information and spread it across the organisation in a short time (e.g., ID26). As a result, they can develop solutions that allow them to quickly approach and capture customer needs and effectively engage them in co-creating greater innovation outcomes (e.g. ID19). Therefore, SMEs' ability to integrate social media into the circulation of customer information helps them to quickly react and take action.

### ***c) Responsiveness for Value Co-Creation***

Responsiveness is the firm's ability to use social media technologies to respond to customer information and other market-related factors (e.g. competitors) (Trainor et al., 2014a). Based on the qualitative findings, ID8 highlights the importance of responsiveness. The respondent explains that quick responses are considered a key factor in successful firm-customer interaction. The more quickly firms respond to customers, the higher the chances of them creating continuous interaction and facilitating good relationships, which lead to better customer engagement in value co-creation

(e.g. ID3). Firms often use social media as an effective means of responding to customer comments and feedback by liking, commenting or approaching them to discuss matters. For example, ID8 emphasises the importance of responsiveness, highlighting the careful procedure taken by the company to effectively respond to customer information or demand in the market. The respondent further explains that it is necessary to understand customer needs and the market situation in order to effectively respond, with the aim of generating greater value co-creation outcomes. In particular, it is important for SMEs to quickly respond to customer demand because (i) customers wish to see the end results quickly, and (ii) there are a number of competitors in the market (e.g. ID16). The more quickly SMEs can use social media to support the process of responding to customers, the greater their chances of creating continuous interactions with them (e.g. ID1 and ID11). Failure to respond to such customer demand may lead to a fall in customer satisfaction levels, thus reducing the chances of customer participation in value co-creation processes (e.g. ID2 and ID23). Vice versa, if SMEs are able to continuously respond to customers, they are more likely to create permanent customer engagement in value co-creation activities (e.g. ID12).

Given that SMEs adopt more decentralised organisational structures (as discussed in Section 5.3.2), they are more likely to quickly respond to customers and markets, compared to large organisations. With SMEs' flexibility in working styles and processes, they can work in a faster manner towards responding to customers and markets, resulting in real-time conversations between them and customers (e.g., ID19). In particular, SMEs can use all the information collected from customers and shared among employees to find the best ways to respond and effectively gain their trust, and establish if they are willing to participate in value co-creation activities in the future (e.g., ID22). Therefore, a firm's ability to use social media technologies to quickly respond to customer demand often leads to a higher level of interaction and collaboration between it and customers.

Consequently, firms' ability to effectively use social media technologies to generate customer information, disseminate it across the organisation, find solutions and quickly respond to customers helps to facilitate a better value co-creation process with customers, which in turn may generate greater innovation outcomes. Specifically, the development of e-marketing capabilities helps SMEs to better integrate the use of social media technologies in the marketing processes to better gain insights into customer needs and problems, to collaboratively share and exchange information and solutions, and to effectively and carefully react and respond to customer demand. As a result, SMEs can create real-time interactions with customers, which will tend to increase customer satisfaction and thus increase the chances for their participation in value co-creation activities organised by them.

Table 5.9 summarises the distinctive capabilities, specifically social media ones, and organisational culture, organisational structure and e-marketing capabilities, required to support a system transition to technology-enabled value co-creation for innovation. Social media capabilities enable SMEs to make the overall process of value co-creation easier for customers to participate in, while it acts as a cost-effective tool for firms to co-create such value with customers. Other capabilities, including organisational culture, organisational structure and e-marketing ones, provide the overall abilities to support an e-transition model; i.e., how SMEs can internally support customer integration, while integrating customers as co-creators in innovation processes. In particular, organisational culture capabilities enable SMEs to frame a customer-centric environment that encourages the whole organisation to better understand and serve customers. At the same time, such capabilities support the overall value co-creation processes with customers. To support these organisational capabilities, the development of e-marketing capabilities enables SMEs to manage the customer information collected on social media in order to generate greater creativity and innovativeness.

**Table 5. 9: Dynamic capabilities required to support an e-transition model towards value co-creation for innovation**

KEY CAPABILITIES		DEFINITION	ILLUSTRATIVE QUOTATIONS	CASE ID IN WHICH EACH CAPABILITY WAS REQUIRED
SOCIAL MEDIA CAPABILITIES	Sharing capability	The ability to share information and knowledge on the product- and service-related topics among individuals on social media that helps in the accumulation of knowledge capital (Kargaran et al. 2017).	We [company] usually create content videos on social media, talking about the benefits of [products]. Customers usually like, comment and share to show interests in certain topics, such as [its usage and benefits]. We try to attract customers into interactions with us in order to exchange information and knowledge related to the products. Customers gain knowledge on how [products] can be used for different purposes, whereas [the company] gains insights on certain topics that [customers] are current interested that can later be converted into ideas for future content. (ID4)	ID1, ID3, ID4, ID5, ID6, ID9, ID10, ID11, ID12, ID13, ID14, ID15, ID16, ID17, ID19, ID20, ID21, ID22, ID24, ID25, ID27, ID28
	Community capability	The ability to create virtual communities on social media from current and potential customers around topic, brands or specific products in order to interact with each other and to share information and knowledge on the products and services (Kargaran et al. 2017).	I [customer] like, comment and share my experiences on Facebook. There was an incident when I shared my experiences on services I received from [the company]. I talked about my feelings and a kind of services I received that they were really amazing and unforgettable. I would say that it was more like a confirmed message to others who wish to go there. So, it is more like recommending good stuff to friends. (ID28)	ID1, ID4, ID8, ID11, ID12, ID13, ID14, ID17, ID20, ID22, ID23, ID25, ID27, ID28
	Relationship capability	The ability to create a mutual social relationship between customers and the company on social media, and make use of the information shared between them (Boateng 2016)	We [company] plan to introduce another Facebook Page. We want to build a community where customers can come and exchange information, knowledge or ideas, which tend to link back to our brands. (ID1)	ID9, ID17, ID18, ID19, ID22, ID25, ID26
Conversation capability	Relationship capability	The ability to create and facilitate the mutual interaction with and among customers on social media to acquire knowledge (Kargaran et al. 2017).	Our [hashtag] on social media was created by our customers, not us. Social media is a channel where customers can actually engage and act as a part of our business. What usually happens is that customers usually respond to comments and posts for us without us having to do so. For instance, someone commented to ask about our branches. Our customers commented with the lists of our branch addresses. [...] Customer engagement in activities allows us to build relationships and connections with customers, forming a community for them to share and exchange information, knowledge and experiences. In return, we also gain more friends. (ID22)	ID9, ID17, ID18, ID19, ID22, ID25, ID26
	Conversation capability	The ability to create and facilitate the mutual interaction with and among customers on social media to acquire knowledge (Kargaran et al. 2017).	[Employees] are always told not to only sell our products, but to build and maintain relationships with customers. We are the producers with knowledge. We always provide our customers with relevant information in exchange for the interactions. When we post something on social media, we tend to gain customer engagement and this can lead to customer-firm relationship building. (ID9)	ID9, ID17, ID18, ID19, ID22, ID25, ID26

**Table 5.9: Dynamic capabilities required to support an e-transition model towards value co-creation for innovation (continued)**

KEY CAPABILITIES	DEFINITION	ILLUSTRATIVE QUOTATIONS	CASE ID IN WHICH EACH CAPABILITY WAS REQUIRED
ORGANISATIONAL CULTURE CAPABILITIES	<b>Adaptability</b> The firm's ability to understand customers and change in response to the changing environment (Denison, Nieminen and Kotrba 2014).	I [manager] work on Saturday-Sunday as well, but these days are seen as holidays for employees. I am always online on weekend so it became our culture that we talk and discuss on weekend. The reason for this is that customers on social media are always active. This influences us to always be online and responsive to them. We do not want to use Artificial Intelligence (AI) to do so and we [company], therefore, adapt ourselves to suit our customers. (ID8)  What we [company] need in our organisational culture is 'move fast' and 'make things' based on our customers. At the end, we try our best to move forward as quickly as possible. We keep learning so if we have to change or adapt, we are ready. (ID15)	ID1, ID2, ID8, ID15, ID16, ID18, ID19, ID22, ID23, ID26
	<b>Consistency</b> The firm's ability to maintain an internal and stable focus by developing efficient systems and procedures throughout the organisation in order to generate the best outcomes (Denison, Nieminen and Kotrba 2014)	We [company] are able to better think and find solutions by debating and discussing different issues together. Some may say it is good and some may say it is not. We can listen and evaluate different ideas and come up with solutions that best serve customers. (ID11)  Boston culture is one of our core values – we [company] want to reduce the boundary gap between the customers and the sellers. The sellers introduce different flavours to customers and welcome them to try as much as they want in order to get the best flavours for themselves. [...] we set our core values/brand promises as a guideline for employees to follow in order to serve our customers. Employees can serve customers in whatever way they think it is best within our core values. If something goes wrong, the employees get a chance to explain their reasons. (ID22)	ID11, ID22, ID23
	<b>Involvement</b> The firm's ability to focus on the internal dynamics of the organisation, and empower and engage employees within the organisation (Denison, Nieminen and Kotrba 2014)	We [company] work like a family. We always empower our employees to complete their tasks in their own ways because each of them is different. If things go wrong, I [manager] will just help and guide them towards the right direction. [...] Also, everyone has to have knowledge about our products so they can effectively answer customers, no matter what position they are in, but we have to work on the same standard levels in serving customers – not only answering customers' questions, but also interacting with them in order to share information and knowledge. [...] When I have to make decisions, I always discuss with others so that they feel involved in decision-making process. I do not want them to feel isolated and just trying to complete their own work, but encouraging them to feel that they are all representatives of the brand. (ID4)  Last message is 'salmon' – swimming upstream. The idea is that if employees feel that they are comfortable with whatever they are doing, it is a good sign, but we have to be careful in long-term. We [company] have to improve ourselves (e.g. more trainings and knowledge development), encouraging everyone to build up their dots. When the time goes by, they will start to see that those dots are actually connected. We try to bring out everyone's abilities and skills. (ID8)	ID4, ID5, ID8, ID11, ID12, ID25, ID26

**Table 5.9: Dynamic capabilities required to support an e-transition model towards value co-creation for innovation (continued)**

KEY CAPABILITIES	DEFINITION	ILLUSTRATIVE QUOTATIONS	CASE ID IN WHICH EACH CAPABILITY WAS REQUIRED
ORGANISATIONAL STRUCTURE CAPABILITIES	<b>Mission</b>	<p>The firm's ability to provide clear purpose and direction of the company that acts as a guideline to employees to perform (Denison, Nieminen and Kotrba 2014)</p> <p>We [company] may not have the actual strategies, but we try to develop our services better [...] We try to reduce the time the customers take by improving our current version of services. [...] For example, we send out our questionnaire every month in order to gain customer insights and feedbacks, in terms of their issues and problems. We may focus on different parts of our services in order to structure our questionnaire. We use these information and insights from customers to improve our services to better serve them. (ID15)</p> <p>We [company] focus on services – do not focus on hard selling. We encourage our employees to best serve customers – encouraging customers to try as much as they want before they purchase although they do not actually purchase at the end. [...] If we look at our core strategy, we do not have promotions but we have top-up strategy – we sell our products at the same prices but include additional fun activities. For example, our 'Name your own price' activity on our shop anniversary. We asked our customers to pay how much ever they want for [products] [...] Another example is our tea-series [product] collection. We found something and we wanted to bring it back to our customers and that was why we came up with our tea-series. [...] We tried to come up with fun and exciting activities so that our customers can enjoy and gain experiences. (ID22)</p>	ID15, ID22, ID23
	<b>Formalisation</b>	<p>The extent to which the rights and duties of the members of the organisation are determined and are written down in rules, procedures and instructions (Willem and Buelens 2009)</p> <p>Our organisational structure changes every 6-12 months because we want our employees to try new things and learn to develop new skills. (ID15)</p> <p>We [company] do have calendar checklists for everyone to acknowledge the work process so everyone can do their tasks accordingly. We want to make everyone happy and be able to enjoy his or her tasks so we do not have specific deadline for each job. We just inform them the deadline for the whole project and we let everyone do their jobs in their ways. (ID11)</p>	ID11, ID15
	<b>Coordination</b>	<p>The process of collaborating and informing each other on the planned behaviours of one another (Willem and Buelens 2009).</p> <p>We [company] actually communicate on social media almost every day. Some of the work might not be relevant to me so I will not be involved in those conversations, but if it is necessary for me to know, we have a group chat to discuss everything together. However, at the end, we still use emails to formally confirm everything. [...] We also arrange meetings to discuss, especially before the days of the concerts. Otherwise, apart from that, we just manage our times and work by ourselves. (ID12)</p> <p>We [company] always talk and discuss with each other and manager/owner. Sometimes, customers suggest something so we sit and discuss together to see what we can do about it or what solutions we can come up with. [...] We are more like a family and we work like a family here. We talk and coordinate with each other. (ID25)</p>	ID2, ID4, ID5, ID9, ID12, ID25

**Table 5.9: Dynamic capabilities required to support an e-transition model towards value co-creation for innovation (continued)**

KEY CAPABILITIES	DEFINITION	ILLUSTRATIVE QUOTATIONS	CASE ID IN WHICH EACH CAPABILITY WAS REQUIRED
E-MARKETING CAPABILITIES	<b>Specialisation</b>	The extent to which the organisational tasks are divided into sub-tasks, and employees are allocated to execute and expertise specific sub-tasks (Willem and Buelens 2009)	ID1, ID8, ID15
	<b>Information generation</b>	The firm's competency in generating information obtained from customer interactions that are facilitated by social media technologies (Jayachandran et al. 2005; Trainor et al. 2014).	
	<b>Information dissemination</b>	The firm's competency in integrating information obtained from customer interactions that are facilitated by social media technologies in business processes (Jayachandran et al. 2005; Trainor et al. 2014).	
	<b>Responsiveness</b>	The firm's competency in responding to information obtained from customer interactions that are facilitated by social media technologies (Jayachandran et al. 2005; Trainor et al. 2014).	ID1, ID3, ID5, ID7, ID8, ID10, ID11, ID14, ID20

## 5.4 Key Capabilities Supporting the Four Types of Value Co-Creation in SMEs

What is interesting in the qualitative findings, based on the four capabilities identified, is that different types of value co-creation are often enabled by different sets of capabilities in supporting customer integration in innovation activities. Table 5. 10 – Table 5. 13 summarise the development of the four capabilities, including those related to social media, organisational culture, organisational structure and e-marketing, to facilitate an e-transition model based on the four types of value co-creation, namely co-ideation, co-production, co-process and co-experience. Each value co-creation type often consists of different characteristics in its activities, which reflect how SMEs in each type need to utilise their available resources and develop different sets of capabilities. Different reasons can be used to support such outcomes, including the nature and characteristics of each type of value co-creation, and the strengths and weaknesses of each capability to support specific types. This is in stark difference to the value co-creation literature, which has discussed value co-creation as one single process. Instead, this study considers the differences in various value co-creation activities along an innovation funnel, especially how distinctive capabilities are required to support each e-transition process. Although the value co-creation and innovation literature highlight the importance of the development of internal capabilities in corresponding to any external changes (Rashid *et al.*, 2019), the capabilities needed to support different value co-creation activities along the innovation process are yet to be discussed.

### 5.4.1 Co-Ideation

Co-ideation is associated with online activities that are organised by firms (or are firm-led), with the aim of generating a large quantity of information from general customers (or open contribution) to generate ideas for innovation (Russo-Spena and Mele, 2012). The qualitative results show that SMEs that implement an e-transition model to integrate customers in co-ideation processes require a specific set of capabilities to support customer involvement in the idea generation shaping phase of innovation (Table 5. 10). Based on the characteristics of co-ideation, i.e. firm-led activities and open contribution from customers, SMEs often rely on a high level of *sharing capability* in relation to social media. The use of social media enables SMEs to share and exchange information with customers that is directly or indirectly related to products and services and that can be converted into future product or service ideas in a cost-effective manner (e.g. ID4). Although co-ideation activities focus on generating a large quantity of ideas, they are often shaped by the product and service concepts. For example, in the case of ID1, the company created a community page on Facebook to gather together customers interested in a vintage-indie style of clothing to exchange information and knowledge to further generate ideas on fashion trends and other product-related topics. This Facebook page not only includes existing customers, but also attracts potential customers to share and exchange information (e.g. ID6). Customers can also invite their friends to participate and create community-based co-ideation activities by tagging them (e.g. ID5). Therefore, SMEs can benefit from the social media *community capability*.

To support social media capabilities in an e-transition model, changing organisational culture and structure is significant in facilitating an e-transition model of co-ideation. The qualitative findings indicate that focusing on the ability to adapt (i.e. *adaptability*) to changes in customer demand and other market conditions is significant in co-ideation processes. Since customers' lifestyles, preferences and expectations are rapidly changing, SMEs need to be flexible in the way they

work towards integrating them in co-creating ideas for greater innovation (e.g. ID2 and ID4). This includes flexible organisational learning processes geared towards customer interests. Understanding customer interests may lead to the identification of opportunities to better engage them in co-ideation activities; i.e., SMEs are able to reshape the topics they discuss and the content they share with customers, which determine the degree of customer participation and contribution (e.g. ID1 and ID5).

To support organisational adaptability, SMEs also need to maintain **consistency** in the way employees co-create ideas with customers. In particular, employees should communicate and work at the same standard to generate useful ideas that can be combined and converted into greater outcomes for innovation. ID1 highlights the need for timelines in content posting. The timing of content posting determines the types of customers participating in the activities, which results in the different types of information and ideas generated. The consistency in the timeline therefore allows SMEs to effectively and continuously engage customers in co-ideation activities. In other words, there should be consistent standards and procedures to guide the timing of posting different types of content in order to maximise the ideas generated from customers. This is because different groups of customers have different behaviours and go online for different purposes (Thayer and Ray, 2006). Therefore, consistency procedures for posting help to create a pattern for customer participation in co-ideation activities.

Furthermore, SMEs need the **involvement** of employees in decision-making processes in relation to customer centricity. To successfully organise co-ideation activities and receive large numbers of ideas from customers, employees should be empowered and given authority to take decisions on what information and ideas should be selected from the customers and what is irrelevant to their firm. Since a significant number of ideas may be collected on social media, it is impossible for SMEs to take into considerations all of them. Instead, employees should be able to select the most relevant that have the potential to be converted into future product, service and/or marketing content concepts. In the case of ID4, employees are empowered to complete their own tasks and have the authority to make decisions on the idea filtering processes to form an enthusiastic work environment for co-creating with customers. Such processes can also be supported with the development of a **mission**, which guides the organisation towards co-ideation with customers. Providing a clear mission and vision enables SMEs to shape employees' mind-sets and behaviours to effectively select collected ideas for greater innovation outcomes (e.g. ID5). Employees can work towards co-ideation with customers based on the guidelines given by firms. As a result, SMEs can effectively implement e-transition models aimed at co-ideation.

Despite the importance of organisational culture capabilities, creating a customer-centric organisational structure is also important for supporting co-ideation processes with customers. Although SMEs operate in a decentralised structure, the qualitative findings indicate that they still require some formal procedures (or **formalisation**) to help shape the way employees work towards co-ideation. Since they need to be able to analyse, evaluate and select information and ideas collected from customers, formal procedures provide the steps for more effective and collaborative ways of working among employees. ID5 highlights the formal procedures adopted in the company; although employees are encouraged to complete tasks in their own way, the formal process of informing and updating each other is still required to ensure the quality of work and how they should select relevant ideas for further development. To support such processes, **specialisation** can be developed. This allows SMEs to organise co-ideation activities with different groups of customers to generate specific ideas on product- or service-related topics. In the case of ID2, the company set up various specialised teams to support different groups of customers. Although its customers are fans of the vintage-indie style, different aged groups of customers still have different needs, in terms of materials, colours, and services. Therefore, having specialised



teams to look after these particular markets enables SMEs to better understand their customers, segment the markets and accordingly create suitable content that attracts customers to participate in co-ideation activities. Moreover, **coordination** among employees and across teams is also important, in terms of the ability to support each other in the idea filtering and selection processes (e.g. ID2). Employees should be able to support each other when needed in order to complement each other's weaknesses and to provide the best solutions possible to customers.

The qualitative findings further reveal that firms' ability to generate, disseminate and respond to customer information is required to support customer integration in co-ideation processes. Specifically, SMEs often collect a large quantity of information from customers on social media (or **information generation**). Although employees need to filter and select the relevant information, this still needs to be distributed across the organisation, and relevant discussion is needed to shape the ideas (or **information dissemination**). Once the ideas are finalised, SMEs can then post content on them to allow customers to further comment or make suggestions in order to refine the concepts and ideas for further development (or **responsiveness**). For example, ID4 explains that the process of information generation (e.g. ID2), and information dissemination and responsiveness (e.g. ID1 and ID5), help SMEs to better analyse, evaluate and select potential information and knowledge, which can be converted into useful ideas for innovation. As a result, SMEs can improve their co-ideation processes for greater innovativeness, leading to a sustainable competitive advantage.

**Table 5. 10: Dynamic capabilities required to support an e-transition model towards co-ideation**

KEY CAPABILITIES FOR CO-IDEATION		ILLUSTRATIVE QUOTATIONS
SOCIAL MEDIA CAPABILITIES	Sharing capability	The firm can communicate to customers, providing information and details related to its products. We, as customers, can also get the overall perceptions of its brand and products in the forms of photos, videos and texts. (ID6)
	Community capability	We [company] usually create content videos on social media, talking about the benefits of [products]. Customers usually like, comment and share to show interests in certain topics, such as [its usage and benefits]. We try to attract customers into interactions with us in order to exchange information and knowledge related to the products. Customers gain knowledge on how [products] can be used for different purposes, whereas [the company] gains insights on certain topics that [customers] are current interested that can later be converted into ideas for future content. (ID4)
ORGANISATIONAL CULTURE CAPABILITIES		We [company] do content video on Facebook, talking about the benefits of [products]. For example, we talked about [products] as a dietary product – how [products] helps in weight loss – and it received a good customer engagement. Many customers liked, commented and shared our posts. Some of them tagged their friends to further participate. This way, we gained knowledge on customers that they were interested in dieting and we used this information to improve our products and contents, as well as activities on social media. [...] We get to share information/knowledge with customers, and customers can also share among themselves as well. (ID5)
	Adaptability	We [company] plan to introduce another Facebook Page. We want to build a community where customers can come and exchange information, knowledge or ideas, which tend to link back to our brands. (ID1)
		We [company] are keen to adapt and do not hold on to a particular culture. (ID1)  We [company] learn to adapt to each other so that we can come up with best solutions for customers, especially the way we communicate with customers. Since our customers are of different age groups, we need different ways of talking or communicating with them in order to best serve them. (ID2)
ORGANISATIONAL STRUCTURE CAPABILITIES	Involvement	We [company] work like a family. We always empower our employees to complete their tasks in their own ways because each of them is different. If things go wrong, I [manager] will just help and guide them towards the right direction. [...] Everyone has to have knowledge about our products so they can effectively answer customers, no matter what position they are in, but we have to work on the same standard levels in serving customers – not only answering customers' questions, but also interacting with them in order to share information and knowledge. [...] I always discuss with others so that they feel involved in decision-making process. I do not want them to feel isolated and just trying to complete their own work, but encouraging them to feel that they are all representatives of the brand. (ID4)
	Coordination	We [company] do not really have proper structure, but we work together. Right now, we have two Managing Directors, who are working as consultants, one employee responsible for product development, including packaging, and two administrative employees (one is responsible for online marketing and another is responsible for procurement). We always coordinate with each other. (ID4)  We clearly divide our work. [The company] has four owners and each owner is responsible for different area (retailing, marketing, social media and accounting). As an employee, we get to discuss and suggest ideas so that owners can further take decisions. (ID2)
	Specialisation	[...] if we [company] introduce an e-commerce, there should be a person looking after this, including admin and stock checking of an e-commerce. We may need to bring in technology to help in customer data storage because right now we do not have any statistics on our customers. (ID1)

**Table 5.10: Dynamic capabilities required to support an e-transition model towards co-ideation (continued)**

KEY CAPABILITIES FOR CO-IDEATION	ILLUSTRATIVE QUOTATIONS
<b>E-MARKETING CAPABILITIES</b>	<p><b>Information generation</b> Since our products require interactions with customers, we have to manage our communication properly. A lot of customer ask different questions regarding the products and each customer has different way of talking so we have to develop skills on that in order to serve customers with personalised services. (ID4)</p> <p><b>Information dissemination</b> The challenges often associate with the customer diversity. Customers have become more diverse and it is impossible for us to concentrate on every group of customers as each group demands different things. We therefore have to come together to find a core solution to satisfy every group of customers. (ID2)</p> <p><b>Responsiveness</b> Since their activities are mostly on Facebook Live, as that I know, they [company] tend not to read every comments. I [customer] understand that many people comment and it is impossible for the firm to respond to all, but the reason we participate or engage in these activities is because we want to interact and ask for information. So, if our messages are not being read by them, it is quite time-wasting for us. [...] Being able to respond to our messages would not only allow us to gain information, but also help to create better experience in engaging in value co-creating activities, which may lead to more engagement in the future. (ID3)</p> <p>We [company] try to be 100% responsive to our customers. On social media, we tend to response as soon as possible, at least within an hour, in order to avoid customer dissatisfaction rates. We pay attention to details. For example, we tend to end the conversations with our customers – we do not leave our customers’ messages unread. (ID1)</p>

### 5.4.2 Co-Production

Co-production is a firm-led activity which involves lead users (or close contribution) in co-producing products and services at the R&D stage of innovation (Russo-Spena and Mele, 2012). Based on the qualitative results, SMEs that implement an e-transition model to integrate customers into co-production processes require a specific set of capabilities to support customer involvement in new product development processes (Table 5. 11). With the aim of co-producing the products and services with customers, SMEs first require a *sharing capability* on social media to share and exchange information and knowledge related to new products and services concepts with lead users, including information on what is to be included or not in new product development (e.g. ID11, ID12 and ID14). Social media enables SMEs to gather lead users together and create focus groups to discuss key concepts related to new products and services. This includes online communities, which discuss, generate and prototype new product concepts before launching them (e.g. ID8 and ID13), thus allowing firms to benefit from the *community capability* of social media. However, SMEs also need to build and maintain relationships with lead users or develop social media *relationship capabilities* in order to gain in-depth insights from lead users. According to the respondents (e.g. ID8 and ID9), SMEs with good relationships with lead users are more likely to obtain information that would not be forthcoming from general customers. Lead users are willing to share more detailed information, which also may lead to more conversations between them and firms, allowing the latter to better understanding their problems and hidden needs in order to develop new products and services that best meet customer needs (e.g. ID13). In other words, SMEs require a *conversation capability* related to social media to support lead user integration in new product and service development processes.

To support social media capabilities in co-production processes, SMEs require the development of an *adaptability* capability in response to any changes in customer demand. Although the process of co-production may take a long time to generate end results (e.g. new product or service concepts) (e.g. ID8 and ID10), it is important for SMEs to be open-minded to any challenges arising from evolving customer demand. Specifically, they should listen to and integrate lead users into innovation processes to successfully co-produce new products and services. ID9 provides an example of creating flexible working hours to continuously interact and engage lead users, who are always active on social media, in co-production processes. The fixed working hours approach is adopted in most companies, including SMEs and large organisations (Collewet and Sauermann, 2017). However, adopting flexible working hours allows SMEs to operate based on changes in customer behaviour and to generate the best possible co-production outcomes for greater innovation (e.g. ID12).

To support such challenges, the development of an *involvement* capability is required, which involves employees in decision-making processes and thus motivates them to take pride in what they do. Similar to co-ideation processes, SMEs involved in co-production processes need to empower employees to take part in all the related processes in order to increase creativity and collaboration between firms and lead users. However, it is important for SMEs to also provide training and capability development programmes to improve employees' skills and knowledge. In co-production processes, SMEs may require a higher level of skills and knowledge than in co-ideation ones. This is because co-production is associated with developing, prototyping, refining and implementing new products and services (Bugshan, 2015). Employees therefore need to have skills to identify what can or cannot be included in these, which can be developed through trainings and other knowledge development programmes (ID8). Such employee involvement can also be supported by the development of *consistency*. Encouraging employees to discuss issues related to the process of

co-production is another way to improve their skills and knowledge in a collaborative work environment (e.g. ID11). All employees can share and exchange their experiences, thoughts and ideas and collaboratively develop various concepts related to co-production with lead users. As a result, SMEs can maintain consistency in their co-production processes.

Moreover, changing the organisational structure to support customer integration in co-production processes was found to be significant. Based on the qualitative findings, new product development is often associated with a high level of risks. Possessing all the aspects of organisational structure capabilities to support the involvement of lead users in co-creating new products and services would reduce such risks of error and failures (e.g., ID8). First, setting formal systems and procedures (or *formalisation*) to guide and shape the overall co-production processes with customers will enable SMEs to effectively generate new product development outcomes. In the case of ID11, the company creates checklists, which employees need to update when they complete their tasks, so that the overall work process can be tracked and monitored. Similar to co-ideation, formalisation enables SMEs to set up patterns for employees to work collaboratively and focus on the right concepts of new products and services, rather than spending time on concepts that other employees may disagree with. In doing so, the whole team works together in providing the best solutions for co-production with customers. To support such a process, encouraging *coordination* among organisational members to support each other allows SMEs to better solve current problems faced by employees, improve employees' skills, and to collaboratively develop the best solutions to most effectively engage lead users in new product development processes. At the same time, specialised teams (or *specialisation*) can be set up to complete specific tasks, allowing SMEs to better respond to and engage customers in co-production processes (e.g. ID8). In the case of ID9, the company set up two specialisation units; one focusing on customer feedback (or concept sharing) screening, and the other on responding to customers in order to effectively involve them in the R&D stage of innovation, as well as improving customer satisfaction levels.

Similar to co-ideation, co-production requires the development of e-marketing capabilities in terms of information generation, information dissemination and responsiveness to support new product development processes. For example, ID8 illustrates that although social media allows SMEs to generate a large quantity of information, it is still important for SMEs to effectively and efficiently collect, manage, store and measure customer information. These information generation and dissemination capabilities allow SMEs to effectively convert customer information into innovation initiatives and accordingly respond to customer insights through the development of new products and services (e.g. ID11 and ID12). In other words, information generation, information dissemination and responsiveness capabilities are required to support a system transition to technology-enabled value co-creation for new product and service development.

**Table 5. 11: Dynamic capabilities required to support an e-transition model towards co-production**

KEY CAPABILITIES FOR CO- PRODUCTION	ILLUSTRATIVE QUOTATIONS
SOCIAL MEDIA CAPABILITIES	<p><b>Sharing capability</b></p> <p>Using social media platforms allows us [company] to gain customer loyalty (fans). It is a channel that allow customers to be engaged in our processes. Customers can see what we do and engage into those processes by commenting and providing feedbacks. Without social media, [company] would not be as how we are today. (ID9)</p> <p>Mostly, we [company] organise liking and sharing activities, and we randomly select the lucky ones to receive free gifts. (ID11)</p> <p>They [customers] are able to share information with their friends – being able to talk about something they have knowledge on. [...] For instance, teenager customers are very active on online platforms so their participation, in terms of liking, commenting, sharing and tagging friends, is quite important. It gives us [company] insights on their interests. Liking may be a part of it but commenting and tagging friends to see the posts are more important in this case. (ID12)</p> <p><b>Community capability</b></p> <p>Latest, we encouraged people to take pictures in the concerts and post it with our hashtag to get a chance to win our gifts. [...] People in our page are actually in a community that gathers people with the same interests in the same [style]. We look at Facebook trend as well to see which [services] are most preferable by customers. [...] We [company] encouraged people to take pictures in the concerts and post it with our hashtag to get a chance to win our gifts. [...] One of the reasons is that we want to make it as a community. We have our own [hashtag] that enable people to just click on it and see everything related to our services, and us including customer experiences. (ID11)</p> <p>We [company] use Facebook which is our key platform because we can provide detailed information. For Instagram, we usually use it as a mean to build awareness and acts as a community for our customers. [...] I think they [customers] receive value in terms of a sense of community that somehow fulfills their interests and personalities. They would feel like they have a voice and are a part of this community. (ID12)</p> <p>I [customer] feel it is a community to an extent because the content they share is specifically for a certain type of people. For example, out of my university friends, I am the only one who follows [the company]'s page. It actually gathers people with the same interests together because it is quite specific style of [products and services]. (ID13)</p> <p>It is definitely a community that gathers people with the same interests and styles together. I have not seen any other community like this for this specific style. I think this is the only place. [...] I [customer] use hashtag to see the overall of the concerts that I went and I did not go. I follow that hashtag to see other customer experiences, both on Facebook and Instagram. (ID14)</p>
	<p><b>Relationship capability</b></p> <p>We [employees] are always told not to only try to sell our products, but to build and maintain relationships with customers. We [company] are the producers with knowledge. We always provide our customers with relevant information in exchange for the interactions. When we post something on social media, we tend to gain customer engagement and this can lead to customer-firm relationship building. (ID9)</p>
	<p><b>Conversation capability</b></p> <p>Social media is a channel that enables us to expand our customer segmentation. We [company] can communicate directly to those within our customer target, informing them about our activities and product-related news. [...] For example, customers once commented on our product. We considered this problem and conducted some research in order to come up with product or design that solves this problem. (ID9)</p> <p>Latest, I [customer] participated in the activity where they asked for customer insights about [new products]. Basically, they [company] asked us to provide information on problems/issues when we use [products] so that they can produce [products] that solve these problems/issues. (ID10)</p> <p>I [customer] think I commented in the posts that they ask about the most preferred [services] so I gave my opinion. (ID14)</p>

**Table 5.11: Dynamic capabilities required to support an e-transition model towards co-production**

KEY CAPABILITIES FOR CO-PRODUCTION		ILLUSTRATIVE QUOTATIONS
ORGANISATIONAL CULTURE CAPABILITIES	<b>Adaptability</b>	We [company] try to encourage organisational members to be flexible and able to adapt to changes. It does not matter what degree you have, but it is all about your performance (we concentrate on performance-based, and not degree-based). [...] I [manager] work on Saturday-Sunday as well, but these days are seen as holiday for employees. I am always online on weekend so it became our culture that we talk and discuss on weekend. The reason for this is that customers on social media are always active. This therefore affects us to always be online and responsive to them. (ID8)
	<b>Involvement</b>	<p>We [company] try to adapt our services accordingly. For example, customers commented about [service feature] and we took that into considerations. (ID11)</p> <p>The idea is that if employees feel that they are comfortable with whatever they are doing, it is a good sign, but we [company] have to be careful in long-term. We have to improve ourselves (e.g. more trainings and knowledge development), encouraging everyone to build up their dots. When the time goes by, they will start to see that those dots are actually connected. We try to bring out everyone's abilities and skills. (ID8)</p> <p>We [company] let our employees take decisions for their tasks but we support them with relevant information, such as key messages that we have to communicate or hashtag that we have to include. We are not that micro-management [...] We try to encourage our employees to be honest with us so that we can avoid conflicts later on. We treat everyone as a team, not like employer-employee relationships. We allow our employees to do whatever they want to as long as they complete their tasks in time. (ID11)</p>
	<b>Consistency</b>	We [company] encourage employees to enjoy serving customers and working with others. We will not step on each other's feet – each employee is encouraged to do things their ways but they have to enjoy it. (ID8)
ORGANISATIONAL STRUCTURE CAPABILITIES	<b>Formalisation</b>	<p>We [company] do not have organisational structure. I myself do not have my own desk and I do not really go to office. I usually monitor everything online. We do not have CCTV to monitor our employees – we let them do their jobs according to their ways and we share profits every month. We do not have bonuses, but we try to manage our employees' happiness. [...] wherever the problems lie, I [manager] jump into them. I try to learn the problems and solve them. (ID8)</p> <p>We [company] are working like normal small businesses. We do not have office to work, but we do have calendar checklists for everyone to acknowledge the work process so everyone can do their tasks accordingly. We want to make everyone happy and be able to enjoy their tasks so we do not have specific deadline for each job. We just inform them the deadline for the whole project and we let everyone do their jobs in their ways. (ID11)</p>
	<b>Coordination</b>	<p>We [company] are responsible for our own tasks but we do work in teams. We need to be able to support each other across the organisation. Each employee here is multi-tasking. (ID9)</p> <p>We [company] actually communicate on social media almost every day. Some of the work might not be relevant to me so I [employee] will not be involved in those conversations, but if it is necessary for me to know, we have a group chat to discuss everything together. However, at the end, we still use emails to formally confirm everything. [...] We also arrange meetings to discuss, especially before the days of the concerts. Otherwise, apart from that, we just manage our times and work by ourselves. (ID12)</p>
	<b>Specialisation</b>	We [company] have two employees who are responsible for social media interaction with customers. An employee looks at the overall interactions with customers, scans their comments and feedbacks and distributes to another employee, where she is looking at a smaller picture of customer interaction. She individually responds to each comments/feedbacks in order to provide customer satisfaction in terms of future product improvement, services and customer-firm relationships. (ID8)

**Table 5.11: Dynamic capabilities required to support an e-transition model towards co-production (continued)**

KEY CAPABILITIES FOR CO- PRODUCTION	ILLUSTRATIVE QUOTATIONS
<b>E-MARKETING CAPABILITIES</b>	<p><b>Information generation</b></p> <p>Actually, we [company] want to develop more of our capabilities because there are some [services] that we want to bring in but we are not sure about customer preferences. [...] We try to gain more data because we want to know them better. We got around 30,000 followers and we actually want to segment them into different groups based on [service-related] customer preferences. [...] We are open to comments and listen to feedbacks, and we try to respond in the best possible ways. (ID11)</p> <p>In terms of knowledge, we [company] still have to provide information to new customers in order to attract them. At the same time, we also need to build relationships with them for further interaction, and this also require marketing capabilities to support. So, I would say it relates to all. (ID9)</p> <p><b>Information dissemination</b></p> <p>Actually, the challenge is about how we [company] continuously do it. Due to Facebook restrictions, people get to see posts lesser. So getting people to continuously engage in our activities is a bit challenging, but at the same time, fun [...] We have to be able to build awareness and engagement 3 months before the [service] and another 1-2 months after the [service]. We have to create momentum so that it interests customers. (ID12)</p> <p><b>Responsiveness</b></p> <p>Sometimes, we [customers] comment and provide feedbacks. We do not really know if the firm actually sees or reads it or not. If the firm is responsive in commenting back, it is good as we know that they read our messages. The firm's responding can actually motivate us to participate in future activities. (ID10)</p>



### 5.4.3 Co-Process

Co-process is a feedback loop process aimed at understanding what has gone wrong with current versions of products and services in order to effectively improve them and provide better versions (Battarbee and Koskinen, 2005). Such activities are often customer-led, in which lead users are welcome to provide feedback or suggestions to add value to current products and services (or close contribution) (Rauffet, Cunha and Bernard, 2014). Co-process activities are similar to co-production ones. However, the difference is that the former take place in feedback processes, after a commercialisation stage of innovation, whereas the latter occur during the R&D stage of innovation. Therefore, SMEs may require similar sets of capabilities for co-production processes (Table 5. 12). First, SMEs focus on the same set of social media capabilities that is required in co-production processes, namely *sharing, community, relationship and conversation capabilities*, to support the integration of lead users in feedback processes. Instead of using social media to share information, form communities, build relationships and create conversations with lead users with the aim of generating and developing new products and services, SMEs can also utilise such social media capabilities to allow lead users to provide feedback and improve current versions of these. ID21 highlights the use of social media as a means of complaining and providing feedback, whereby customers are able to approach firms and express their thoughts on products and services, as well as providing suggestions on how they can solve any problems and make improvements. However, the degree to which SMEs create conversations with lead users on social media, or utilise its conversation capability, is lower than that in co-production processes. The possible reason is that co-process activities are customer-led in nature; i.e., SMEs are less likely to approach lead users to participate, as they willingly share their feedback and opinions regarding existing products and services with firms (e.g. ID15, ID16 and ID21).

In addition, the qualitative findings reveal that *adaptability* is a key organisational culture capability that enables SMEs to continuously understand and respond to customer demand. Similar to co-production processes, SMEs need to be open-minded when evaluating customer feedback, which is often based on customer lifestyles and needs (e.g., ID18). As customer demand is always changing, SMEs need to first understand the changing environment, including competitors, in order to effectively take into considerations customer feedback for further improvements in their products and services. ID18 highlights the importance of adaptability in response to market changes; i.e., SMEs' ability to identify and understand such changes and directions enables them to effectively evaluate customer feedback. They can decide what types of feedback should or should not be focused on in relation to improved versions of products and services to meet market and customer demand. To ensure that employees understand and move in the right directions, setting up a *mission* to guide the organisation enables SMEs to select potential feedback that can be converted into product improvements. For example, ID15 believes that focusing on serving customers is more significant than building brand awareness; making customers happy through continuous improvements in services often leads to spreading of the word, thus increasing brand awareness and customer participation in co-process activities. Companies therefore implement a customer-centric strategy at the top of their business processes and accordingly adapt towards satisfying and involving customers in co-improving existing services (e.g. ID18).

In alignment with organisational culture capabilities, SMEs require the development of organisational structure ones to support the e-transition model of co-process. The qualitative findings reveal that all three aspects of organisational structure capabilities; i.e. *formalisation, coordination and specialisation*, are needed to support the process of feedback filtering. In the case of ID18, although the company provides the authority to employees to take decisions, they still need

to follow certain formal procedures. For example, employees can filter customer feedback and respond to them in the way they think suitable. However, employees need to formally notify every step that they have taken by email (e.g. ID19). In doing so, co-process can be tracked and monitored as a single organisation, and not as an isolated task for a single team or unit. In addition, employees can coordinate with each other to ensure that the process of feedback filtering is at the same standard level. In addition, specialised teams are needed to support coordination among employees, which can focus on specific groups of lead users that the firm aims to involve in the co-process and to provide information to employees to successfully interact and engage them in product and service improvement processes (e.g. ID16). In other words, potential feedback received from lead users can be effectively converted into product and service improvements.

Moreover, SMEs in the co-process also require the development of e-marketing capabilities to support the system transition to technology-enabled value co-creation for innovation. Similar to co-production processes, the development of information generation, information dissemination and responsiveness capabilities is required to support lead user participation in feedback loops. For example, ID15 highlights the importance of the ability to collect customer information on social media and to properly analyse, evaluate and disseminate it. *'The power of competitive advantage lies upon the management and marketing capabilities to differentiate their business from the rivals'* (ID18). Developing information generation, information dissemination and responsiveness capabilities enables SMEs to better understand customers, segment the markets and differentiate themselves from rivals in the markets. As a result, they can accordingly improve their products, services and activities to meet the needs of those particular groups of customers (e.g. ID19).

**Table 5. 12: Dynamic capabilities required to support an e-transition model towards co-process**

KEY CAPABILITIES FOR CO-PROCESS	ILLUSTRATIVE QUOTATIONS
<b>SOCIAL MEDIA CAPABILITIES</b>	<p><b>Sharing capability</b></p> <p>I [customer] receive value in terms of being able to express my experience and opinions so that the company acknowledges their performance and gets a chance to consider it for further improvement. Their improvement is actually our benefits because if the firm can provide the products that better satisfy us, our needs are met. (ID21)</p> <p>They [company] have promotional and new [product] introduction campaigns, as well as new branch announcement on social media. I [customer] sometimes do engage in these activities by commenting and tagging friends in order to invite them to see the posts and try new [products] together. [...] Another thing is I commented once to suggest an idea to open a new branch in my office area so that I can easily access to the products. I also commented to show my positive feedbacks on the products. (ID20)</p> <p><b>Community capability</b></p> <p>We [customers] receive connections because these activities usually involve [experts and professionals]. So, engaging in these [value co-creation] activities would provide us the opportunity to meet these people and interact with them. (ID17)</p>
	<p><b>Relationship capability</b></p> <p>In the case of firm value, we [company] are able to build and maintain our relationships with customers through the activities organised on social media, allowing customers to provide feedbacks and insights that can be used to improve our activities, as well as our products and services. (ID19)</p> <p>We [company] focus on relationship building with customers so that we acknowledge customer problems and needs. Every time customers contact us, we try to build relationships in order to directly gain insights from them. [...] Creating activities is a way to co-create value for both customers and firm. These activities draw customers into purchasing, while firm can build relationships with them effectively, leading to more information obtained continuously. Customers will eventually come back to us and repurchase our products. (ID18)</p>
	<p><b>Conversation capability</b></p> <p>[...] in present, customers shifted themselves onto social media platforms. These platforms enable customer interaction. Some customers may not like to make direct calls, but prefer to contact us [company] through social media. So, if we have these platforms to serve them, it would make our communication better. If we have more than one channels for customers, I think we can gain competitive advantage. (ID18)</p> <p>As a service company, we need to communicate and interact with our customers. If we do not use social media, we lose the opportunity that people can get to know us and our service features, and we may not be able to improve ourselves to this point because we do not know what problems/issues they are currently facing. [...] We use social media to ask for customer feedbacks and other interactions, such as customer issues/problems. This acts as insights to further development of our services. (ID16)</p> <p>Instead, I [customer] engaged because I went to purchase the [product] and I received bad services. What happened was I received delayed services due to lack of employee disciplines. So, when I came back, I decided to comment on one of the posts to express my feelings regarding that. I was hoping that the company would do something about it because this is the brand that I like and I did not want to start going against it because of its services because the products are so great. [...] the company commented back apologising and asking for more information in order to check if the situation was really that. Then, they contacted back to clarify the problems and took it into considerations for further improvements so that the same problem won't happen again. (ID21)</p>

**Table 5.12: Dynamic capabilities required to support an e-transition model towards co-process (continued)**

KEY CAPABILITIES FOR CO-PROCESS		ILLUSTRATIVE QUOTATIONS
ORGANISATIONAL CULTURE	Adaptability	<p>Our organisational culture always focuses on customers anyways. We [company] try to encourage our employees to understand customer problems and solve them effectively. Different customer groups often have different problems. We need to understand their problems so that they come back to us in the future. [...] We usually develop our services in a number of ways. Firstly, we launch it 100% and if customers do not use, we just waste it. Secondly, we have something like a prototype to test our services. We let five customers test it and see their feedbacks. [...] Prototyping and testing helps us to improve our services in the direction of customer needs. (ID15)</p> <p>[...] we [company] focus on customers anyways. Whatever we do, our customers come first. If the customers have problems, we focus on their problems and try to find the best solutions. We try to adapt ourselves according to what the customers want and serve them. (ID16)</p> <p>I [manager] think the drivers behind customer centricity are the changing needs of customers, technology and culture. As a company, we have to always be ready to change and adapt in order to find the best solutions for customers. [...] We [company] just need customer-focused management so that we can find solutions and best serve customers. [...] We are able to better think and find solutions by debating and discussing different issues together. Some may say it is good and some may say it is not. We can listen and evaluate different ideas and come up with solutions that best serve customers. (ID18)</p> <p>We [company] may not have to change everything. In fact, we just have to be flexible in adapting to changes. (ID19)</p>
	Mission	<p>We [company] may not have the actual strategies, but we try to develop our services better [...] In other words, we want to make our customers happy. I [manager] once talked to a researcher. He said we should not concentrate on building brand awareness, but we should invest in product/service development so that customers are happy and they will spread the words. [...] We have an employee who is specifically responsible for customer interaction. For example, we send out our questionnaire every month in order to gain customer insights and feedbacks, in terms of their issues and problems. [...] We use these information and insights from customers to improve our services to better serve them. (ID15)</p>
ORGANISATIONAL STRUCTURE	Formalisation	<p>Our organisational structure changes every 6-12 months because we [company] want our employees to try new things and learn to develop new skills. (ID15)</p> <p>We [company] do not really have organisational structure. Cultural diversity allows us to talk to each other in a better way, coming up with different ideas and therefore finding the best solutions for customers. (ID16)</p>
	Information generation	<p>I [manager] think we [company] should obtain customer information in order to meet individual customer demand. However, it is not a case – if we still do not have enough customer information, we need to build relationships with customers in order to become closer to them and to understand their needs, preferences. Our marketing also requires customer data otherwise, we will be limited to the same old marketing attempts. (ID18)</p> <p>Having good relationships with customers would allow us [company] to gain more information from customers. Customers with close relationships tend to give more details to their needs, issues and/or problems. In other words, they tend to be more open to us. (ID16)</p>
E-MARKETING CAPABILITIES		

**Table 5.12: Dynamic capabilities required to support an e-transition model towards co-process (continued)**

KEY CAPABILITIES FOR CO-PROCESS	ILLUSTRATIVE QUOTATIONS
<b>Information dissemination</b>	<p>I [manager] think our challenge is the capabilities to analyse our customer insights and convert it into ideas for further development. This can also be supported by key metrics. Customer needs will keep changing. If we identify their plain problems, we will be able to serve them better. [...] Some firms may say they are customer-centric but I think they have to have key metrics in measuring their performance as well. Having good relationships with customers is another key element towards customer insight gaining. For example, customers with close relationships would provide us with unexpected information (those information that general customers wouldn't provide). (ID15)</p> <p>Customers on social media are diverse so information gained on social media is very effective. However, we [company] have to evaluate this information to see its significance. If the customers are saying the same thing, it means the information should be taken into consideration, but if one of the ten customers complains and the rest is saying positive things, we may have to understand that it is individual preference. However, we can still utilise such information that can be communicated across the organisation so that we can keep in mind for our future improvements. (ID18)</p>
<b>Responsiveness</b>	<p>The challenge is that we [customers] do not really know if our messages are received by the company or not. If they [company] actually see it and not responding, we still would not know. (ID19)</p>

#### 5.4.4 Co-Experience

Co-experience is the process of organising customer-led activities on social media to encourage customers to share and exchange their individual experiences to add value and to co-create superior experiences for other customers (or open contribution) (Battarbee and Koskinen, 2005). SMEs that implement an e-transition model to integrate customers in co-experience processes require a specific set of capabilities to support customer involvement in experience innovation (Table 5. 13). Based on the qualitative findings, co-experience activities focus on sharing and exchanging experiences between firms and customers, as well as among customers themselves (e.g. ID22, ID23, ID25, ID27 and ID28). In doing so, SMEs often rely on a high level of *sharing capability* on social media to engage customers in the process after their consumption of the products and services in order to add value to existing customer experience. ID28 described her experiences on social media as confirmation of the quality of the services and as a recommendation for other customers. Those who already consume the products and services and wish to share their experiences, or those who are about to purchase them can come together as a community of people with the same interests. Therefore, SMEs can benefit from this *community capability* provided by social media to better understand customers and their experiences of products and services (e.g. ID25). For example, customers can answer questions posed by others on social media, without the firm's participation, by sharing and exchanging their experience. In addition, firms can gain customer insights into current experiences in order to generate customer experience innovation. Via these online communities, SMEs can also observe and understand relational ties among customers and further develop relationships with them; i.e. benefiting from the *relationship capability* of social media to build and maintain relationships with customers to create long-term value.

To support social media capabilities, SMEs need to reconfigure their organisational culture capabilities to support an e-transition model for new experiences. First, *adaptability* is the most significant organisational culture capability that enables SMEs to effectively respond to changing customer demand and environments. In the case of ID22, being able to adapt to the changing environment enables it to stay up-to-date, better serve customers, and involve them in co-creating experiences. As customer lifestyles and preferences change over time, SMEs need to be able to capture the real needs of customers in order to provide value-added experiences and to generate long-term value. This adaptability is often associated with the *involvement* of employees in decision-making processes. ID26 highlights the importance of team working and coordination in order to adapt in response to any changes in customer needs. Discussion among employees or with managers allows firms to better solve customer problems and improve customer experiences. However, ID23 emphasises the importance of *consistency*; the ability to maintain customer satisfaction throughout the co-creation process. For example, the company sets core values to maintain the quality of the products and services provided to customers. These core value enable employees to perform their tasks within the scope of their work. This is in line with the development of a *mission* to provide directions to the whole organisation on what should or should not be done when interacting with customers to maximise experience sharing and exchanging (e.g. ID26). In the case of ID22, the company set a clear goal and objectives to reduce the boundary between its customers and the firm in order to maximise customer experiences. Communicating this goal throughout the organisation allows employees to accordingly find ways to better engage customers in experience innovation processes, resulting in an increase in their long-term value. Hence, co-experience activities often require a focus on all aspects of organisational culture to support customer integration in co-creating value-added experiences.

Similar to the other three types of value co-creation, co-experience also requires all three aspects of organisational structure capabilities to support customer integration in experience innovation processes. Specifically, *formalisation* helps to reshape the way employees work towards co-experience with customers. Although SMEs often operate within less formal structures, a certain level of formality is required to guide the way they co-create experiences with customers. ID22 highlights the problems of a hierarchical gap, in that there is a need to add another layer in a hierarchical structure to bridge higher and lower levels of management, thus allowing them to work collaboratively and more efficiently towards co-experience. Similarly, setting up specialised teams (or *specialisation*) enables SMEs to look after and better understand specific groups of customers, as each group varies in its demand and expectations, thus generating better experiences for both firms and customers (e.g. ID23). In addition, in the case of ID25, the company established an informal structure to encourage employees across units to coordinate and discuss with each other, in order to solve customer problems (or *coordination*). After exchanging experiences with customers, organisational members sit down and discuss together to establish the strengths and weaknesses of their services in order to further add value to customer experiences (e.g. ID26). As a result, the company can find the best solutions to meeting customer expectations and engaging them in co-experience processes.

Furthermore, the development of e-marketing capabilities is required to support an e-transition model aimed at co-experience. The use of social media enables SMEs and customers to develop relationships with customers, exchange information and manage customer data; i.e., if SMEs are able to collect more data, they are more likely to distribute such information and effectively respond to customers in terms of marketing and value co-creation activities for experience innovation (e.g. ID22). Since co-experience aims at sharing and exchange information in terms of experiences to add value and create superior experiences, SMEs need to effectively understand customer needs through information generation and dissemination on social media (e.g., ID25 and ID26). As a result, SMEs can effectively respond to customers with solutions to co-creating experience innovation. In other words, the way SMEs respond to customer demand determines the level of customer satisfaction and customers' willingness to participate in co-experience activities (e.g., ID23 and ID24).

**Table 5. 13: Dynamic capabilities required to support an e-transition model towards co-experience**

KEY CAPABILITIES FOR CO-EXPERIENCE	ILLUSTRATIVE QUOTATIONS
<b>SOCIAL MEDIA CAPABILITIES</b>	<p><b>Sharing capability</b></p> <p>We [company] consider social media as a channel to express and share our experiences to our customers. For example, we consider Instagram as our diary. Every time we travel, we share our experiences. (ID22)</p> <p>We use Facebook as a mean to share and exchange experiences with our customers. [...] When customers come, they take pictures and post on their social media and their friends see it. I [manager] always ask my customers how they come across us and most of them say social media. They get to see and read other people's experiences at [company] and they wanted to gain such experience too. (ID25)</p> <p>I [customer] like and comment on posts, providing feedbacks. For example, [the company's anniversary] was promoted by asking customers to pay for [products] at any price, they wished to. For this activity, I came to know through social media and that was how I engaged. On social media platforms, I do comment and provide feedbacks so that the firm can further improve their products/services, which can better serve us and provide us with better experiences. [...] I think it is the experiences (emotional values). Engaging with the firm on social media platforms allows us to get to know about the firm better and how products are inspired. (ID24)</p> <p>I [customer] then see a number of activities they [company] do. They usually post about their experiences with customers and latest, their upcoming expansion. When I see those posts on social media, I often engage by liking and commenting on the posts, sharing opinions and experiences on the incidents. (ID27)</p> <p><b>Community capability</b></p> <p>[...] For example, [hashtag] on social media was created by our customers, not us. Social media is a channel where customers can actually engage and act as a part of our business. What usually happens is that customers usually responds to comments and posts for us without us having to do so. For instance, someone commented to ask about our branches. Our customers commented with the lists of our branch addresses. (ID22)</p> <p>[...] we [company] have information and knowledge on our main customers and what they like and do not like. As I said, we are more like a community that like similar things and have similar lifestyles and interests. (ID25)</p> <p>What happened is that when we [used the services], we got a chance to interact with other customers as well during our [service] so we tended to have each other's Facebook Pages. So, whatever posts these individuals, as well as the owner, do on social media, we get to see and be involved by liking or commenting on them. These channels, I [customer] think, are more like a community for people to share and exchange experiences before, during and after services. (ID27)</p> <p>Going there [shop] is more like a community, getting to know people from different places that have the same interests. This too applies onto online platforms where every activity the firm has is always gathering people together to share and exchange experiences. (ID28)</p>
	<p><b>Relationship capability</b></p> <p>We [company] gain values in terms of connection and community. Customer engagement in activities allows us to build relationships and connections with customers, forming a community for them to share and exchange information, knowledge and experiences. In return, we also gain more friends. (ID22)</p> <p>I [manager] think we [company] gain friends and community. When customers participate in these activities, we get to interact and build relationships with them. So, we kind of gather people with the same interests together as we talk and discuss on the same topics. (ID25)</p> <p>Social media is good for communication in present. Everyone uses social media. We [company] can interact with a large number of customers, build relationships with them and understand what they want. [...] We have a number of activities online and with strong relationships, customers would engage on their own. (ID26)</p>



**Table 5.13: Dynamic capabilities required to support an e-transition model towards co-experience (continued)**

KEY CAPABILITIES FOR CO-EXPERIENCE		ILLUSTRATIVE QUOTATIONS
ORGANISATIONAL CULTURE	<b>Adaptability</b>	<p>As customers become more knowledgeable, they are able to compare products/services produced by different firms. Firms are more competitive in order to better satisfy customers. Although an increase in competition requires us to quickly adapt, I still think it is a good thing. (ID22)</p> <p>We [company] always put our customers at the heart. We do not have our signature [products], but we always ask each customer what they like and we suggest our products accordingly. So I [employee] think we are more of a customer-centric firm, than a product-centric firm. (ID23)</p> <p>I [employee] think we [company] are almost 100% customer-centric because we mainly focus on customers. We change and adapt according to customer needs. (ID26)</p>
	<b>Involvement</b>	<p>We [employees] know if we have problems who we have to contact. We have people who are in higher positions but we are empowered to complete our own tasks. (ID23)</p> <p>We [company] do not really have a specific culture in our organisation, but I would say we run our business like family. We talk and discuss things with our employees as if they are sisters and brothers. These employees are with us for long time so we respect them in their own tasks. I [manager] may have an idea but because they [employees] are experts in their own areas, I still ask for their knowledge and opinions. [...] One person may suggest something and another may suggest another idea. However, combining these two ideas may generate better solutions. (ID25)</p> <p>We [company] always talk and discuss with each other and manager/owner. Sometimes, customers suggest something so we sit and discuss together to see what we can do about it or what solutions we can come up with and then we change accordingly. (ID26)</p>
	<b>Consistency</b>	<p>We [company] listen to our customers. [...] we want to reduce the boundary gap between the customers and the sellers. The sellers introduce different [products] to customers and welcome them to try as much as they want in order to get the best [products] for themselves. [...] we set our core values/brand promises as a guideline for employees to follow in order to serve our customers. Employees can serve customers in whatever way they think it is best within our core values. If something goes wrong, the employees get a chance to explain their reasons. So, according to us, cultural diversity is seen to be an advantage to our firm. (ID22)</p> <p>Our brand has three core values [...] We [company] try to understand our customers so we can provide with the fun activities, not only focusing on marketing purposes but providing them with good experiences and emotional values. [...] We concern with our quality and [products]. Our [product] has to be consistent so we can maintain our customer satisfaction level. (ID23)</p>
ORGANISATIONAL STRUCTURE	<b>Mission</b>	<p>We focus on services – do not focus on hard selling. We [company] encourage our employees to best serve customers – encouraging customers to try as much as they want before they purchase although they do not actually purchase at the end. We believe that although they do not purchase this time, they may purchase next time and may also bring their friends. This may be considered as a strategy. (ID22)</p> <p>We [company] tend to focus on maximising customer satisfaction and experience. [...] and that leads to interactions with customers, exchanging ideas and experiences. I consider myself as a middle person that connects a group of customers with another. When the customers come, they do not only enjoy themselves but also as a community. (ID25)</p>
	<b>Coordination</b>	<p>We [company] do not have organisational structure at all, but we coordinate with each other. Always communicate to get the best results. (ID25)</p> <p>We [company] do not have structure at all. We are more like a family and we work like a family here. We talk and coordinate with each other. (ID26)</p>

**Table 5.13: Dynamic capabilities required to support an e-transition model towards co-experience (continued)**

KEY CAPABILITIES FOR CO-EXPERIENCE	ILLUSTRATIVE QUOTATIONS
<b>E-MARKETING CAPABILITIES</b>	<b>Information generation</b> As I [manager] said, we [company] still do not have CRM system to help us manage customer data. Customer data we got is from our delivery records. We still do not have membership. If we have more customer data, it would be beneficial. (ID22)
	<b>Information dissemination</b> [...] if we [company] have more customer data, I [manager] think we will be able to do better marketing activities. We can better analyse, and may be try to divide our customers into different tiers in order to better satisfy and maintain relationships of each tier effectively. (ID22)  Sometimes, we [company] cannot adapt to customer needs and demand. This may not directly relate to our products, but the services. For example, customers have recommended us to provide card payment service. We cannot provide such services immediately because there is a procedure when dealing with the banks, but we are still looking for the best solutions. (ID23)
	<b>Responsiveness</b> We [company] focus on our customer interactions. For example, if the customers message us, we are always responsive on social media. (ID22)

## 5.5 Key E-Transition Capabilities for Value Co-Creation Aimed At Innovation

Based on the discussion in the previous sections, the study further demonstrates how different sets of capabilities can be categorised into the core and additional capabilities required to support an e-transition model of value co-creation at all stages of innovation. *Core e-transition capabilities* can be defined as firm-level capabilities that are necessary to develop to facilitate customer integration in all co-creation activities at all stages of innovation. Given that SMEs often have limited resources, these core capabilities are primarily needed to build a strong foundation to implement an e-transition model to achieve value co-creation for innovation. Whilst, those capabilities that are only needed to support particular aspects of innovation processes are termed *additional e-transition capabilities*. These additional capabilities are the secondary capabilities that can be developed in addition to core e-transition ones to strengthen firm performance towards value co-creation for greater innovation.

### 5.5.1 Core E-Transition Capabilities for Value Co-Creation

By focusing on the common capabilities required in all types of co-creation and at all stages of innovation, the qualitative study provides insights into the core e-transition capabilities needed to support a system transition to technology-enabled value co-creation for innovation in SMEs. The qualitative study directly addresses the call by Abed, Dwivedi and Williams (2015) to focus on core capabilities so that SMEs can effectively and efficiently utilise and invest their available resources in the most important capabilities to support customer integration in innovation processes.

First, the findings indicate that the development of social media capabilities, such as sharing and community capabilities, acts as a foundation for customer-firm interactions for innovation (Majchrzak *et al.*, 2013a). The qualitative study provides additional insights into customer engagement in value co-creation by demonstrating sharing and community capabilities as core social media capabilities to support an e-transition model of value co-creation for innovation (Abed, Dwivedi and Williams, 2015; Price and Wrigley, 2016). Although Harmeling *et al.* (2017) highlight the importance of psychological ownership and self-transformation in customer engagement marketing, knowledge on how SMEs can use social media to boost such intrinsic motivations of customers is still lacking. In fact, the qualitative findings demonstrate that the development of sharing and community capabilities enables SMEs to increase the sense of belonging of participating customers. The use of social media to enable information and idea sharing promotes firm-customer relationships for better value co-creation (Dutot, 2013). In other words, using social media to create online communities for customers to share and exchange relevant information with firms, as well as among themselves, allows SMEs to better engage customers in co-creating ideas, developing and improving products or services, and creating value-added experiences (Bugshan, 2015). Therefore, it is summarised that:

***Proposition 1a:*** *Sharing and community capabilities act as core social media capabilities to support information sharing and exchange between firms and customers, as well as among customer themselves, to better understand and involve them in an e-transition model of value co-creation for innovation in SMEs.*

Second, the findings demonstrate the importance of firms' ability to change and adapt to changing environments, such as customer needs, technology and other market conditions, and that it acts as a key foundation for better understanding and responding to customer demand in order to engage customers in value co-creation activities on social media. Although the literature suggests different organisational culture capabilities (e.g. Abdul-Halim *et al.*, 2019; Zheng, Yang and McLean, 2010), this qualitative study argues that adaptability is the most important organisational capability required to facilitate customer integration in innovation processes. In fact, our findings answer the call from Morgan *et al.* (2019) on the need to specifically investigate the impact of adaptation on marketing developments towards innovation. Therefore, the study provides new insights into this gap by demonstrating the significance of adaptability in a system transition to technology-enabled value co-creation for innovation. Therefore, it is further summarized that:

***Proposition 1b:*** *Organisational adaptive capability acts as a core organisational capability to support the changing needs of customers and other market conditions to effectively involve customers in an e-transition model of value co-creation for innovation in SMEs.*

Third, the qualitative findings show that organisational structure capabilities are also significant to support such an e-transition model. Following the approach proposed by Bamberly *et al.* (2015), this study highlights the need to develop formalisation capabilities only when SMEs are developing in all stages of innovation. Although the literature highlights that SMEs often have no organisational structure or sometimes implement a decentralised structure (Nouicer, Zaim and Abdallah, 2017; Schindehutte and Morris, 2001; Wee and Chua, 2013; Zheng, Yang and McLean, 2010), this study argues that they still need to follow some formal systems and procedures in order to ensure high quality products and services (Gentile-Lüdecke, de Oliveira and Paul, 2020). Formalisation enables SMEs not to only set standards of work, but also to maintain the quality of value co-creation processes with customers. This includes firms' ability to form collaborative structures to enable employees to coordinate together, as well as setting up specialised units, which help to strengthen the way employees are involved in different processes (Willem and Buelens, 2009; Meijaard, Brand and Mosselman, 2005). In other words, SMEs need to sufficiently understand the needs and problems of new customer groups to collaboratively find solutions to involve customers in innovation processes. As a result, they can better implement an e-transition model of value co-creation. The findings extend the current knowledge by demonstrating the need to develop organisational structure capabilities, which helps to strengthen customer integration in value co-creation processes at all stages of innovation. In fact, firms' ability to provide formal systems and procedures helps the whole organisation to effectively integrate customer inputs into their competences in order to co-create value in the form of products, services and experiences. Therefore, the study summarises that:

***Proposition 1c:*** *Organisational structure capabilities (formalisation, coordination and specialisation) act as core capabilities to strengthen the way employees work towards integrating customers in value co-creation processes for innovation in SMEs.*

Fourth, the qualitative findings indicate the importance of e-marketing capabilities to support an e-transition model in SMEs. Such e-marketing capabilities include information generation, information dissemination and responsiveness capabilities, which help SMEs to continuously engage customers in value co-creation processes. Following the concept of social CRM capabilities proposed by Trainor *et al.* (2014c), this study provides new insights into the current knowledge

by extending its application to an e-transition model of value co-creation in SMEs. Although the original concept of social CRM capabilities is rooted in customer relationship marketing, its essence is to integrate technological and organisational resources to generate the best possible outcomes from online interactions (Wu, Mahajan and Balasubramanian, 2003). This qualitative study argues that social media can be used to generate customer information, which allows SMEs to better understand customer needs and expectations, and combine them with internal competences. As a result, SMEs can continuously interact and be further engaged in innovation processes. Furthermore, the findings extend the current theory on customer communication capability, as SMEs can customise and personalise each communication style with different groups of customers in order to achieve the best possible outcomes for value co-creation (Harrigan, Ramsey and Ibbotson, 2012; Malthouse *et al.*, 2013; Verhoef, Reinartz and Krafft, 2010). Therefore, it is summarised that:

***Proposition 1d:*** *E-marketing capabilities (information generation, information dissemination and responsiveness) act as core capabilities to support the effectiveness of continuous interactions and integration of customers in an e-transition model of value co-creation for innovation in SMEs.*

Hence, the development of these core capabilities enables SMEs to successfully facilitate a system transition to technology-enabled value co-creation for innovation. The findings on core capabilities provide new insights into how SMEs can effectively and efficiently utilise and convert their available resources into these essential capabilities to support customer integration in innovation processes (Abed, Dwivedi and Williams, 2015). However, the finding further illustrates the additional capabilities that can be developed in accordance with the specific characteristics of each value co-creation activity at specific stages of innovation. In other words, the development of additional capabilities to support core e-transition capabilities enables SMEs to gain competitive advantages.

### **5.5.2 Additional E-Transition Capabilities for Value Co-Creation**

The qualitative findings provide further insights into the additional capabilities needed for value co-creation for innovation. Each of these capabilities enables SMEs to support different aspects of related activities on social media. By focusing on how each additional capability supports customer integration in innovation processes, the study provides new insights by demonstrating a set of capabilities that can be specifically developed in accordance with the stages of innovation in which SMEs are operating (Hoyer *et al.*, 2010; Lichtenthaler, 2011). It is argued that it is difficult for SMEs to develop all the capabilities to support a system transition to technology-enabled value co-creation, so therefore it is proposed that different sets of additional capabilities are developed to facilitate and integrate customer input with the firm's competences to generate the best possible innovation initiatives.

First, the findings indicate that the development of relationship and conversation capabilities are required when SMEs are involving customers in value co-creation activities on social media beyond the idea generation phase of innovation; i.e., R&D and commercialisation. Following the concept of using social media for innovation proposed by Mount and Garcia Martinez (2014), this study extends the current knowledge by illustrating the importance of relationship and conversation capabilities to support customer integration in new product and service development, existing product and service improvements and customer experience innovation on social media. Although the current literature highlights the

advantages of using social media for innovation in different ways (Bhimani, Mention and Barlatier, 2018), this study specifically suggests the utilisation of social media capabilities, such as relationship and conversation ones, at specific times in innovation processes. In this way, SMEs can better allocate their available resources to support co-creation activities with customers for innovation. In fact, the study provides insights into the need to create conversations with customers to gain in-depth information on any problems related to products or services. In addition, firms' ability to develop strong relationships with customers (or its relationship capability) helps to strengthen customer-firm interactions on social media, which leads to more information generated. Such findings in this study add further value to the concept of relational capabilities proposed by Ngugi et al. (2010) by extending the theory into the B2C context. Therefore, the study summarises that:

***Proposition 2a:*** Relationship and conversation capabilities act as additional social media capabilities to specifically support the generation of in-depth information on customer problems to find the best solutions in terms of new or improved products, services and experiences, for an e-transition model in SMEs.

Second, the findings demonstrate the importance of different organisational capabilities to support such an e-transition model at different innovation stages. The qualitative study provides further insight into the concept of innovation culture proposed by Abdul-Halim et al. (2019), by focusing on different aspects of organisational culture capabilities to drive a system transition to technology-enabled value co-creation for innovation. The study demonstrates that employee involvement does not always facilitate e-transition models of value co-creation for innovation in SMEs. The literature emphasises the importance of organisational culture for innovation (e.g. Bock *et al.*, 2012; Denison, Nieminen and Kotrba, 2014; Mention, Barlatier and Josserand, 2019). For example, Bamberry et al. (2015) demonstrate the importance of involving employees in order to generate an innovation culture, while Amin, Ghazali and Hassan (2020) highlight that involving employees in various activities will motivate them towards interaction, collaboration and value co-creation. However, this study argues that an involvement capability is only required when SMEs wish to generate ideas, and develop new products, services and customer experiences, but not in the feedback process. The possible reason for this is that employee involvement generates the motivation towards serving customers and making contributions towards innovation (Hewett and Shantz, 2021). On the other hand, feedback processes (or the co-process) often focus on screening customer feedback and input and converting potential initiatives into product and service improvements. Therefore, the study summarises that:

***Proposition 2b:*** Involvement capability acts as an additional organisational culture capability to specifically facilitate employee motivation towards value co-creation, leading to creativity and other internal competences to generate ideas, develop new products and services and provide value-added customer experiences, in an e-transition model in SMEs.

Conversely, the qualitative findings demonstrate that the development of a mission capability is needed when involving customers in feedback loops. Although the literature often discusses the process of product and service improvement as the same process of new product and service development (e.g. Fuchs and Schreier, 2011; Hsu, 2016; Sawhney, Verona and Prandelli, 2005), this study extends the current knowledge by separating co-process and co-production to provide new insights into the distinctive capabilities needed to support an e-transition model. The findings indicate that developing

a mission and strategic directions allows SMEs to set guidelines for employees to effectively select and filter customer feedback and other initiatives, and convert them into better versions of existing products and services. In fact, this study supports the findings provided in the study of Grönroos (2012) that highlight the need for internal support to register valuable feedback from customers and their reactions and use it for developmental activities. The study also provides new insights into the concept of co-innovation proposed by Romero & Molina (2011) by highlighting the importance of a mission capability to separately support customer involvement beyond experience innovation. In other words, the development of a mission capability enables SMEs to involve customers in the process of product and service improvements in order to continuously generate co-creation activities with them for innovation. Therefore, it is summarised that:

***Proposition 2c:*** *Mission capability acts as an additional organisational culture capability to specifically support the selection and filtering processes of customer feedback for product and service improvements, thus facilitating an e-transition model in SMEs.*

Another important organisational capability required in the R&D and commercialisation stages of innovation is a consistency capability. Following the approach proposed by Bamberry et al. (2015), this study highlights the need to develop consistency capability only when SMEs are developing new products, launching the products into the markets and receiving feedback to improve the products, in order to generate increased customer experiences. Although the literature highlights that SMEs often have less structure and procedures to operate with (Nouicer, Zaim and Abdallah, 2017; Schindehutte and Morris, 2001; Wee and Chua, 2013; Zheng, Yang and McLean, 2010), this study argues that SMEs still need some consistent procedures to maintain internal and stable focus to provide better support when integrating customers in value co-creation processes. As a result, SMEs can ensure high quality of products and services co-created with lead users (i.e. close contributions) (Gentile-Lüdecke, de Oliveira and Paul, 2020). The findings extend the current knowledge by demonstrating the need to develop a consistency capability to support customer integration specifically in co-production, co-process and co-experience activities. In fact, the firm's ability to provide core values and procedures helps the whole organisation to effectively integrate customer inputs with the firm's competences in order to co-create values in the forms of products, services and experiences. Therefore, the study summarises:

***Proposition 2d:*** *Consistency capability acts as additional organisational culture capabilities to specifically help to maintain the standard and quality of the products and services co-created with customers in an e-transition model towards value co-creation for innovation in SMEs.*

To conclude, the literature mainly focuses on the distinctive capabilities needed to support value co-creation processes predominantly within the boundaries of a single organisation, and has placed little emphasis on studying different requirements in different co-creation activities at different innovation stages (Hoyer *et al.*, 2010). Embedded in S-D logic and dynamic capability approaches, this study extends the current theorising and provides insights into the value co-creation and innovation literature by demonstrating the development of distinctive capabilities to support an e-transition model of value co-creation at multiple stages of innovation (Lichtenthaler, 2011). The degree to which SMEs

should develop social media, organisational culture, organisational structure and e-marketing capabilities depends on the nature of the co-creation activities; i.e., co-ideation, co-production, co-process and co-experience. Different value co-creation types exist at different stages of innovation, aiming to achieve different innovation outcomes, including idea generation, R&D and commercialisation. Understanding how these capabilities should be developed to support an e-transition model enables SMEs to utilise their limited resources and develop the necessary capabilities in the best possible way to maximise innovation outcomes. As a result, SMEs can gain a sustainable competitive advantage (Abed, Dwivedi and Williams, 2015).



## **STUDY 2: QUANTITATIVE RESEARCH**

## CHAPTER 6: THEORETICAL FRAMEWORK

Study 1 of the research presented the qualitative study aimed at understanding the role of social media in facilitating an e-transition model and identifying the capabilities required to support a transition to technology-enabled value co-creation, specifically in the four types of value co-creation, namely, co-ideation, co-production, co-process and co-experience, for innovation in SMEs. Based on ten aspects of three firm-level capabilities discussed in the framework analysis, only seven of these were identified as core e-transition capabilities for supporting all types of value co-creation for innovation in SMEs. Specifically, only one aspect of organisational culture capabilities (adaptability, or organisational adaptive capability) was found to be a core organisational culture capability for supporting an e-transition model. On the other hand, all aspects of organisational structure and e-marketing capabilities were considered significantly important in such processes. Out of the four aspects of organisational culture capabilities, organisational adaptive capability (or adaptability) was required in all types of value co-creation, which indicates that firms need to reconfigure their organisational resources and activities to quickly respond to changes in customer demand and other market conditions at all stages of innovation. With their flexibility and willingness to learn to adapt to changing environments SMEs are more likely to be open to challenges associated with customers and markets, thus resulting in risk-taking approaches to better engage customers in value co-creation processes for innovation (Ali, Sun and Ali, 2017; Ma, Yao and Xi, 2009). In addition, both organisational structure and e-marketing capabilities are similarly required in all types of value co-creation. Specifically, organisational structure capabilities are considered as firms' ability to develop and redesign decentralised structures that combine both formal and informal procedures to guide the whole organisation towards value co-creation. On the other hand, e-marketing capabilities, including information generation, information dissemination and responsiveness capabilities, help to create continuous interactions with customers (Trainor et al., 2014c).

Although the qualitative study highlights organisational structure capabilities as core e-transition ones, this is seen as having a possible indirect effect on the relationship between key capabilities and value co-creation (Wee and Chua, 2013). A higher level of decentralisation can lead to firms becoming more flexible to internal (management system) and external (market and technology) changes, as well as better integrating social media technologies in marketing practices aimed at value co-creation (Gibson, Finnie and Stuart, 2015). SMEs with organisational structure capabilities are more likely to strengthen the development of their organisational adaptive and e-marketing capabilities (Akgün, Keskin and Byrne, 2012). Hence, the relationships between organisational adaptive capabilities and e-marketing capabilities with value co-creation are likely to be affected by organisational structure capability (or the moderation effect of organisational structure capability). Building on the qualitative findings, the aim of Study 2 is to develop and empirically test both the direct and indirect relationships of key capabilities (or core capabilities) with value co-creation for innovation.

### 6.1 An E-Transition Capabilities Model for Value Co-Creation

Based on service-dominant (S-D) logic (Vargo and Lusch, 2004), marketing scholars have mainly focused on the use of social media technologies in value co-creation processes (Rashid *et al.*, 2019). However, it is still unclear how SMEs can effectively utilise their available resources to develop the core capabilities to support such a process (Lenka, Parida and

Wincent, 2017). Internal organisational capability refers to the firm's ability to identify, deploy, explore and exploit organisational resources (e.g. personnel and in-house knowledge) to achieve organisational goals (e.g. innovation) (Kim, Song and Triche, 2015). Although previous scholars have specifically highlighted the significance of organisational adaptive capability, organisational structure capability and e-marketing capabilities in the marketing and innovation literature (Bocconcelli *et al.*, 2018), current knowledge on these three capabilities is fragmented as they tend to be examined separately (Galvagno and Dalli, 2014). That is, the current literature still lacks comprehensive understanding of how these capabilities together influence the e-transition model of value co-creation for innovation (Mihardjo *et al.*, 2018). This research argues that the combination of these key capabilities provides a strong foundation for SMEs to effectively allocate resources to support customer integration in value co-creation processes towards innovation (Baron and Warnaby, 2011). Specifically, how SMEs can develop organisational adaptive and e-marketing capabilities to better integrate customers in value co-creation processes towards innovation, with the moderating effect of organisational structure capability, remains unclear (Bocconcelli *et al.*, 2018).

Through the lens of S-D logic and dynamic capability perspectives, this research addresses the call from Chepurna and Criado (2018) on the need to explore the ways to confront barriers (e.g. a lack of resources and capabilities) and provide practical insights into how to overcome such issues when organising value co-creation activities online. The study aims to extend the current knowledge on value co-creation and innovation from a capability-based perspective by developing and testing an e-transition capabilities model. With such a model, a broader overview of how SMEs can maximise the use of their available resources and develop key capabilities to support customer integration in value co-creation can be obtained. Specifically, focusing on core capabilities will enable SMEs to better understand customers, identify market opportunities, create continuous interactions with customers, engage them in value co-creation processes, and thus improve organisational innovativeness, resulting in a sustainable competitive advantage (Abed, Dwivedi and Williams, 2015). Hence, this chapter presents the theoretical framework that conceptualises organisational adaptive, organisational structure and e-marketing capability regarding value co-creation for organisational innovativeness (Figure 6.1).

### **6.1.1 Impact of Organisational Adaptive Capabilities on Value Co-Creation for Innovation**

Organisational adaptive capability can be defined as a firm's ability to reconfigure its organisational resources to quickly meet changing customer demand and market conditions (Gibson and Birkinshaw, 2004). Dynamic capability explains that the configuration of organisational resources often relies on organisational adaptive capability that enables firms to learn about and cope with external adaptation and internet integration (Brenyah and Obuobisa-Darko, 2017; Protogerou, Caloghirou and Lioukas, 2012). According to Sulhaini & Sulaimiah (2017), firms, especially SMEs, need '*to learn about their customers and to proactively build strategic responses to remain competitive*' (p.32). Redesigning organisational culture in such a way that is flexible and ready to adapt to changes enables firms not only to understand customers, but also to implement strategic positions towards value co-creation (Teece, Pisano and Shuen, 1997; Zhou and Li, 2010). The current dynamic capability-based literature highlights the importance of organisational adaptive capability in marketing research (Herman, 2013). Tan and Wang (2010) emphasise that firms with adaptability often rely on '*uncommitted resources that can be mobilised as required*' (p.1082); i.e., they can utilise resources (e.g. personnel and in-house knowledge and processes) in accordance with what is required in that particular market setting and at a certain

time in order to effectively respond to customer demand. Unlike other aspects of organisational culture capabilities (e.g. involvement, consistency and mission), organisational adaptive capability provides a strong foundation that enables firms to reshape their strategic responses to engaging customers in value co-creation activities, regardless of the stage of innovation they are at (Heider *et al.*, 2020). Such capability helps to guide the way SMEs interact with external entities (customers) and to reshape internal entities (employees) in order to integrate customers in innovation processes (Evaristo and Zaheer, 2014). In other words, no matter what the aims of value co-creation activities are, SMEs require an organisational adaptive capability to support customer integration in the multiple stages of innovation processes (Ali, Sun and Ali, 2017).

Recent dynamic capability-based scholars often link the concept of organisational adaptive capability with innovation (Vu, 2020). Mahdad *et al.* (2020) emphasise the importance of such capabilities in coping with internal changes (e.g., organisational and cultural ones) in the drive for open innovation. Gavric *et al.* (2016) explain that firms need to motivate and shape employees' mind-sets to utilise their knowledge and skills in risk taking in order to quickly adapt to any possible changes within and outside the organisation. Firms can utilise their resources and develop organisational adaptive capabilities as the main contributor to firm performance and innovation outcomes (Biedenbach and Müller, 2012). Specifically, firms should encourage employees to express themselves and explore divergent solutions to problems (De Dreu and West, 2001) in order to understand issues related to customers and products, and to collaborate with customers to solve such issues to achieve greater innovativeness (Akgün, Keskin and Byrne, 2012). Evidently, there is a positive linkage between organisational adaptive capability and innovation (Ali, Sun and Ali, 2017). Based on the qualitative findings and current empirical evidence in the dynamic capability-based literature, this capability represents unique, proactive and opportunistic behaviour within the organisation towards innovation (Parida, Oghazi and Cedergren, 2016).

Although scholars demonstrate the importance of organisational adaptive capability and its positive effect on innovation (Mahdad *et al.*, 2020), current knowledge on such capability still lacks understanding of how firms can successfully integrate customers, whose needs are always changing, in co-creating innovation initiatives (Hunt and Madhavaram, 2019). Chatman *et al.* (2014) argue that organisational adaptive capability should focus more on the viability and reaction of firms towards external market conditions. Firms may be innovative in their products and services through their internal capabilities, but may fail to adapt to changing circumstances, resulting in customer demand not being satisfied or met (Benner and Tushman, 2002). Instead, the development of organisational adaptive capability should allow firms to integrate external factors that are constantly changing with internal competencies to generate the best possible innovation outcomes (Moon, Quigley and Marr, 2012). Firms with organisational adaptive capability are willing to take risks, learn faster, experiment and identify opportunities to deliver superior customer value through their interactions with them, allowing them to play a proactive role in innovation processes (Romero and Molina, 2011). Therefore, focusing on organisational adaptive capability may increase firms' ability to assess market opportunities, interact with and engage customers in value co-creation processes for greater innovativeness (Chen and Wu, 2011; Zheng, Yang and McLean, 2010).

To effectively facilitate an e-transition model of value co-creation for innovation, the study further reviews the literature to better understand organisational adaptive capability as a construct to facilitate value co-creation. Akgün *et al.* (2012) argue that three main aspects of organisational adaptive capability should be considered: (i) market adaptive capability, (ii) technology adaptive capability and (iii) management system adaptive capability. The qualitative research results also

show that firms' ability to internally adapt and quickly respond to external changes in the market (e.g. customer demand, market trends and competitors) and technology (e.g. social media), as well as internal changes (e.g. in the management system) helps to facilitate value co-creation with customers for innovation, as is explained in the following sections. As a result, firms can implement an 'outside-in' strategy towards innovation (Hunt and Madhavaram, 2019).

#### ***a) Market adaptive capability***

Market adaptive capability refers to a firm's ability to quickly learn about its customers and competitors, to allocate resources to marketing activities and to effectively respond to changing customer demand (Tuominen, Rajala and Möller, 2004). According to Oktemgil and Greenley (1997), the ability to adapt to changing markets depends on firms' ability to scan them, monitor their customers and competitors, and allocate the required resources in the best possible way to support marketing activities. Based on the dynamic capability perspective, current scholars often view the concept of market adaptive capability in relation to marketing and innovation performance (Vu, 2020). Due to an increase in competition, firms need to constantly adapt, renew and reconfigure their resources to differentiate themselves from their rivals (Wang and Ahmed, 2007). Focusing on markets and their changes (or market orientation) enables firms to identify new opportunities, learn about any changes and effectively utilise resources to implement marketing practices aimed at innovation (Monferrer, Blesa and Ripollés, 2015). Such changes in the markets also include changing customer needs and expectations (Preikschas *et al.*, 2017). A firm's ability to quickly adapt to new customer needs and exploit new markets helps to facilitate better integration of customers and to generate more innovation-based information (Evgeniou, 2002). In other words, firms that are able to shift their assets and organisational resources towards adapting to market situations often gain more strategic advantages over their rivals (Bohl, 2015). Market adaptive capability therefore enables firms to adapt, integrate and reconfigure resources to support organisational transformation towards innovation (Dixon, Meyer and Day, 2014).

Although market adaptive capability is the main focus in the marketing and innovation literature (França and Ferreira, 2016), its direct effect on value co-creation has yet to be addressed, especially in the SME context (Preikschas *et al.*, 2017). Firms' ability to redesign organisational resources in a way that allows rapid identification of customer and market changes generates greater advantages for firms to better create interactions and cooperation with customers towards innovation (Hunt and Madhavaram, 2019). Market adaptive capability permits firms to better understand market situations, to identify and capture opportunities to facilitate the provision of value propositions with customers (Shen, Sha and Wu, 2020), and to become more innovative (Akgün, Keskin and Byrne, 2012). Xie *et al.* (2016) provide qualitative evidence for the positive relationship between market adaptive capability and value co-creation. Based on a case study of big data firms from various industries (clothing and furniture), their study underlines that firms with market adaptive capability can quickly learn and transform big data resources (e.g., transactional, communication, participative and transboundary data) generated from social media platforms, mobile applications and CRM systems in order to facilitate customer integration in value co-creation processes. Similarly, Sun, Li and Zhou (2006) add that market adaptive capability not only allows firms to actively learn about their customers and adapt to the evolving needs and preferences of customers, but also to develop strong firm-customer relationships that help to generate further involvement in value co-creation processes. With market adaptive capability, firms can find ways to improve interconnection techniques to

strengthen the synergy between them and their customers (Hunt and Madhavaram, 2019). Specifically, value co-creation is seen as an ‘actor-oriented’ (in this case, customer-oriented) process that requires the firm to understand changing market and customer needs to effectively collaborate and engage customers in the resource exchange process (Fjeldstad *et al.*, 2012; Kazadi, Lievens and Mahr, 2016). In other words, it is most likely that market adaptive capability is likely to facilitate value co-creation towards innovation. Therefore, the following hypothesis is proposed:

***H1a: Market adaptive capability has a positive effect on value co-creation.***

### ***b) Technology adaptive capability***

In an e-transition model, the integration of social media technologies plays an important role in creating continuous interactions with customers and engaging them in value co-creation processes (He and Lu, 2016; Piller, Vossen and Ihl, 2012). Firms’ ability to monitor social media technological changes (e.g., changes in social media policies and features) and to access desired technologies to achieve organisational goals is termed ‘technology adaptive capability’ (Tuominen, Rajala and Möller, 2004). Based on the perspective of dynamic capability, firms’ ability to redesign organisational resources in response to any technological changes provides them with the advantage of implementing ‘outside-in’ strategies (e.g. customer centricity, customer engagement marketing, etc.) (Day, 2014). A simple example is the rapid development of networked information technology (IT), which has led to a shift in the way human resources operate to integrate automation and other communication technologies in all activities performed in order to better perform and compete in the market (Stanton and Coover, 2004). Firms’ ability to quickly adapt to changes in technologies (e.g. IT and social media) therefore enables them to better implement and integrate the use of such technologies in involving customers in innovation processes (Konlechner, Müller and Güttel, 2018).

Previous dynamic capability-based scholars have highlighted the importance of technology adaptive capability in value co-creation and innovation (Akgün, Keskin and Byrne, 2012). A firm’s ability to adapt to technological changes enables it to better integrate technologies (e.g. social media) in interacting and collaborating with customers for innovation (Hsu, 2016). Firms with a technology adaptive capability can quickly change and respond to changes in technologies to better engage customers in activities (Sashi, 2012). In particular, such a capability permits firms to (i) keep up with the development of existing technologies (e.g. social media) to better connect and communicate with customers, (ii) gain relevant information regarding other potential technologies (e.g. weblogs and mobile applications) that can be used in addition to the existing social media ones, and (iii) effectively use the desired technologies to facilitate customer integration in value co-creation (Kaehler *et al.*, 2014). The study by Kristensson *et al.* (2008) provides evidence demonstrating that firms with technology adaptive capability are more likely to implement technologies (telecommunication) to involve customers more effectively in value co-creation workshops to generate greater innovation outcomes. Specifically, firms, especially SMEs, can gain insights into technologies, evaluate their possible features or types, and ascertain the best ways to maximise the use of technologies to help in achieving effective firm-customer interactions for greater creativity and innovativeness at lower cost (Fox and McEwan, 2017).

Although previous research highlights the positive influence of technology adaptive capability on value co-creation, the current knowledge still lacks empirical evidence to confirm a positive relationship between technology adaptive capability and value co-creation (Preikschas *et al.*, 2017). Specifically, there is a need to confirm the direct effect of such a capability

on value co-creation using quantitative analysis (Kristensson, Matthing and Johansson, 2008). A firm's ability to quickly identify changes in technologies and adapt to these can directly allow it to effectively integrate their use in value co-creation with customers (Lew, Kim and Khan, 2019). As a result, firms can collaboratively generate solutions and value geared towards innovation (Lee, Olson and Trimi, 2012). In addition, Barile et al. (2020) provide qualitative evidence explaining the need to quickly adapt to technological changes to support the use of technology-mediated interactions in value co-creation for greater innovation. However, only a limited number of scholars have specifically considered such a relationship in the context of value co-creation with customers for greater innovation (Zhang et al., 2020). Therefore, this study addresses this issue by examining the direct effect of technology adaptive capability on value co-creation, and proposes the following hypothesis:

***H1b: Technology adaptive capability has a positive effect on value co-creation.***

### ***c) Management system adaptive capability***

Despite the importance of market and technology adaptive capability, firms also need to focus on internal adaptive capability in response to external changes (Akgün, Keskin and Byrne, 2012). Management system adaptive capability is associated with firms' ability to shape employees' mind-sets and behaviours towards meeting changing environmental factors (e.g., customers, competitors, technology, policies and rules) (Gavric, Karavidic and Kirin, 2016). Such a capability addresses a firm's ability to establish systems and procedures to encourage and motivate employees to quickly respond to any changes in the market (Gibson and Birkinshaw, 2004). According to Zhou and Li (2010), developing such managerial competencies enables firms to be flexible in the way they work in parallel to environmental changes in the market. Firms that are able to internally adapt to changes can improve their internal efficiency to strengthen the way they collaborate with customers in value co-creation processes (Töytäri, 2015). As a result, they are able to quickly adapt and perform complex customisation tasks to create interpersonal interactions with customers, which in turn facilitates better customer engagement in value co-creation processes (Romero and Molina, 2011).

Based on the dynamic capability perspective, such a capability is embedded in a firm's ability to entrench managerial and organisational processes and routines to constrain dynamic changes in the market (Day, 1994). Management system adaptive capability assesses new competencies; i.e., rapidly reallocating resources and leveraging organisational capabilities for innovation (Romero and Molina, 2009). Firms with such a capability are often ready to adapt different versions of their products and services in accordance with customer feedback (Romero and Molina, 2011). Previous dynamic capability-based scholars demonstrate the positive influence of management system adaptive capability on value co-creation in the B2B context (Wang and Ahmed, 2007; Bocconcelli *et al.*, 2018). Based on a longitudinal investigation, Nardelli and Broumels (2018) provide empirical evidence demonstrating that the network of stakeholders (e.g. customers and external facility service providers) can openly co-create innovation initiatives when an adaptable management system is implemented within the value network. With management system adaptive capability, stakeholders are more likely to be encouraged to come together to share and exchange information and ideas for greater creativity and innovativeness in the value networks (Desai, 2010). As a result, value co-creation processes can be improved with potential stakeholders (including customers) and relationship development with them is possible (Akgün, Keskin and Byrne, 2012).

Similarly, Hönigsberg and Dinter (2019) conducted a case study to explain the need for low-tech firms to internally adapt their management and processes to successfully support the integration of technologies in network value co-creation processes with multiple network actors. Such management system adaptation includes orientating it towards customer centricity, which enables firms to focus mainly on customers and accordingly adapt a working style towards value co-creation with the involved actors (Hunt and Madhavaram, 2019). Although current marketing scholars have demonstrated the positive relationship between management system adaptive capability and value co-creation (Bocconcelli *et al.*, 2018), current understanding of such a relationship is still explorative in nature. There remains a lack of understanding of how firms can adapt to internal changes to support customer integration in value co-creation with customers for innovation in SMEs using quantitative analysis (Preikschas *et al.*, 2017). To put it briefly, how management system adaptive capability influences value co-creation for innovation in SMEs, especially in the B2C context, remains unclear (Ali, Sun and Ali, 2017). To address this gap, the following hypothesis is proposed:

***H1c: Management system adaptive capability has a positive effect on value co-creation.***

### **6.1.2 Impact of E-Marketing Capabilities on Value Co-Creation for Innovation**

Social media technologies (e.g., Facebook, Instagram and Twitter) are increasingly growing in importance in the facilitation of firm-customer interactions (Rashid *et al.*, 2019). Firms need to effectively deploy technological capabilities to facilitate the best possible outcomes in communicating and responding to customers (Odoom, Anning-Dorson and Acheampong, 2017). Their ability to facilitate marketing activities by enriching interactions with customers and quickly responding to them using social media technologies is known as *e-marketing capabilities* (Strauss, El-Ansary and Frost, 2006). The concept of e-marketing capabilities thus extends the perspective that focuses on new capabilities enabled by social media technologies (Trainor, 2012). These technologies are known as a cheap, quick and convenient ICT means to bridge firms, especially SMEs, and their customers, in order to establish better communication and keep track of changing customer demand (Piller, Vossen and Ihl, 2012). In particular, the integration of technological resources (e.g. social media technologies) enables firms to collect customer information, distribute it across the organisation and effectively respond to customers in order to better create continuous conversations and to manage relationships with customers (Trainor *et al.*, 2014c).

Although current marketing scholars highlight the role of social media technologies in firm performance (Hafezieh and Eshraghian, 2017), RBV and dynamic capabilities research provide both quantitative and qualitative evidence (including the qualitative findings from Study 1) on how marketing and IT resources can be combined to form performance-enhanced capabilities and sustain competitive advantage (Bocconcelli *et al.*, 2018; Nath, Nachiappan and Ramanathan, 2010). In particular, it has been found that a single type of resource is not always sufficient to provide significant performance gains, but instead should be combined to produce dynamic capabilities (Eze, Duan and Awa, 2013). For example, Nath *et al.* (2010) demonstrate an integration of marketing resources with other complementary ones (e.g. operational resources) to facilitate firm performance in logistics firms. In addition, Brady *et al.* (2008) examine the integration of technological; i.e. information and communication technology, and marketing resources to improve marketing strategies and practices. Firms' ability to integrate technological aspects in organisational resources enables them to not only provide customers with access to information, but also allows them to obtain information from the customers (Brodie *et al.*, 2007).



As a result, firms can better understand their customers, and accordingly formulate appropriate responses to their needs and problems (Pérez-González, Trigueros-Preciado and Popa, 2017), as well as engaging them in activities to co-create value (Tainor, 2012) and building and maintaining customer relationships (Choudhury and Harrigan, 2014).

To support this argument, O'Cass and Ngo (2012) provide empirical evidence based on a survey of 155 large firms demonstrating that e-marketing capabilities enable firms to provide mechanisms for value co-creation with customers. They illustrate that the ability to effectively generate, disseminate and respond to customer information facilitates the way business-to-business (B2B) firms develop marketing capabilities aimed at value co-creation for innovation. The integration of social media enables firms to (i) access available information and collect useful data from customers, (ii) use these as a means of communicating internally within the organisation, and (iii) respond to customers and markets in such a way that differentiates them from rivals (Trainor et al., 2014a). This is consistent with the qualitative findings in this research, which found that e-marketing capabilities can be viewed in relation to how firms can generate, disseminate and respond to customer information. Taleghani and Mahdi Zadeh (2016) further explain that e-marketing capabilities help to facilitate the way firms identify and understand customer needs and influence firm behaviours, thus improving marketing activities and innovation performance. Although previous research has demonstrated that technologies, including social media, stimulate marketing-related performance (e.g. value co-creation) (Abed, Dwivedi and Williams, 2015), comprehensive understanding specifically of how firms can develop such e-marketing capabilities to support an e-transition model of value co-creation for innovation is limited, especially in the SME context (Nirawati and Prayogo, 2019). The extent to which SMEs can effectively engage customers in continuous interactions towards value co-creation on social media, therefore, depends on their ability to generate, integrate and respond to information obtained from customer interactions (Chuang, 2018).

#### ***a) Information generation***

Information generation refers to a firm's ability to generate information from customers using social media technologies (Trainor et al., 2014c). Such information can be customer-related (e.g., customer preferences, expectations and problems) or market-related (e.g. competitors, market and industry trends) (Yoo *et al.*, 2012). According to Dahan and Hauser (2002), firms can obtain customer information by listening to them, therefore accessing available information by asking customers directly, and requesting them to contribute their information and knowledge. They can then create value with the customers by involving them in co-creating value facilitated by social media technologies. Via social media, firms can become closer to customers and understand their needs and problems, providing new opportunities to further involve customers in value co-creation for innovation (Mention, Barlatier and Josserand, 2019). Specifically, social media provides access to up-to-date customer information, which can be used to create continuous interactions with them in real-time settings and involve them in co-creating innovation initiatives (Cadogan, Souchon and Procter, 2008).

Based on the dynamic capability perspective, the marketing literature highlights the importance of integrating social media technologies in information generation related to marketing performance, especially in SMEs (Rashid *et al.*, 2019). Social media technologies enable SMEs to obtain customer information in various forms, including their likes, posts and comments (with firms and among themselves), messages and shares, in order to better understand customers and how to engage them more effectively in online community knowledge sharing activities (Majchrzak *et al.*, 2013b). Information

sharing in the form of likes provides overall conceptual directions, depending on whether customers positively or negatively react to products and services (Kargaran *et al.*, 2017). In addition, comments and messages allow customers to express their thoughts in more detail, allowing SMEs to better understand them (Breidbach and Maglio, 2016). Trainor *et al.* (2014a) further explain that the use of social media not only allows firms to collect and generate insights into their customers, but also to develop relationships with them to improve marketing performance. Such online communication channels facilitate quicker information generation, which acts as a basis for marketing decision-making (Priharsari, Abedin and Mastio, 2020) and the way firms react towards engaging customers in various activities (Harrigan, Ramsey and Ibbotson, 2012). With information generation capability, firms can understand customers' thoughts on and how they interact with society (Nambisan, 2002). As a result, firms are able to gain insights into customer preferences, problems and expectations and accordingly develop marketing strategies aimed at value co-creation and innovation (Yoo *et al.*, 2012) in order to compete in the market (Verhoef, Neslin and Vroomen, 2007).

Despite the significant role of social media technologies in information generation (Treem and Leonardi, 2013), previous marketing research has often provided empirical evidence on information generation in the context of marketing strategy (Bocconcelli *et al.*, 2018). Although current knowledge highlights the importance of integrating social media technologies into the way firms collect and generate customer information and data (Kargaran *et al.*, 2017), there is still only a limited number of studies which specifically examine information generation capability and its direct impact on value co-creation for greater innovation (Mandrella, Zander and Kolbe, 2016). That is, firms can conduct their market research on their targeted customers and understand their needs and problems using social media in order to better engage them in co-creating activities for greater creativity and innovativeness (Khan, Swar and Lee, 2014; Chan-Olmsted and Shay, 2016). In other words, social media technologies may provide opportunities for firms to better generate customer information and facilitate customer involvement in value co-creation for innovation (Cheng and Shiu, 2019). Therefore, the following hypothesis is proposed:

***H2a: Information generation has a positive effect on value co-creation.***

### ***b) Information dissemination***

Once firms have generated customer information, they need to be able to effectively disseminate it within the organisation using social media (Lim, Zegarra Saldana and Zegarra Saldana, 2011). Information dissemination can be described as a firm's ability to integrate social media technologies in distributing external knowledge from customers across the organisation (Trainor *et al.*, 2014c). According to Chung (2012), firms need to effectively distribute customer information and communicate this to employees across the organisation in order to acquire decision-making towards value co-creation. In particular, firms' ability to effectively disseminate customer information within the organisation provides the advantage of more easily finding solutions that meet customer demand, allowing them to facilitate better communication and interaction with customers involved in value co-creation and innovation processes (Cadogan, Souchon and Procter, 2008; Carbonell and Escudero, 2010).

Following the perspective of dynamic capability, previous marketing scholars have highlighted the positive influence of information dissemination on knowledge management (Meske and Stieglitz, 2013), customer relationship management (CRM) (Chang, Park and Chaui, 2010; Trainor *et al.*, 2014c; Wang and Feng, 2012) and other marketing-related

performance (e.g. Carbonell and Escudero, 2010; Trainor et al., 2011). The adoption of social media permits firms to quickly generate communication and knowledge transfers within the organisation (Stocker, Strohmaier and Tochtermann, 2008). Although the literature highlights both positive and negative effects of social media-enabled enterprise communication (Leidner, Gonzalez and Koch, 2018), this study focuses on the advantages firms can gain from using social media as an enabler to share and exchange information and knowledge (Razmerita and Kirchner, 2011). The adoption of internal social media (e.g. wikis and blogs) enables firms to create shared knowledge based on common terms (Mansour, Abu Salah and Askenäs, 2011). Managers and employees can quickly access relevant customer information and collaboratively discuss it using social media (Meske and Stieglitz, 2013). As a result, firms can combine external knowledge from customers with their internal capabilities to identify customer expectations, adapt to their requirements and accordingly engage them in innovation processes (Fang, 2008).

Although current knowledge on information dissemination shows a positive impact on marketing and innovation performance (Shonhe, 2017), there remains a lack of empirical evidence to explain the relationship between information dissemination capability and value co-creation for greater innovation (Bassano *et al.*, 2018). In particular, how such a capability can directly influence the way firms collaborate and engage customers in their value co-creation activities aimed at innovation (Ahmed, Ibrahim and Hasaballah, 2017). The development of information dissemination capability allows firms to work simultaneously with fast changing customer needs and collaborate with each other in a quicker manner to find unique ways to interact and engage customers in value co-creation activities (Carbonell and Escudero, 2010). For example, Habibi et al. (2015) explain that such a capability allows firms to generate information flows from customers to the organisation, as well as between organisational functions; firms can monitor data on social media and share the information collected from customers between functional areas to identify potential solutions for them. Specifically, an integration of social media technologies provides faster ways to share and exchange information across the organisation, resulting in quicker problem solving and solution finding, better facilitation of interaction with customers (Foltean, Trif and Tuleu, 2019a), improved firm-customer relationships (Choudhury and Harrigan, 2014), and co-creation of value with customers aimed at innovation (Trainor et al., 2014c). Therefore, it is likely that a firm's ability to disseminate information within the organisation using social media technologies generates a greater chance for value co-creation with customers (Treem and Leonardi, 2013). Therefore, the following hypothesis is proposed:

***H2b: Information dissemination has a positive effect on value co-creation.***

### ***c) Responsiveness***

According to Sørensen (2009), '*once customer intelligence is generated and disseminated to the relevant executive, and is subsequently analysed, actions must be taken based on the processed intelligence*' (p.742). With information generation and dissemination, firms can understand customers and accordingly formulate appropriate responses to their needs to continuously create and engage them in collaboration in innovation activities (Khan, Swar and Lee, 2014; Pérez-González, Trigueros-Preciado and Popa, 2017). This process of responding to customer needs can be facilitated by social media technologies in order to better create continuous conversations with customers on value co-creation (Odoom, Anning-Dorson and Acheampong, 2017; Shin, Perdue and Pandelaere, 2020). Trainor et al. (2014c) describe a firm's ability to integrate social media technologies to respond to customers and other market factors (e.g. competitors) and to

create continuous collaboration with customers as ‘responsiveness’. With social media, firms can quickly provide information and feedback to customers and consequently continuously interact with them in order to co-create ideas that can be converted into further development or improvement of products and services (Adrodegari, Pashou and Saccani, 2017). In fact, customers who receive quick and personalised responses are more likely to participate and to empower other customers to co-create knowledge value for innovation (Shin, Perdue and Pandelaere, 2020).

Through the lens of dynamic capability, current marketing scholars demonstrate the importance of firms’ responsiveness in the marketing strategy discipline (e.g., firm-customer interactions and customer relationship management) (Batista *et al.*, 2018). For example, Wei and Wang (2011) highlight organisational responsiveness as a key driver of competitive advantage. Strong organisational responses empower organisations to react more effectively to evolving customer needs, resulting in better interactions with them in the value co-creation process (Homburg, Grozdanovic and Klarmann, 2007). Similarly, Biggemann, Williams and Kro (2014) highlight the importance of organisational responsiveness in co-creating value for stakeholders; i.e., firms should adopt different methods to respond to different stakeholders’ demands in order to effectively involve them in value co-creation processes towards sustainability. Based on a descriptive study of 433 ICT firms, Jiménez-Zarco *et al.* (2011) provide empirical evidence showing that an integration of ICT allows firms to cooperate with clients and quickly meet customer demand in the form of product development processes (e.g. better design, improved quality and low costs) to gain competitive advantage (Brodie *et al.*, 2007).

However, the extent to which firms can effectively respond to customers also depends on the quality of the customer information obtained and circulated within the organisation (Bhatt *et al.*, 2010). If this is of good quality, it allows firms to better capture customers’ pain points and respond to customer demand (Pérez-González, Trigueros-Preciado and Popa, 2017). As a result, firms can, for example, propose ideas regarding changes made, or to be made, in products and services, in order to engage customers in interactions to further co-create value (or innovation initiatives) (Trainor, 2012). Although current dynamic capability-based scholars highlight the possible relationship between responsiveness and value co-creation (Rashid *et al.*, 2019), the question still arises as to whether this same relationship applies in the SME context (Malik, Sinha and Blumenfeld, 2012). The extent to which responsiveness positively influences the way SMEs co-create value with customers for innovation remains unclear (Cheng and Shiu, 2019). Specifically, there is still a need to examine the direct effect of responsiveness on value co-creation using quantitative analysis (Loureiro, Romero and Bilro, 2020). Therefore, the following hypothesis is proposed:

***H2c: Responsiveness has a positive effect on value co-creation.***

### **6.1.3 Impact of Value Co-Creation on Organisational Innovativeness**

Through the lens of S-D logic, value co-creation is embedded in customer involvement in innovation processes through their interaction, collaboration and exchange of information with firms to jointly create greater innovation outcomes in terms of products, services and experiences (Brem and Bilgram, 2015). Value co-creation can be defined as a process of collaboration between firms and customers to exchange resources (e.g. skills and knowledge) that otherwise would not have been possible if attempted individually (Vargo *et al.*, 2010). With value co-creation, customers can be integrated at multiple stages of innovation processes, allowing firms to generate multiple forms of innovation outcomes (e.g. innovative

ideas, customer complaints, suggestions on product improvements and development) (O'Hern and Rindfleisch, 2010). For example, firms can actively engage in collaboration with customers to test fundamental product elements (Edwards *et al.*, 2017). Active interaction between firms and customers generates knowledge that can be converted into creative ideas or innovation initiatives (Majchrzak *et al.*, 2013). A good example is that firms can understand customer experiences (or explicit knowledge), obtain customer feedback (or tacit knowledge), and integrate this into developing or improving products and services for innovation (Voorberg, Bekkers and Tummers, 2015). Moreover, active collaboration with customers also leads to a more trusting relationship that increases customers' willingness to disclose more detailed and sensitive information (Faems, Janssens and Van Looy, 2007; Thomas, Brooks and McGouran, 2020). In other words, value co-creation allows firms to transfer customer knowledge towards greater creativity and innovativeness (Balau, van der Bij and Faems, 2020).

However, some marketing scholars argue that value co-creation can be influenced by organisational innovativeness; i.e., firms with strong innovativeness are more disposed to collaborating with customers (Santos-Vijande, González-Mieres and López-Sánchez, 2013), and co-creating new products and services (Killa, 2014; Fu, Wang and Zhao, 2017). Although some studies highlight the reciprocal relationship between value co-creation and organisational innovativeness, there is empirical evidence to show that true innovativeness cannot be developed without understanding customer demand and problems (Deshpandé and Farley, 2004). For example, Hsu (2015) provides empirical evidence, based on a survey of 231 Taiwanese firms, demonstrating that value co-creation helps to increase the efficiency of overall organisational innovativeness, as related resources represent a crucial mechanism that integrates product development functions in the drive for innovation. Customers may display their expertise during interactions, which can be used as knowledge for solutions, and to improve firms' methods of achieving greater creativity and better products and services (Preikschas *et al.*, 2017). Engaging customers in activities may therefore lead to better understanding of customer problems, which in turn can be used to improve organisational innovativeness (Galvagno and Dalli, 2014). In other words, value co-creation is considered an antecedent of organisational innovativeness (Lee, Olson and Trimi, 2012).

Mount and Garcia Martinez (2014) further stress that integrating social media technologies enables firms to better co-create creativity, expertise and collective intelligence with customers for innovation. Specifically, Abed *et al.* (2015) and Jeansson *et al.* (2017) emphasise the significant role of social media in the transition from offline approaches to e-commerce and m-commerce aimed at value co-creation in SMEs for greater innovativeness (Bhimani, Mention and Barlatier, 2018). To support this argument, the study by Junic and Choi (2019) provides empirical evidence on its full potential on facilitating value co-creation (enabled by social media) on organisational innovativeness, based on the case study of an Asian start-up company. In other words, firms are more likely to become innovative when they use social media as a means of involving customers in jointly creating initiatives towards innovation (Harmeling *et al.*, 2017; Dahan and Hauser, 2002).

Although current S-D logic-based scholars provide evidence demonstrating a positive relationship between value co-creation and organisational innovativeness (Voorberg, Bekkers and Tummers, 2015), there is still a need to examine such a relationship to capture the influence of value co-creation on organisational innovativeness, and not just in the form of new products or services, but specifically in the context of an e-transition model of value co-creation for innovation (Ajaegbu, 2020). Value co-creation can facilitate information, knowledge and ideas from customers and integrate them to generate better innovation outcomes in terms of improvements to existing products and services, new products and services and new ways of thinking and working (Romero, Molina and Camarinha-Matos, 2011). In other words, value

co-creation increases chances to jointly create new ways to improve innovation outcomes (Abed, Dwivedi and Williams, 2015). Therefore, firms can shift from product-centric to customer-centric business models in the development of value co-creation for innovation (Jeansson *et al.*, 2017). Therefore, the following hypothesis is proposed:

***H3: Value co-creation has a positive effect on organisational innovativeness.***

#### **6.1.4 Moderating Effect of Organisational Structure Capability**

Organisational structure can be defined as the division of work that enables organisational members to coordinate and exchange information towards organisational goals (Mintzberg and Quinn, 1991). Its aim is to establish systems and procedures to allow task allocation and coordination within an organisation (Narver, Slater and MacLachlan, 2004). Traditionally, the management and marketing literature focuses on firms' ability to develop formal organisational structures to tightly control the way employees work and coordinate within the organisation (Arnott *et al.*, 2007). However, recent literature argues that promoting informal organisational structures better facilitates smooth coordination and collaboration, allowing information and knowledge to be shared within the organisation (Akgün, Keskin and Byrne, 2012). In this research, a firm's ability to redesign systems and procedures that are more decentralised to enhance better coordination across the organisation is therefore considered as an ***organisational structure capability*** (Balau, van der Bij and Faems, 2020; Schindehutte and Morris, 2001; Wee and Chua, 2013).

Based on RBV and dynamic capability perspectives, organisational structure capability is a crucial mechanism that directly reflects how employees work alongside each other and with customers in business processes towards innovation (Leonard-Barton, 1992), especially in firms operating in turbulent markets (Nilsson, 1999). Firms' ability to redesign decentralised organisational structures promotes communication flows and enhances coordination geared towards innovation (Gentile-Lüdecke, de Oliveira and Paul, 2020; Willem and Buelens, 2009). That is, the decision-making process is likely to be dispersed at lower levels, allowing employees to be more flexible in making decisions and providing solutions in response to external changes for value co-creation and innovation (Akgün, Keskin and Byrne, 2012). Specifically, firms with organisational structure capability are more likely to become open to changes and to align external knowledge in innovation processes (Nahm, Vonderembse and Koufteros, 2003). With organisational structure capability, firms are able to focus more on customers, be flexible, and be ready to adapt to changes in the market (Janz and Prasarnphanich, 2003), as well as better engaging customers in co-creating innovation initiatives (Preikschas *et al.*, 2017). In other words, such a capability is seen as a facilitator for firms to gain market power to compete and survive in the market, resulting in sustainable competitive advantage (Lam, 2011).

First, it is often argued that firms' true advantage lies in their organisational structure capability to support their marketing strategies to create and offer superior customer value in changing markets (Olson, Slater and Hult, 2005). Their ability to redesign organisational structures that focus on informal control mechanisms enhances flexibility in learning and dealing with unexpected changes in markets (Saarijärvi, 2012). With organisational structure capability, firms can better circulate relevant information regarding external changes (e.g. customer demand, market trends and competitors' actions) and quickly take action in response to such changes (Ali, Sun and Ali, 2017). For example, Tushman *et al.* (2010) explain that firms with such capability can better exploit existing competences, while simultaneously exploring new possibilities from changing markets and customers (or market adaptive capability). Based on a longitudinal investigation of a network

(including customers and service provider partners), Nardelli and Broumels (2018) provide empirical evidence showing that firms with organisational structure capability are more likely to provide support routines that encourage consistent monitoring of markets (e.g. customers and other stakeholders) to effectively integrate stakeholders in value co-creation processes towards innovation. Firms that are able to effectively develop flexible structures, sometimes known as ‘organic’ structures, and more likely to adapt to market complexity and uncertainties in innovation (Lam, 2011). This is consistent with the qualitative findings from Study 1, which show the possible moderation of organisational structure capability to support the development of key capability for value co-creation.

Although previous marketing scholars have demonstrated the positive influence of organisational structure capability on market adaptive capability towards innovation (Akgün, Keskin and Byrne, 2012), current knowledge still lacks empirical evidence to explain the indirect influence of organisational structure capability on firms’ adaptive capability related to market changes to better integrate customers in value co-creation processes towards innovation (Balau, van der Bij and Faems, 2020). The extent to which the development of organisational structure capability helps to strengthen the performance of market adaptive capability and value co-creation is still unclear (Ali, Sun and Ali, 2017). It is important to extend current knowledge on this research gap, as the development of organisational structure capability can play a significant role in determining how well firms can work towards adapting to market and customer changes and find better solutions to effectively engage customers in value co-creation processes (Santos-Vijande, López-Sánchez and Pascual-Fernandez, 2018). Therefore, the performance of market adaptive capability in value co-creation is more likely to improve when firms develop organisational structure capability. Therefore, this study examines the moderating effect of such capability on the market adaptive capability-value co-creation relationship, with the following hypothesis proposed:

***H4a: Organisational structure capability positively moderates the relationship between market adaptive capability and value co-creation.***

Second, the choice of organisational structure influences the flexibility and adaptive capability towards value co-creation in virtual businesses (Amit and Zott, 2001). The way firms assess social media technologies to support value co-creation processes with customers often depends on their changing structure (Janz and Prasarnphanich, 2003). Specifically, their ability to develop decentralised structures enhances (i) information sharing flows regarding changes in social media technologies (e.g. changes in policies, features, etc.); (ii) flexible procedures that enable firms to assess desired social media technologies; and (iii) smooth coordination that enables employees to quickly take action over changes in social media technologies to support customer integration in innovation processes (Bayo-Moriones, Billón and Lera-López, 2013; Martínez-Caro, Cegarra-Navarro and Alfonso-Ruiz, 2020). With organisational structure capability, firms can better adapt to changes in social media technologies, generating new capabilities to facilitate value co-creation with customers (Zhu and Kraemer, 2005).

The study by Antlová (2009) provides qualitative evidence demonstrating that organisational structure capability promotes the way firms facilitate technology adaptive capability for innovation. Based on interviews with 30 SMEs, Antlová emphasises that firms’ ability to redesign decentralised organisational structure shifts their focus towards identifying and understanding technological changes to effectively assess desired technologies (e.g. ICT) for improving intellectual capital in relation to innovation. Bruque and Moyano (2007) further argue that organisational structure capability plays a critical role in the way firms adapt and integrate the use of technologies in business processes. The

development of this capability acts as a facilitator in helping firms to learn and understand new technologies that may affect the implementation of organisational strategies (Sonntag, 2003). With the capability, firms are more likely to explore and exploit the potential of existing and new technologies, and accordingly adopt them to facilitate business processes (Srinivasan and Swink, 2018).

Although current marketing scholars highlight the importance of organisational structure capability in facilitating firms' ability to adapt to technological changes, an empirical understanding on how such a capability influences their technology adaptive capability towards value co-creation is limited, especially in the SME context (Lam, 2011). Since organisational structure capability acts as a foundation for how firms integrate technologies in business processes (Nouicer, Zaim and Abdallah, 2017), it is important to understand how they can adapt, change and integrate digital technologies in the organisational transformation towards value co-creation with a set of organisational structure capabilities (Hanelt *et al.*, 2021). Specifically, there is still a lack of comprehensive understanding of how the performance of technology adaptive capability can improve value co-creation with the moderating effect of organisational structure capability (Sarta, Durand and Vergne, 2021). Therefore, the following hypothesis is proposed:

***H4b: Organisational structure capability positively moderates the relationship between technology adaptive capability and value co-creation.***

Third, organisational structure capability stimulates the adaptive behaviour of management; i.e., the way firms transform themselves in response to external changes to effectively implement marketing strategies (Olson, Slater and Hult, 2005). Due to an increase in dynamic and competitive pressure, it is important that employees are motivated in such a way that provides better inputs into task performance (Akgün, Keskin and Byrne, 2012). They should be provided with autonomy and self-regulation to complete their own tasks, determine what actions are required, and how best to execute them (Chen and Huang, 2007). To aid such motivated systems and procedures, firms need to develop decentralised organisational structures to support individual responsiveness and distinctiveness in order to complete their tasks and easily deal with external changes (Zhou and Li, 2010).

To support this argument, Ambrose and Schminke (2003) provide a clear description and test of the moderating effect of organisational structure capability in organisational justice-outcome relationships. They found that firms' ability to redesign decentralised/informal structures provides opportunities for employees to be experts in their fields and to make their own judgements and decisions in response to external changes (Wee and Chua, 2013), stimulating explorative learning towards value co-creation and innovation (Balau, van der Bij and Faems, 2020). Specifically, Su *et al.* (2011) explain that the development of organisational structure capability enables firms to identify the weaknesses of its managerial capabilities and practices through the visions of managers and employees, and their abilities to freely evaluate the shortcomings in management in relation to innovation. Since organisational structure capabilities often focus on fewer rules and procedures, firms are more likely to generate a high level of flexibility and free flows of information sharing, resulting in new knowledge and skills to support internal capabilities and practices towards innovation (Su, Chen and Wang, 2019). In other words, organisational structure capabilities act as internal capabilities that help to respond to changes in the business environment, allowing firms to identify opportunities to strengthen their ability to enhance value co-creation with customers (Salim, Ab Rahman and Abd Wahab, 2019).



Although marketing and management scholars have highlighted the significant role of organisational structure capability in shaping the way firms change internally in the face of changing environments in the drive for value co-creation and innovation (Akgün, Keskin and Byrne, 2012), empirical evidence to support such an argument is limited, especially in the SME context (Balau, van der Bij and Faems, 2020). There is still a need to understand how organisational structure capabilities increase the ability to adapt firms' management systems to changing environments and accordingly to integrate customers into various innovation activities (Zhang and Banerji, 2017). To fill this gap, the study focuses on testing the moderating effect of organisational structure capability on the relationship between management system adaptive capability and value co-creation. Specifically, it aims to examine the performance of management system adaptive capability on value co-creation, given the positive moderating effect of organisational structure capability. Therefore, the following hypothesis is proposed:

***H4c: Organisational structure capability positively moderates the relationship between management system adaptive capability and value co-creation.***

Despite the growing adoption of social media technologies in value co-creation processes, Breidbach and Maglio (2016) argue that the challenge to technology-enabled value co-creation is driven by multiple factors, including the structure of interactions and resource exchanges; i.e., the way organisational structure and processes are designed to support the quality of the interactions with multiple actors on IT-enabled platforms, including social media. Based on the dynamic capability perspective, Trainor et al. (2014a) argue that organisational structure capability does not directly facilitate value co-creation processes, but instead influences the way firms integrate external competencies (e.g., customer knowledge and social media technologies) with internal capabilities aimed at value co-creation. By conducting a survey of 308 firms, they found that the relationship between e-marketing capabilities and value co-creation was influenced by customer-centric systems (or decentralised structures). Decentralised firms are more likely to facilitate openness, allowing them to better integrate social media technologies in information generation, information dissemination and responsiveness towards value co-creation (Zynga *et al.*, 2018). Specifically, organisational structure capability helps to facilitate quality communication and knowledge sharing among employees and with customers in technology-enabled business processes (Plugge and Bouwman, 2013). In other words, redesigning organisational structure (or organisational structure capability) so that it enables coordination among employees helps firms to more effectively generate relevant information, disseminate customer information throughout the organisation, and create appropriate responses to customers towards value co-creation (Vidmar *et al.*, 2020).

First, the development of organisational structure capability enhances the way firms integrate social media technologies to collect information from customers (Trainor et al., 2014c). Firms' ability to redesign decentralised organisational structure not only enhances internal collaboration, but also external collaboration with customers, promoting the way firms interact and generate information from customers (Duerr *et al.*, 2018). This is supported by the study of Balau et al. (2020), who provide empirical evidence showing that the moderation effect of organisational structure capability influences firms' ability to effectively generate and recombine external knowledge within the organisation towards value co-creation. Based on a survey of 275 SMEs, they argue that strong mechanisms may hamper the way firms generate and mobilise customer knowledge resources, while informal structures (or organisational structure capability) actually stimulate quality information sharing within the organisation and with customers. Specifically, a decentralised

organisational structure helps firms to reduce the restrictions on the absorption of customer information flows (Antons *et al.*, 2017). In other words, the extent to which firms are open to collecting customer information depends on organisational structure capability in order to best facilitate information generation (Pels, Polese and Brodie, 2012).

Although current marketing scholars highlight the importance of organisational structure capability as a moderator to enhance the way firms utilise their resources and develop internal capabilities to improve strategic performance geared towards innovation (e.g. Nwachukwu and Chladkova, 2019), it is still unclear how they can specifically increase external knowledge generation (e.g. customer information and knowledge collection) to better involve customers in innovation processes, given that there is flexibility in organisational structure (or organisational structure capability) (Kim and Ahn, 2020). Since firms with organisational structure capabilities are flexible in working processes, they are more likely to be open to any new challenges, including integrating social media technologies in connecting and generating customer insights to better engage customers in value co-creation activities for innovation (Nouicer, Zaim and Abdallah, 2017). Therefore, it is expected that the performance of information generation in value co-creation will increase if there is a high level of organisational structure capability. Hence, the following hypothesis is proposed:

***H5a: Organisational structure capability positively moderates the relationship between information generation and value co-creation.***

Second, organisational structure capability enhances the ways firms use social media technologies to disseminate customer information (Trainor *et al.*, 2014c). Firms that are able to redesign a decentralised organisational structure generally provide flexible procedures that help to reduce the number of obstacles faced during communication flows within the organisation (Vazifedoust, Nasiri and Norouzi, 2012). Abumandila and Hassana (2016) provide empirical evidence focusing on the moderating effect of organisational structure capability on information quality and decision-making effectiveness. They explain that in decentralised organisations, coordination and information sharing are possible across management levels and that decision-making is dispersed at lower levels (Staber and Sydow, 2002). The accuracy of the information is less likely to be affected by fewer hierarchical layers, thus generating quality information across the organisation (González-Benito, Martínez-Ruiz and Mollá-Descals, 2010). Firms' ability to develop decentralised structures therefore helps to facilitate social interactions within the organisation, promoting the sharing and utilisation of tacit knowledge (Janz and Prasarnphanich, 2003).

Furthermore, Kwayu, Lal and Abubakre (2018) highlight the need to redesign organisational structures and processes to support the integration of social media to generate better communication and information dissemination within organisations for product development. With organisational structure capability, firms are more likely to shape strategies that enable social media usage and have an impact within the organisation (Idemudia, Raisinghani and Samuel-Ojo, 2018). Similarly, Orji, Kusi-Sarpong and Gupta (2020) confirm that organisational structure capability can positively influence the way firms use social media in achieving innovative strategies in the logistic sector. To effectively develop information dissemination capability, that is, the ability to use social media to disseminate customer information across the organisation aimed at innovation, firms require a mixture of formal and informal systems and procedures (e.g. horizontal and vertical structures) to support such a process (Valos *et al.*, 2017). In other words, organisational structure capability permits the assimilation of customer knowledge, which helps to transform firms in their drive for value co-creation (Trainor *et al.*, 2014c; Zahra and George, 2002).

Although current marketing studies highlight the importance of organisational structure capability in facilitating the way firms integrate social media in internal processes for innovation, knowledge of organisational structure capability still lacks empirical insights into how it can strengthen firms' ability to use social media to disseminate information across the organisation, specifically in the context of value co-creation (Loureiro, Romero and Bilro, 2020). In particular, social media scholars highlight the need to examine the indirect relationship between organisational structure capability and the performance of information dissemination (using social media) in terms of value co-creation (Ngai, Tao and Moon, 2015). Therefore, this study expects that organisational structure capability, i.e. firms' ability to redesign organisational structure towards decentralisation to support coordination and collaboration within the organisation, positively influences the information dissemination-value co-creation relationship. Consequently, the following hypothesis is proposed:

***H5b: Organisational structure capability positively moderates the relationship between information dissemination and value co-creation.***

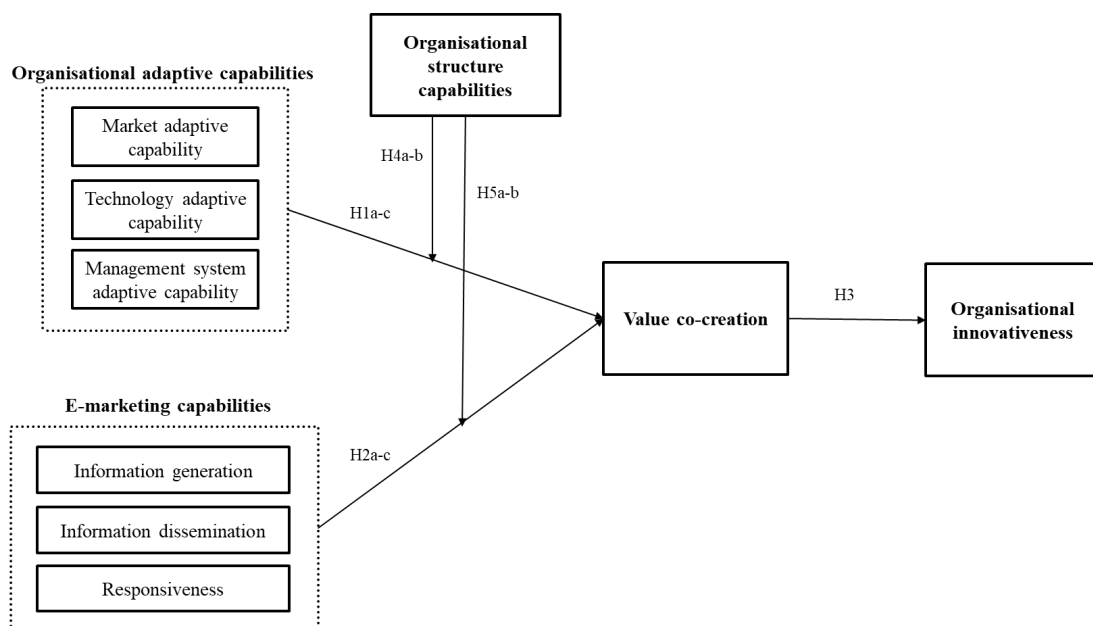
Finally, organisational structure capability not only enhances the ways firms generate and circulate customer information, but also the way they respond to customers and markets (Willem and Buelens, 2009). Firms' ability to provide a decentralised organisational structure enhances their perceptive and responsive mechanisms, thus enhancing interactions with customers for value co-creation via digital platforms (Lenka, Parida and Wincent, 2017). For example, Küpers (2002) provides evidence on the role of organisational structure capability on the responsiveness of the aesthetics towards achieving goals. He specifically focuses on an example of management structure and aesthetic responsiveness. With a more flexible management structure, firms can better manage coordination between employees and organise aesthetics within the organisation; i.e., employee emotions and feelings are focused to promote aesthetic working style and processes that allow employees to deal with problems and find appropriate solutions. Similarly, firms with decentralised organisational structures (or organisational structure capability) are more likely to compile, assess, assimilate and respond to customer information to create continuous interactions and engage them in value co-creation processes (Preikschas *et al.*, 2017). In particular, firms can discuss, find the best possible solutions and respond to customer information when they have more flexible systems and procedures (Zynga *et al.*, 2018). In other words, firms need to rethink and develop organisational structure capability to facilitate the analysis of customer information and to implement effective and responsive mechanisms to continuously engage customers in value co-creation processes (Leone *et al.*, 2020).

However, there is limited research that specifically focuses on the interactive effect of organisational structure capability on responsiveness and value co-creation (Lenka, Parida and Wincent, 2017); specifically, how firms can develop decentralised organisational structure capability to support the way they respond to customer information to better engage them in value co-creation processes towards innovation (Pels, Polese and Brodie, 2012). It is important to understand how the performance of responsiveness using social media in value co-creation can be improved by implementing a higher level of decentralised structure (or organisational structure capabilities) (Georgewill, 2021). Vice versa, a firm's ability to respond to customer demand on social media to create continuous customer engagement in value co-creation processes may be reduced if its organisational structure capability is weaker (Scekic, Nastic and Dustdar, 2018). Therefore, to fill this gap, the study proposes the following hypothesis:

***H5c: Organisational structure capability positively moderates the relationship between responsiveness and value co-creation.***

Figure 6.1 demonstrates a theoretical framework representing an e-transition capabilities model, and specifically the direct effect of organisational adaptive and e-marketing capabilities, as well as the moderating effect of organisational structure capability on value co-creation for innovation. The framework consists of the five main hypotheses to be tested using PLS-SEM to understand how each firm-level capability enables firms to transition themselves to technology-enabled value co-creation for greater innovativeness. Specifically, the study aims to examine (i) the direct effects of organisational adaptive capabilities (market, technology and management system adaptive capabilities) on value co-creation; (ii) the direct effects of e-marketing capabilities (information generation, information dissemination and responsiveness); and (iii) the indirect effects of organisational structure capabilities on the performance of key firm-level capabilities and value co-creation. As a result, the aim is for the study to find the best model fit to generate an e-transition capabilities model of value co-creation for innovation.

**Figure 6.1: Theoretical model**



## CHAPTER 7: QUANTITATIVE METHODOLOGY (STUDY 2)

Following the discussion on the pragmatic paradigm in Chapter 3, the research adopted a mixed methodology to develop an integrated framework that conceptualises key capabilities to support an e-transition model of value co-creation for innovation in SMEs. Study 1 focuses on understanding the role of social media in facilitating an e-transition model and how such a process is facilitated by different sets of key capabilities, specifically in the four types of value co-creation, namely co-ideation, co-production, co-process and co-experience, using a multiple case study approach. Study 2 aims to examine the performance effects of key capabilities (identified from Study 1) on the e-transition model. In particular, this study focuses on empirically testing the relationships between organisational adaptive capability and e-marketing capabilities and value co-creation for organisational innovativeness, with the moderating effect of organisational structure capability. As a result, both qualitative and quantitative findings can be triangulated to develop an e-transition capabilities model (Creswell, 2003).

In this chapter, the quantitative methodology is discussed, specifically focusing on the survey method and its appropriateness for answering the research questions: (i) what is the impact of organisational adaptive capabilities and e-marketing capabilities on an e-transition model and its impact on value co-creation for innovation in SMEs? (RQ4), and (ii) to what extent is the relationship between key capabilities (organisational adaptive capability and e-marketing capabilities) and value co-creation for innovation influenced by organisational structure capabilities? (RQ5). This chapter focuses on the sample selection, methods, measurements, data collection and data analysis. The discussion includes anticipated common method bias and endogeneity bias and how the research plans to overcome these issues.

### 7.1 Quantitative Approach

In Study 2, the research methodology used is explanatory and quantitative in nature. A quantitative study focuses on identifying the causes that influence the outcomes of interest (Creswell, 2009). Its aim is to confirm or disconfirm the hypotheses that represent the casual effects of the existence of an independent domain of knowledge (Mingers, 2008) in order to formulate laws and theories by obtaining objective knowledge through scientific methods (Ashby, 1964). Using a quantitative approach is appropriate when the research aims to understand the relationships between variables of interest in order to generate a broader view of the phenomenon (Hair *et al.*, 2010). In particular, such an approach allows the level of analysis to consider reality beyond the human mind (Weber, 2004). The higher the level of analysis, the greater the chance of generalising the findings (Polit and Beck, 2010). As a result, theories can be tested to support previous research (Creswell, 2003). In other words, a quantitative approach allows researchers to not only understand the structural relationships between variables, but also to generate descriptive and statistical data to support the theories, which can be generalised to other situations (McEvoy and Richards, 2006; Pring, 2000).

A quantitative approach is commonly used in marketing research, especially in the capability-based type, to understand the effects of distinctive capabilities on marketing outcomes (e.g. firm performance, value co-creation and innovation) (Harrison and Reilly, 2011; Saunders, Lewis and Thornhill, 2009). For example, Cheng and Shiu (2019) adopted an on-site survey to understand the effect of customer relationship management (CRM) capabilities on firm performance,

whilst Chung (2018) focused on the structural relationships between e-marketing capabilities and value co-creation using a survey method. Similarly, Choi, Ko and Kim (2016) employed a quantitative approach alongside a qualitative study to better understand and generate a broader view of the phenomenon using the structural equation modelling (SEM) approach, analysing the effects of value co-creation encounters (customer experiences and value) on purchase intentions. As shown in Appendix 4, limited research has focused on a mixed-method approach, specifically using an exploratory sequential design, in this area. Therefore, adopting a quantitative study, in addition to a qualitative one, allows this research to better understand an e-transition model to achieve value co-creation from a capability-based perspective and gain a broader view of the phenomenon in order to achieve generalisation of the findings (Creswell and Plano-Clark, 2007). As a result, an integrated framework can be developed to provide additional insights into how SMEs can develop key capabilities to support their value co-creation processes with customers for greater innovation.

Hence, following the quantitative approach, this study employed an online survey method to obtain objective knowledge to develop an e-transition capabilities model (Scotland, 2012). This method has a number of advantages. First, the respondents are free to express their responses when best suits them, with anonymity and confidentiality (Davis, 2005). Second, the method does not require any recording to generate uniform data from different respondents (Krosnick, 1999). Third, an online survey is a cost-effective method of data collection compared to other methods (Zikmund, 2003). In other words, an online survey method is often used when aiming to economically collect a large sample of data in a short period of time (Bryman and Bell, 2007). Specifically, the method helps to generate statistical inferences; i.e., the relationships between key firm-level capabilities and value co-creation for innovation about the studied population (in this case, SMEs) (Scotland, 2012). As a result, an e-transition capabilities model can be developed to generate a broader view from a capability perspective. Hence, comprehensive understanding of the phenomenon can be provided via development of the theory, which in turn contributes to the existing knowledge and practice (Johnson, Onwuegbuzie and Turner, 2007).

## **7.2 Structural Equation Modelling (SEM)**

Structural equation modelling (SEM) has been increasingly used in marketing research (Hair *et al.*, 2012). It is a statistical approach to testing hypotheses that aim to understand the relationships between observed and latent variables (Hoyle, 1995). Latent variables represent theoretical concepts that cannot be observed or measured with single items (Bowen and Guo, 2011). Its main aim is to confirm or reject research hypotheses about the observed variables in a specific model (Babin, Hair and Boles, 2008). Unlike other marketing modelling (Baumgartner and Homburg, 1996), it allows researchers to understand the effects of indicators among a set of variables, to synthesise the latent variables in a specific model, and to estimate the parameters of structural models (Hair *et al.*, 2009). Marketing scholars often adopt SEM as a powerful statistical approach to reflect a theoretical framework of observed and latent variables and to address a variety of substantive and methodological issues (Chin, Peterson and Brown, 2008).

SEM can be viewed as the multivariate statistical analysis of the empirical datasets used in explaining marketing phenomenon (Bowen and Guo, 2011). It allows marketing research to focus on measuring observed constructs that have many facets, when no single indicator (or manifest variable) can capture the full theoretical meaning of the underlying variables (Steenkamp and Baumgartner, 2000). Unlike regression equation modelling, SEM allowed this study to focus on evaluating how well a proposed model consisting multiple observed indicators and constructs explained the collected

data (Nunkoo and Ramkissoon, 2012). In the study, the model measurement is associated with scientific constructs (e.g. organisational adaptive capabilities, e-marketing capabilities, organisational structure capabilities, value co-creation and organisational innovativeness) that cannot be directly observed and require multiple indicators to explain the theoretical meaning of the variables. In addition, the observation (e.g. reliability and validity tests) of these multiple indicators of the constructs can be assessed to eliminate measurement errors. Such error can bias the estimation of the parameters, which affects the outcomes of the measurement model; i.e., an increase or decrease in the regression estimation (Sande and Ghosh, 2018). Unlike other quantitative analysis approaches, SEM helps to identify measurement errors and remove them from the data, resulting in better estimation outcomes (Lee and Song, 2004). In other words, SEM allows marketing research to evaluate theoretical models using cross-sectional data and to find the best model fit to generate quality knowledge that contributes to marketing knowledge (Martínez-López, Gázquez-Abad and Sousa, 2013).

SEM can be divided into two types – (i) covariance-based (CB) SEM and (ii) partial least squares (PLS) SEM (Hair *et al.*, 2017). CB-SEM (or the common factor model) calculates the covariance between the variables of interest and only common variance is used in the estimation, thus the specific variance and the error variance are removed (Rigdon, Sarstedt and Ringle, 2017). The removal of specific covariance can be used to predict and explain the dependent variables (Hair, Ringle and Sarstedt, 2011). On the other hand, PLS-SEM (the composite model) includes common, specific and error covariance, as all the variance is used to predict and explain the dependent variables (Henseler and Chin, 2010). Therefore, a composite model (or PLS-SEM) population is likely to provide an estimation with almost no bias (Sarstedt *et al.*, 2016). The research specifically uses PLS-SEM by means of SmartPLS to test the hypothesised relationships illustrated in Figure 7. Specifically, the study aims to examine (i) the direct effects of organisational adaptive capabilities (market, technology and management system adaptive capabilities) on value co-creation; (ii) the direct effects of e-marketing capabilities (information generation, information dissemination and responsiveness); and (iii) the indirect effects of organisational structure capabilities on the performance of key firm-level capabilities and value co-creation. As a result, the aim is for the study to find the best model fit to generate an e-transition capabilities model of value co-creation for innovation. Chapter 7. PLS analysis is a statistical approach to simultaneously estimate parameters of a structural equation model (SEM). PLS-SEM typically focuses on prediction and theory development (Hair *et al.*, 2017). Compared to CB-SEM, PLS-SEM has many advantages, including the ability to robustly handle more descriptor variables, while providing more predictive accuracy and a much lower risk of chance correlation with a smaller sample size (Henseler and Chin, 2010).

In this study, the PLS-SEM approach is focused on, as the research questions aim to predict the effects of key capabilities on value co-creation for innovation in order to develop an e-transition capabilities model. PLS-SEM is often seen as a ‘silver bullet’ for dealing with empirical research challenges, including measurement scales, small sample size and complex structures (Hair, Ringle and Sarstedt, 2011). First, the measurement properties of the constructs are less restrictive with PLS-SEM, for example, constructs with fewer items (only one or two) can be used in PLS-SEM, while CB-SEM requires at least three items per construct (Hair *et al.*, 2017). Second, PLS-SEM has higher statistical power than CB-SEM when the sample size is small (Reinartz, Haenlein and Henseler, 2009). This means that specific relationships using PLS-SEM are more likely to be statistically significant when present in the population (Hair Jr *et al.*, 2014). Third, PLS-SEM is a causal modelling approach that maximises the explained variance of the dependent latent constructs (Hair *et al.*, 2012). The approach estimates the exogenous variables based on prediction of the endogenous variables, not their shared variance among the variables (Hair *et al.*, 2010). Exogenous variables are latent variables that do not have structural path relationships pointing at them, while endogenous variables are latent target variables that are

explained by other variables through their structural model relationship (Hair, Ringle and Sarstedt, 2011). Specifically, the PLS-SEM approach enables researchers to easily prioritise the development of capabilities for potential improvements in outcome performance (e.g. value co-creation and organisational innovation), using the latent variable scores (Ringle, Sarstedt and Straub, 2012). As a result, an explanation can be provided in addition to the prediction of the model estimation, which is the main concern in marketing and social science research (Hair *et al.*, 2017).

To assess a good model fit, a series of confirmatory factor analysis (CFA) steps were performed to analyse the distinction between the constructs in the model. These included a chi-squared test, normed fit index (NFI) and standardised root mean square residual (SRMR). The chi-square value is the traditional measure for overall model fit by assessing '*the magnitude of discrepancy between the sample and fitted covariance matrices*' (Bentler and Bonett, 1980, p.2), while NFI indicates goodness of fit for a statistical model; NFI results should be between 0 and 1, and the closer the value is to 1, the better the model fit (Hair, Howard and Nitzl, 2020). An NFI value greater than 0.9 is considered to be an acceptable fit (Lohmöller, 2013). However, Hair *et al.* (2016) argue that instead of reporting the value of NFI, researchers should focus on SRMR; i.e., a measure of the mean absolute value of the covariance residuals, and is the difference between the observed correlation and the model implied correlation matrix (Wong, 2013). The threshold value of SRMR is 0.08, and a value lower than 0.08 is considered as a satisfactory model fit (Hair *et al.*, 2017).

Moreover, marketing scholars have raised concerns over endogeneity issues associated with measurement errors in the estimation process (Nunkoo and Ramkissoon, 2012). Marketing research (e.g. value co-creation) is non-random and is often influenced by a number of factors (e.g. firm-level and industry-level factors). However, it is often difficult for marketing researchers to include all the possible factors in theoretical models. In this situation, they may face the issue of omitted variables, which has an impact on both the dependent and independent variables. In other words, the omitted variables are more likely to be manifest in the error term, thereby violating the estimation of the model (Wooldridge, 2010). In addition, measurement error may lead to inconsistent and biased estimation of the models (Rutz and Watson, 2019), so it is necessary for researchers to identify and address endogeneity issues to ensure the estimation of the model is valid and relevant (Hult *et al.*, 2018).

### 7.3 Endogeneity in Survey-Based Research

Endogeneity is a topic of increasing interest in many research areas, including marketing, management and business-related research, which aims to draw casual inferences from statistical analysis of non-experimental data (Rutz and Watson, 2019). The first order endogeneity problem is associated with the general nature of survey-based data (Rossi, 2014). Such data play an important role in testing theories and constructs with appropriate units of analysis (Sande and Ghosh, 2018). Survey-based endogeneity concerns often arise when an independent variable correlates with the error term of a specific model (Ebbes, Papies and van Heerde, 2016). The coefficient of such an independent variable contains the effect of unobserved variables that partially explain the dependent variable, resulting in an inconsistent estimation and alternative conclusions (Chintagunta *et al.*, 2006). According to Rutz and Watson (2019), endogeneity concerns are caused by three main sources – (i) omission of variables, (ii) simultaneous causality, and (iii) measurement error.

First, the omission of variables may arise due to data unavailability or selection bias, whereby omitted variables are correlated with one or more independent variable/s and the dependent variable of interest (Archak, Ghose and Ipeiritis,



2011; Clougherty, Duso and Muck, 2016). To control this endogeneity issue, research can take several actions. Control variables can be introduced to handle the impact of endogeneity on the model estimations (Ebbes, Papies and van Heerde, 2016). These are commonly used in marketing research as an approach to control endogeneity concerns arising from omitted variables (Papies, Ebbes and Van Heerde, 2017). Although some scholars argue that this control variable approach only represents imperfect measures (e.g. Germann, Ebbes and Grewal, 2015), it is still considered a good method to ensure the exogeneity of independent variables (Sande and Ghosh, 2018). The use of control variables helps to prevent selection bias in the observed variables in models (Bernierth and Aguinis, 2016).

Second, simultaneous causality occurs when one or more independent variable/s are simultaneously and reciprocally caused by the dependent variable (Wooldridge, 2010). Instead of independent variables solely causing the dependent variable, the effect of a dependent variable can also influence the independent variables, and so the error term is correlated with these, resulting in biased estimation (Rutz and Watson, 2019). The current marketing and innovation literature was reviewed to identify any possible causality bias that can arise within the research. Supported by S-D logic, this research focuses on organisational innovativeness as an outcome of value co-creation processes (Rashid *et al.*, 2019). However, some studies argue that organisational innovativeness can act as an antecedent to facilitate value co-creation processes (Santos-Vijande, González-Mieres and López-Sánchez, 2013; Ngo and O'cass, 2013; Zhang *et al.*, 2015). That is, firms with innovation capability are likely to seek customer participation in such processes (Ngo and O'cass, 2013) in the development of new products and services (Killa, 2014). The way firms think and behave towards value co-creation depends on the creative and innovative minds of the organisational members (Baron and Warnaby, 2011).

Third, measurement error occurs in either the dependent or independent variables, which causes imperfect and inconsistent estimation of the true relationships of the model (Rutz and Watson, 2019). Measurement error in the dependent variables leads to an increase in the variance of the error term (or residual error), but allows unbiased recovery of the effect of the measurement error-free independent variables (Hult *et al.*, 2018). On the other hand, measurement error in independent variables leads to biased estimation of the measurement model (Ebbes, Papies and van Heerde, 2016). Sande and Ghosh (2018) explain that when measurement error is correlated with the observed independent variable, and the error term is uncorrelated with both unobserved and observed independent variables, the estimation yields inconsistent coefficients; i.e., coefficient estimation will be biased towards zero (attenuation bias).

To control these endogeneity issues, this research employed a multidimensional measurement in the form of multiple dimensions and measurement items to fully capture the distinct facets of the constructs (Petter, Straub and Rai, 2007). All the measures were obtained from multiple sources by reviewing relevant articles in the marketing and marketing-related literature. In addition, the research followed the PLS-SEM approach to estimate path models with latent variables (Lohmöller, 2013). Using the latent variable instrument variables (LIVs) approach, the endogenous covariate can be decomposed into two parts: endogenous, when the independent variable is correlated with the error, and exogenous, when it is uncorrelated with the error parts (Ebbes, Wedel and Bockenholt, 2009). The LIVs approach utilises latent variables (which do not need to be available to the researchers) to estimate parameters when endogeneity is present (Ebbes *et al.*, 2005). Unlike the instrumental variables (IVs) and control function approaches, the LIVs estimator does not require the accessibility of instrumental variables, and all the exogenous terms are considered discrete latent variables in the model, which are estimated via maximum likelihood methods (Rutz and Watson, 2019).

Specifically, the LIVs approach exploits non-normality to separate the endogenous and exogenous variables; the endogeneous explanatory variables should not be normally distributed (Ebbes, 2004). The error term also needs to be examined to show that it is normally distributed to ensure the LIVs approach is feasible for controlling endogeneity concerns (Rutz, Bucklin and Sonnier, 2012). In other words, the LIVs approach uses a latent variable model to account for regressor-error dependencies (Ebbes *et al.*, 2005). With the aim of measuring causal indicators, each construct is considered to have an error term due to the impossibility of identifying all the indicators relevant to the research domain (Bollen and Lennox, 1991). Instead, the error term captures all the other omitted variables that are not captured in the model (Diamantopoulos, 2006). The existence of an error term in a causal indicator model therefore allows the construct to be measured to represent the conceptual variable of interest, given that the model has a perfect fit (Sarstedt, Ringle and Hair, 2017).

To identify endogeneity issues, similar studies and previous research findings were reviewed to identify potential endogeneity issues (Hult *et al.*, 2018). When previous studies adequately detected and treated endogeneity (e.g. Cozzarin, 2017; Gilson, 2010), it is more likely that this concept also applies in this research and should be tested (Reeb, Sakakibara and Mahmood, 2012). Control variables were then added to the PLS path model to handle the impact of endogeneity issues on the model estimation (Papies, Ebbes and Van Heerde, 2017). Specifically, control variables were included as single-constructs in a PLS path model and each was linked to the dependent latent variable (Ebbes, Papies and van Heerde, 2016). To assess the significance of the control variables, the bootstrapping method was used to generate path coefficients, p-values, as well as the  $f^2$  effect size to conclude their relevance (Hair *et al.*, 2017).

## **7.4 Common Method Bias**

According to Podsakoff and Organ (1986), common method bias (CMB) can be referred to as the types of deviation caused by differences in the methods used to obtain data; i.e., the differences in covariance among items or constructs due to the measurement approach. CMB is considered to be a problem in research because it is one of the main sources of measurement error that affects the reliability and validity of the measurement model (Spector, 1987). Cote and Buckley (1987) provide evidence for the presence of common method variance in marketing research and how it significantly influences the observed relationships of the measurement model; method variance can either inflate or deflate the observed relationships between constructs, leading to both Type I and Type II errors (Podsakoff *et al.*, 2000). In other words, the presence of measurement error can lead to inaccurate estimation of the measurement model and an alternative explanation for the observed relationships between constructs (Bagozzi and Yi, 1991).

### **7.4.1 Procedures in Questionnaire Design to Reduce Common Method Bias**

Considering potential method bias, this research adopted the procedural remedies recommended by Podsakoff *et al.* (2003). First, multi-item scales adopted from previous research were deployed. To assess the accuracy of responses, all the constructs are measured using a seven-point Likert scale to generate consistency (Bagozzi and Yi, 1991). Although the same scale was adopted among all construct measures, the anchor labels varied across the survey to ensure that the

responses were not the result of consistency in the scale (Podsakoff *et al.*, 2003). The respondents were also encouraged to read each item carefully, as different scale anchor labels were used. Although many scholars may also adopt a reverse wording method to control CMB bias (Weijters, Geuens and Schillewaert, 2009), Van Sonderen *et al.* (2013) argue that using reverse-worded items often fails to prevent response bias. Instead, they found that using reverse-worded items the data scores were contaminated by respondent confusion and fewer mistakes were made when answering the questions with items posed in the same direction. Therefore, this study avoided repeating this mistake and focused on non-reverse-worded items to prevent bias. As a result, the ‘satisficing’ of the respondents can be reduced, while maintaining consistency and accuracy in the responses (Krosnick, 1991).

Second, the research took into consideration the respondents’ cognitive efforts when designing the survey to generate optimal responses (MacKenzie and Podsakoff, 2012). Despite the careful sample selection, two rounds of pre-testing were conducted to ensure the simplicity and clarity of the language used and to provide definitions of the key terms and examples when necessary to ensure that the respondents completed the survey at the same level (Doty and Glick, 1998). Back-to-back translation was also used to provide both English and Thai versions of the online questionnaire to enable the respondents to fully comprehend the meaning of the questions and make necessary judgements.

Third, clear instructions were provided in relation to the survey. These explained the key procedures in the data collection, including voluntary participation (Brehm, 1966), the confidentiality of the responses (Baumgartner and Steenkamp, 2001) and the value of the responses to the research (Krosnick, 1999). The survey instructions explained that there were no right or wrong answers to the questions, as the responses were intended to provide insights and understanding of the topic based on the respondents’ personal experiences, knowledge and opinions (Chaiken and Eagly, 1989). As a result, optimal responses could be obtained while maintaining the respondents’ motivation and willingness throughout the completion of the survey (MacKenzie and Podsakoff, 2012).

#### **7.4.2 Statistical Approaches for Common Method Bias**

The research also conducted both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to verify the validity and reliability of the measurement model. First, EFA was conducted to demonstrate the most adequate measurement model in relation to the theoretical assumptions using maximum likelihood. Harman’s single-factor test was used to assess potential common method bias; i.e. *‘loading all the measures into an exploratory factor analysis, with the assumption that the presence of common method variance is indicated by the emergence of either a single factor or a general factor accounting for the majority of covariance among measures’* (Podsakoff *et al.*, 2003, p.889). Specifically, the research examines the fit of the single-factor model, in which all the items were loaded onto one factor to address the problem of common method variance (Podsakoff and Organ, 1986); that is, if the variance of a single factor does not account for more than 50% of the total variance to show that CMB is not present (Podsakoff *et al.*, 2003). The study then conducted confirmatory factor analysis (CFA) to assess the model fit (Hu and Bentler, 1998). The results of this should indicate the fit of a model to the data, using a chi-square test, SRMR and NFI. Although these statistical tests do not eliminate the threats of common method variance, they provide evidence showing that the path coefficients of the model are not affected by common method bias (Doty and Glick, 1998). The statistical approaches taken to control CMB in the study are shown in Appendix 12.

## 7.5 Survey

### 7.5.1 Measures

All the multi-item scales used in the research were adapted from ones used in previous survey research studies. As recommended by Diamantopoulos et al. (2012), studies with a sample size of more than 50, with more complex constructs, should rely on multi-item scales. Unlike single-item scales, multi-item ones allow respondents to differentially weight the relevant aspects to best answer the questions (De Boer et al., 2004). In addition, *'the increase in precision gained from using multi-item scales instead of single-item scales generally arises from the increase in precision due to higher reliability'* (Gorsuch and McFarland, 1972, p.60). Multi-item scales allow greater variation in response patterns, generating higher levels of predictive validity and reliability (Churchill Jr., 1979). Therefore, this study applied a multidimensional measurement in the form of multiple dimensions and measurement items to fully capture the distinct facets of the constructs (Petter, Straub and Rai, 2007). All the measures are obtained from multiple sources by reviewing relevant articles in the marketing and marketing-related literature. The individual scale items are provided in Appendix 16.

All the scale items were anchored using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The scales of the three constructs (organisational adaptive capabilities, e-marketing capabilities and value co-creation) are consistent with the original scales adopted in previous research. For example, Akgün et al. (2012) adopted a seven-point Likert scale to measure organisational adaptive capabilities and firm innovativeness. However, the original scale for organisational innovativeness was a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5) (Jiao, Alon and Cui, 2011). The original scale for organisational structure capability used semantic differential scales, ranging from -3 for a centralised structure to +3 for a decentralised structure (Brockman and Morgan, 2003). That is, a score of -3 represents a firm's ability to develop a decentralised structure, while +3 represents its ability to develop centralised or formalised structures. Instead, this study specifically focuses on organisational structure capability as a firm's ability to develop a decentralised structure. To avoid confusion and maintain consistency in the responses, the organisational structure capability and organisational innovativeness scales were therefore modified to a seven-point Likert scale (Bagozzi and Yi, 1991). The following sections describe the scale items for each model construct.

#### ***a) Organisational Innovativeness***

The measure of organisational innovativeness was adopted from Jiao, Alon and Cui (2011), who reported a Cronbach's alpha score of 0.902 to show a high construct reliability. The original version of this measurement was developed by Zollo and Winter (2002) in relation to organisational learning and dynamic capabilities. This construct measurement has been commonly used and tested by marketing scholars for similar topics (Barreto, 2010). The items assess the extent to which firms are successful at introducing new ways of thinking and doing things related to innovation, as well as actively introducing improvements and innovations in their methods of operation. The first item represents how active the firm is in improving and introducing innovation within the organisation, while the second stresses firms' creativity levels. Finally, the third item assesses new ways of thinking and doing things within the organisation. Although the original

version of this construct used a five-point Likert scale, this study modified it to a seven-point Likert scale to maintain consistency and reduce common method variance (Bagozzi and Yi, 1991).

### ***b) Value Co-Creation***

The measure of value co-creation captures the extent to which firms integrate customers in co-creating activities. These activities include interactions and collaboration in production and design processes to jointly create value for innovation. The construct includes interacting with customers, working with customers, co-opting customer involvement, and providing services and other supporting systems in conjunction with customers. It was measured using six items adopted from Ngo and O'Cass (2009), who consider that a Cronbach's alpha of 0.93 indicates a high construct reliability. This measurement construct is widely used and tested in value co-creation research, especially in technology-enabled value co-creation (Chuang, 2018). Therefore, the scales were modified to capture co-creation activities with customers on social media to represent the context of an e-transition model of value co-creation; that is, integrating customers in online activities (organised value co-creation activities on social media) to exchange information and co-create innovation initiatives.

### ***c) Organisational Adaptive Capability***

Organisational adaptive capability is conceptualised as a firm's ability to quickly adapt to changes in the external environment, which tends to be measured in terms of market adaptive capability, technology adaptive capability and management system adaptive capability. These three items were adopted from the study of Akgün et al. (2012), where an overall Cronbach's alpha is reported as 0.81. The scale shows high construct reliability and has been tested in similar studies (Tuominen, Rajala and Möller, 2004), particularly in the SME context (Herman, 2013; Schindehutte and Morris, 2001). Although Akgün et al. (2012) used this instrument in relation to product innovativeness, this study modified the scales to specifically represent the context of value co-creation for innovation. The three sub-dimensions were then aggregated into single-scale scores and used as individual elements for the organisational adaptive capability construct.

Specifically, market adaptive capability is associated with firms' ability to scan market situations, monitor customers and competitors and effectively allocate resources to support marketing practices in response to market changes, and was assessed by five items. Technology adaptive capability reflects firms' ability to monitor, assess desired technologies (i.e. social media) and quickly adapt to technological changes. It was assessed by five items. Management system adaptive capability is firms' ability to encourage and motivate employees to be more flexible and open to external changes. This includes providing a flexible work environment and encouraging employees to take risks in order to challenge existing practices. Three items were used to assess management system adaptive capability, in terms of the ability to encourage employees to open to challenges, be flexible to quickly respond to changes and rapidly evolve in response to shifts in business priorities.

#### ***d) E-Marketing Capabilities***

The e-marketing capability items measured the extent to which firms had the ability to use social media technologies in facilitating traditional marketing practices. Specifically, this construct measured the extent to which firms generate information from customers, disseminate customer information across the organisation and respond to such customer information using social media. As the domain specification of this measurement, three items (information generation, information dissemination and responsiveness) were drawn from Trainor et al. (2014), with Cronbach's alphas of 0.94, 0.92 and 0.93 respectively, showing high construct reliability. These three scale items have been commonly used and tested in related studies, including for value co-creation, CRM and innovation (Carbonell and Escudero, 2010; Chung, 2012), especially in the B2C SME context (Cheng and Shiu, 2019; Choudhury and Harrigan, 2014).

Three items were used to assess information generation. This is associated with firms' ability to use social media to conduct market research, and to detect changes in customer demand and competition. In addition, information dissemination is associated with firms' ability to use social media to support internal processes, such as interdepartmental meetings, discussion about customers, customer data distributions and communication across the organisation, which was assessed by four items. Six items were used to assess responsiveness, which refers to the ability of firms to use social media to effectively respond to competitors' actions, customers' preferences, complaints and internal activities. In this study, the scales were modified to specifically refer to customer information obtained on social media platforms for value co-creation. The three sub-dimensions (information generation, information dissemination and responsiveness) were then aggregated into -single-scale scores and used to represent the e-marketing capabilities construct.

#### ***e) Organisational Structure Capability (Moderator)***

Organisational structure capability was measured using eight items adapted from Brockman and Morgan (2003), who reported a positive moderating effect of organic (or decentralised) structure between knowledge and innovative information ( $t$ -value = 1.96). Specifically, firms with a decentralised structure are more likely to facilitate smooth information flow and organisational learning (Day, 1994). The original version of the scale items was used to measure the extent to which firms are structured in an organic (decentralised) versus mechanistic (centralised) manner using seven-point semantic difference scales. However, this study focuses on organisational structure capability as firms' ability to develop decentralised structures to support coordination within the organisation, so the scale items were modified to specifically refer to decentralised structures, using a seven-point Likert scale, in order to avoid any confusion. The items are associated with firms' ability to enhance open communication, quality information sharing, informal management systems and procedures and decentralised decision-making, to support the way they adapt to external changes and integrate customer knowledge for value co-creation related to innovation (Akgün, Keskin and Byrne, 2012).

#### ***f) Control Variables***

To handle endogeneity and account for the effects of the extraneous variables (refer to Section 7.3), firm size, age and industry were included as control variables. Firm size was represented by the number of full-time employees, while firm

age was based on the number of years the firm had been operating as a virtual business (using social media technologies for value co-creation) (Cheng and Shiu, 2019). Industry allowed us to incorporate the mean differences in organisational innovativeness across industries (Pallas *et al.*, 2013). The degree to which firms are likely to adopt an e-transition model to achieve value co-creation in relation to innovation depends on the type of industry they are operating in (Child *et al.*, 2017). Dummy variables were created for (i) firm size; two dummy variables to represent start-ups (fewer than 10 employees), small companies (10-49 employees), and medium-sized companies (50-200 employees); (ii) firm age; three dummy variables to represent firms that had been operating for less than 2 years, 2-5 years, 5-10 years and above 10 years, and (iii) firm industry; one dummy variable to represent service and manufacturing firms.

### **7.5.2 Questionnaire Design**

The questionnaire was designed using Qualtrics, and consisted of 19 questions divided into four main sections – (i) organisational-related, (ii) social media-related, (iii) capability-related and (iv) outcome-related. These four sections were designed to ensure that the respondents were aware of the topics they were being asked about and to avoid any confusion related to the questions. First, the organisational-related questions focused on the overall information related to industry sector, firm age, firm size and the respondents' position in the organisation. Second, the social media-related questions captured the use of social media within the organisation (the type of social media, the motivations of social media usage and the use of social media in value co-creation). This section of the questionnaire was designed to ensure that the respondents were qualified to answer the questions following on technology-enabled value co-creation activities with customers for greater innovativeness. Third, the questions were related to the key firm-level capabilities required to support customer integration in value co-creation, including organisational adaptive capabilities, e-marketing capabilities and organisational structure capability. Finally, the outcome-related questions focused on value co-creation and organisational innovativeness. In total, the questionnaire contained 19 questions and took approximately 10-15 minutes to complete (Appendix 17).

To facilitate quality responses, the questionnaire was translated from English into Thai, the native language of the respondents, to ensure conceptual equivalence (Hoskisson *et al.*, 2000). While English is widely used in business communities in Thailand, the development of the Thai version ensured clear communication with the respondents. In order to maintain equivalence in the English and Thai versions of the questionnaire, two rounds of pre-testing were conducted to maintain the quality.

### **7.5.3 Pre-Test**

A panel of experts reviewed the original English version of the questionnaire before the pre-testing was conducted. According to the reviewers' comments, the questionnaire was revised and modified. The original English texts were then translated into Thai by the researcher herself (a native Thai speaker) using the direct translation method (Malhotra, Agarwal and Peterson, 1996). This version of the questionnaire was reviewed by a colleague (also a native speaker) before pre-testing for clarity and scale reliability with a small sample of managers and employees of SMEs in Thailand. The

pre-test was conducted through telephone interviews with eleven respondents (eight managers and three employees). They were asked to complete and discuss the items in the questionnaire and to say whether they could think of more than one way to interpret each item and to further explain their responses. This included both Thai and English versions of the questionnaire being reviewed by the respondents to maintain consistency in its quality.

Based on the pre-test feedback, the Thai translation of the questionnaire was revised and modified. At this stage, back-to-back translation was employed (Brislin, 1970) by a bilingual qualified professional and by the researcher herself. The questionnaire was translated from English into Thai by the bilingual professional and then back into English by the researcher to ensure that the translated questions were equivalent in both versions (Chang et al., 1999). A session was set up between the professional and the researcher to review the translated questionnaire before the finalisation of the Thai version. This review session was conducted via telephone to discuss any errors or confusion, and to find better Thai terminology to address such issues. The translated version of the questionnaire was then also reviewed by two bilingual business and marketing colleagues, native Thai speakers, to ensure the quality of the final translation. The translated version of the questionnaire was then pre-tested in a second round with managers and employees (four managers and three employees). Drawing on the respondents' feedback, refinements were made before sending out the final version to the targeted respondents (Bryman and Bell, 2015).

#### **7.5.4 Samples**

##### ***a) Research Context***

The study focuses on a single country context, rather than being a multiple-country study, in order to eliminate macro-environmental diversity among participants across different countries. The rationale for selecting Thailand as the country context is that (i) the researcher is a native of Thailand, so is familiar with Thai markets and has access to Thai data sources; (ii) Thailand is a good representative of an emerging country, whose government focuses heavily on the growth of SMEs as a means to accelerate the economy, especially moving it towards digitalisation and innovation; and (iii) SMEs in Thailand are currently facing difficulties in transitioning to customer-centric business models for value co-creation for innovation (Pongwiritthon and Noiphan, 2014). According to the Ministry of Industry of Thailand, SMEs are defined as companies that have an overall asset value of less than or equal to ฿200 million for manufacturing and service firms, 100 million baht for wholesalers, and 60 million baht for retailers (Lertwongsatien and Nitaya, 2003). In addition, the size of SMEs is often reflected by the number of employees: (i) small firms range between 1-50 and (ii) medium firms have up to 200 employees (Sevilla and Soonthornthada, 2000). Table 7.1 summarises the definition of SMEs in four main sectors in Thailand, production, service, wholesale and retail, based on the number of employees.



**Table 7. 1: Definition of SMEs in Thailand in terms of the number of employees**

Sector	Small firms	Medium firms
Production	1-50 employees	51-200 employees
Service	1-50 employees	51-200 employees
Wholesale	1-25 employees	26-200 employees
Retail	1-15 employees	16-150 employees

*Source: OECD (2019)*

In particular, in developing countries, the social media-based performance and activities of SMEs greatly contribute to innovation, resulting in economic growth in terms of employment, capital investment and business environment, increasing their GDP (Dey *et al.*, 2019; Tambunan, 2008). The growth of SMEs helps to accelerate investment and workforce demand in markets, resulting in better income distribution and spending within and across nations (Leesa-nguansuk, 2019). As a result, a nation's economy and infrastructure can be accelerated in such a resilient way as to be able to face the dynamic environment (Aris, 2007). As shown in Appendix 13, the growth of SMEs in Thailand has become very important to the economy. The increase (about 22%) in the number of SMEs over a decade has influenced the way the Thai economy has performed, thus affecting its GDP (Trading Economics, 2021).

Recently, Thailand announced its economy model, namely Thailand 4.0, for sustainable development in 2017 (Charoenrat and Harvie, 2017). One of its objectives is to shift the focus on making products to providing value-added services by aligning technologies in the processes towards greater innovation; i.e., encouraging SMEs to transition towards digitalisation (Bussi and Khatiwada, 2017). The government encourages SMEs to become more digitalised and better transforming themselves towards innovation (Janrattana, 2017). With an improvement in SME performance in terms of innovation, the Thai economy can develop into a value-based one that closely focuses on research and development (R&D), technology, creative thinking and innovation (Jones and Pimdee, 2017). With these objectives, there is a need to examine the performance of SMEs in relation to value co-creation with customers using social media technologies, and how they can effectively and efficiently support such innovation processes. This is because customers are considered a key source of value creation; the creation of service value comes from the perspectives of value-in-use and value-in-experience of customers (Heinonen *et al.*, 2010). Therefore, Thailand is considered a good representative of a developing country, in order to examine the key capabilities needed to support an e-transition model of value co-creation processes for greater innovation.

### ***b) Sampling Method***

The sample frame was developed from the list of companies promoted by a Facebook page, namely SME Thailand Online (<https://www.facebook.com/smethailandonline/>). This is an online community page managed by Peninsular Associates Ltd., a top publishing company in Thailand, which works to support companies, especially SMEs, in the country. This page actively promotes companies by posting about their missions, strategies, and business models, with updates on their new products and services. Within the period 2019-2020, the total number of companies posted on this community page

was 796, who are aiming to improve their businesses in terms of innovation. The list of SMEs was obtained by going through each post, one by one, for the last year to obtain the names of the firms. In addition, a leading commercial bank was contacted for an additional list of SMEs in Thailand, which was validated based on their initial income per year. Since the bank only maintains the total value of transactions rather than the registration of SMEs, the study considered this to be a list of 109 active SMEs. Therefore, in total the study obtained 905 SMEs for the sampling frame.

The study follows multi-stage sampling. According to Ackoff (1953), such sampling is a process of moving from a broad to a narrow sample in two steps. First, stratified sampling is used to select the sample from different sub-groups. Second, random sampling is employed to randomly choose sub-samples within the sub-groups (Ahmed, 2009). Specifically, the study assembled a list of SMEs which were relevant to the study from the lists obtained from the SME Thailand Online page and the commercial bank. From these lists, a stratified random sample of SMEs was drawn, for both manufacturing and service industries. Their social media pages (e.g. Facebook and Instagram) of each sampled SME were then reviewed and the necessary contact information obtained for those actively organising value co-creation activities on social media. Manager and employees of these SMEs were then solicited to participate in the online survey. Although this method involved considerable time and effort, especially during the phase of preparation, planning and contacting (Jackob, Arens and Zerback, 2005), it was considered suitable for the research in the absence of a specific sampling frame. The study was able to focus on active SMEs that use social media, specifically Facebook and Instagram, as a means to organise value co-creation activities with their customers. To obtain this specific population, it was necessary to ensure that each active SME met the criteria, and therefore represented the studied population.

Moreover, the study further identified sub-samples from the sub-groups. The number of these was not necessarily equal, as it depended on the size of each sub-group (Pfeffermann and Rao, 2009). Based on the sample frame, the sample was divided into two sub-groups, manufacturing and service firms. However, the size of the samples in the manufacturing and service industries is different, so it was appropriate to follow a probability proportion when selecting the sub-samples from each group. That is, the probability of selecting the sample was proportional to the size of the group (Davis, 2005). The larger group (the service industry) therefore had a greater probability of selection than the smaller one (the manufacturing industry) (Galway, Bell and Sae, 2012). As recommended by Kotrlik and Higgins (2001), the total sample size should be increased by at least 50% for unanswered emails and uncooperative subjects, in order to ensure that minimum sample size is are met.

### *c) Sample Size*

As shown in Appendix 15, the sample size in previous studies ranges from 67 to 691. The standard statistical analysis, including structural equation modelling (SEM), suggests a range of sample size of between 30 to 460 responses in order to generate meaningful patterns of association between parameters and sample size (Wolf *et al.*, 2013). Current scholars recommend 200 as a critical sample size to test a model using SEM (e.g. Hair *et al.*, 2009; Tabachnick and Fidell, 2001). Despite the debate on the appropriate sample size, Hair *et al.* (2011) suggest the rule of 10 as a minimum sample size for PLS-SEM; i.e., it should be greater than 10 times the maximum number of inner or outer model constructs pointing at any latent variable in the model. Based on this rule, similar studies adopting PLS-SEM employed sample sizes ranging from 124 to 166, with a satisfactory level of reliability (Appendix 15). The response rate of similar studies ranges between

15% and 65%. Therefore, this study considers 150 samples to be an appropriate minimum sample size to estimate and generate valid results.

The study follows a sampling strategy. The rationale for using such a strategy is to reduce the sample variation and errors (Churchill, 1991). It also ensured that the samples selected were representative of the sample population in this study by following a number of criteria (Zikmund, 2003). First, participating companies should operate in Thailand, with no more than 200 employees and a total asset value no greater than 200 million baht (maximum 50 employees and 50 million worth of assets for small firms, and 200 employees and 200 million worth of assets for medium firms), in order to classify as SMEs. Second, participating SMEs should regularly use social media platforms (e.g. Facebook and Instagram) to organise value co-creation activities with customers. To meet these criteria, the companies' websites, social media pages and relevant articles were reviewed to ensure that they fell into these categories. Specifically, the individual companies' Facebook and Instagram pages were reviewed to ensure that they were actively posting content, activities or campaigns to engage customers in co-creating value (e.g., ideas, feedbacks and experiences) for their products and services, as well as to obtain their recent contact information. The study then confirmed these details with the respective companies via email and telephone to ensure that they represented the studied population. Hence, by following this sampling strategy, an initial sample of 755 SMEs was obtained for further verification and to invite them to participate in the online survey.

#### ***d) Unit of Analysis***

The unit of analysis refers to the extent to which the level of investigation of the data collection focuses on an object or objects (e.g., the whole organisation, department, groups of individuals or individuals) (Zikmund, 2003). As shown in Appendix 14, previous scholars of value co-creation or similar fields have focused on either customer or firm characteristics to support value co-creation processes with customers for innovation. Customer characteristics are often associated with their behaviours, personalities and motivations to engage in value co-creation, while firm characteristics focus on the development of firm-level capabilities and internal characteristics to support value co-creation with customers (Rashid *et al.*, 2019). In this study, one unit of analysis is firm characteristics, specifically focusing on key capabilities to support an e-transition model of value co-creation for innovation. This unit of analysis aims to capture managers and/or employees' perceptions of the overview of their value co-creation activities with customers using social media (e.g. processes and challenges) and the key capabilities required to support customer integration in such co-creating activities in SMEs. In this quantitative study, capturing managers' and/or employees' responses to the different key capabilities is therefore significant. In other words, understanding the relationships between key capabilities and value co-creation via managers' and employees' responses helps to further develop an e-transition capabilities model.

#### ***e) Selection of Key Informants***

The selection of key informants is crucial to generate appropriate knowledge for a study (Mitchell, 1994). They should have certain qualities, such as direct involvement in interactions with customers on social media and value co-creation activities with customers, as well as experience in dealing with changing customer demand and markets (Miller, 1956). According to Podsakoff *et al.* (2003), multiple respondents from each firm should be obtained to avoid common method

variance. Although SMEs often have a limited number of managers and employees due to their small size (Ayyagari, Beck and Demircuc-Kunt, 2007), at least one manager and one employee should be selected from each SME to ensure that both an overview and on-the-job perspectives can be obtained. That is, (i) a manager provides specialised knowledge on the overview of an e-transition capabilities model towards value co-creation, while (ii) an employee provides information related to the on-the-job capabilities needed to support customer integration in value co-creation activities on social media. Since the key respondents are responsible for interacting and dealing with specific customers, it is assumed that they are qualified to assess the information with accuracy and reliability.

Moreover, managers and employees usually interact and engage with more than one customer. Although they may interact with the same or similar topics (e.g. products or services), each customer has different needs and expectations (Zhang and Chen, 2008). Therefore, key informants are instructed to focus on key customers when completing the questionnaire, customers who are actively and continuously involved in value co-creation activities on social media. In addition, the informants are instructed to consider value co-creation activities within the last two years using social media platforms, specifically Facebook and Instagram. This is to incorporate a more meaningful representation of data in terms of the key capabilities needed to support key customer integration in value co-creation processes for innovation.

## **7.6 Data Collection**

The data for the research were acquired by a self-administered online survey method. Potential informants from the 755 verified initial sample were contacted by email and telephone to check whether they were using either Facebook or Instagram for value co-creation with customers; that is, whether they were organising activities on Facebook or Instagram to engage customers in exchanging ideas and information for greater creativity and innovativeness. This was ensure that the informants had the knowledge relevant to the research topic and to seek their interest in survey participation. In this process, 690 SMEs expressed their interest in participating in the survey and were sent the online questionnaire. Cover letters were also attached to the questionnaire stating the study purpose, the value of the participants to the research, and explaining voluntary participation and confidentiality policies of the survey. The survey assured the respondents that individual responses would remain confidential and that only aggregated results would be reported. In return, the respondents would be offered an aggregated summary of the research results and an executive summary of the study findings in return for providing their responses.

The data collection procedures were divided into two waves. The first wave took place when the questionnaire was sent out to the selected informants after their confirmation of survey participation. The online questionnaire link together with a cover letter were sent by email (and Facebook if requested). The second wave of mailing is then sent out using the same method a week later as a reminder, to attempt to maintain the response rate. In total, 204 questionnaires were completed and returned, a response rate of 29.6%. The detailed responses of the two industries are shown in Table 7.2.

**Table 7.2: Detailed responses from the two industries**

Industry	Total sample	Returned	Return %	Overall response rate
Manufacturing	361	104	28.8%	29.6%
Service	329	100	30.4%	
Total	690	204		

## 7.7 Data Analysis

With 204 returned responses, the study then analysed the data using PLS-SEM. The process of data analysis consisted of (i) non-response bias, (ii) examination of the data, (iii) normality and outlier assessment, (iv) exploratory factor analysis, (v) measurement model assessment, (vi) structural model assessment, (vii) moderating effects, and (viii) unobserved heterogeneity. The following sections discuss the procedures and cut-off /threshold values for each test.

### 7.7.1 Non-Response Bias

To minimise the impact of non-response bias in the survey, reminder emails were sent to the respondents after the first wave. The returned responses were divided into two groups – (i) responses that were completed and returned within the first wave, and (ii) responses that were completed and returned in the second wave. Tests were then conducted to rule out any potential non-response bias by comparing early to late respondents in relation to all the study variables (Armstrong and Overton, 1977). Early respondents were those whose responses were received after the first wave of mailing, while late respondents were who sent their responses after the reminder mailing (second wave). The results of non-response bias are shown and discussed in Chapter 8.

### 7.7.2 Data Entry and Missing Data

To assess the quality of the data analysis, examination of the data entry and missing data was performed to gain critical insights into the characteristics and analysis of the data (Hair *et al.*, 2010). *‘Missing data is defined as the data that is not stored for a variable in the observation of interest’* (Kang, 2013, p.402). The problem of missing data can have a significant impact on the conclusions that are drawn from the dataset (Graham, 2009). For example, it can reduce statistical power, which can lead to null hypotheses being rejected if false, resulting in biased estimation of the parameters (Little *et al.*, 2012). There are three main types of missing data – (i) missing completely at random; i.e. the missing data are not related to the specific value or the set of observed responses; (ii) missing at random; i.e. the data are missing depending upon the observed responses, but are not related to the specific value; and (iii) missing not at random; i.e. the data is missing depending upon the observed responses and the specific value (Rubin, 1976). If the missing data are of the first two types, they are likely to be unbiased for the estimation, while the last type of missing data needs to be removed

to avoid biased estimation (Kang, 2013). To achieve a good quality data entry process, a double check was performed. All the entries were first verified case by case, followed by a second check using a number of statistical tests (e.g. frequency distribution, mean and standard deviation) to identify any missing data due to mistakes in responses and/or data entry.

### 7.7.3 Normality and Outliers

Normality in the data is a conventional assumption considered in the estimation process (Bai and Ng, 2005). Data distribution with low skewness and kurtosis scores is an indication of normality, which has no effects on the estimation. On the other hand, high skewness and kurtosis scores are considered non-normal, having some random effects on the estimation (Hall and Wang, 2005). To assess the normality of the data, descriptive statistics analysis was conducted using the mean scores of the dependent and independent variables. The cut-off values for skewness and kurtosis are  $\pm 2$  and  $\pm 3$  respectively (Hair *et al.*, 2010). Scores meeting the cut-off values indicate that the data is normally distributed and that there is no effect on the estimation. Vice versa, if the skewness or kurtosis score exceeds the cut-off value, it is possible that outlier cases are present within the dataset, which require further assessment (Tabachnick and Fidell, 2001).

*'An outlier is a case with such an extreme value on one variable (a univariate outlier) or such a strange combination of scores on two or more variables (multivariate outlier) that they distort statistics'* (Tabachnick, Fidell and Ullman, 2007, p.66). According to Hair *et al.* (2010), there are four main reasons why univariate and/or multivariate outliers may exist – (i) cases with a data entry error; (ii) cases that arise from the uniqueness of observation; (iii) cases that are not explained by the research; and (iv) cases derived from ordinary values. First, cases with a data entry error can be assessed by reviewing the data case by case to ensure no mistakes have been made. In addition, the rest of the outlier cases should be identified and reviewed and a decision taken on whether to remove or keep them. Although scholars highlight the importance of removing outlier cases, some argue that some of these should be kept, as they may provide interesting insights into the study (Hair *et al.*, 2009; Pollet and van der Meij, 2017). Handling such outliers is therefore an important issue when examining data, as they might have important effects on the data analysis (Tabachnick and Fidell, 2001). The outlier handling process was preceded by identifying univariate outliers using standardised z scores of  $\pm 3$  (Hair *et al.*, 2009) and multivariate outliers using Mahalanobis distances greater than  $p < 0.001$  (Tabachnick, Fidell and Ullman, 2007).

### 7.7.4 Exploratory Factor Analysis

Exploratory factor analysis (EFA) is a process of validating item scales in a questionnaire by examining the appropriateness of the items and the dimensionality of the constructs (Netemeyer, Bearden and Sharma, 2003). *'EFA is a data reduction technique that permits the reduction of a large number of variables (e.g. test items, individuals) into constituent components by examining the amount of variance that can be reproduced by the latent or synthetic variables underlying the observed or measured variables.'* (Kieffer, 1998, p.4). Its aim is to better understand the structure of a dataset to generate theories about a phenomenon of interest (Choi and You, 2017). To conduct EFA analysis, several steps need to be followed: (i) decide on an extraction method, (ii) identify and remove any multicollinearity, (iii) select a

suitable rotation method, and (iv) interpret the results using Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity, reliability, eigenvalues and communality (Child, 2006).

### ***a) Step 1: Deciding on an Extraction Method***

A study first needs to decide on an extraction method. Two common forms are used in EFA, principal factor analysis (PFA) and principal component analysis (PCA). Although a number of scholars outline the differences between the two methods (Di Franco and Marradi, 2013; Rao, 1964), some suggest PFA as a common method used to measure a model of latent variables, whereas PCA is used to measure a linear combination of variables (Williams, Onsman and Brown, 2010). Unlike PCA, employing PFA is based on the notion that each latent variable extracted from the analysis is perfectly uncorrelated with other variables (Kieffer, 1998).

### ***b) Step 2: Eliminating Multicollinearity***

Before starting with the EFA, Pearson bivariate correlation of all items is conducted to identify any multicollinearity in the dataset (Samuels, 2017). Multicollinearity can be referred to as the linear relation among two or more variables (Alin, 2010). It is important to detect multicollinearity, as it may have several adverse effects on the estimation, including the reliability of the estimation of the model parameters (Mansfield and Helms, 1982). According to Vatcheva (2016), pairs of items with bivariate correlation scores greater than 0.7 should be removed to eliminate multicollinearity. This means that two items are linearly related (Swank and Mullen, 2017).

### ***c) Step 3: Selecting a Suitable Rotation Method***

Once multicollinearity is assessed, a study needs to decide the rotation methods to be used in the analysis to further generate a meaningful interpretation. Rotation methods aim to produce better fitting solutions that can be generalised across studies (Kieffer, 1998). Factor rotation can be divided into two main types – (i) orthogonal and (ii) oblique (Kaiser, 1960). The orthogonal rotation method focuses on the degree of uncorrelation between the factors to minimise the number of them that have high loadings on each factor, whereas the assumption lies in the correlation of the factors in the oblique rotation method (Corner, 2009). To decide the suitable rotation method, Tabachnick and Fidell (2007) recommend starting with correlations among the factors using oblique rotation, and if the factor correlations are not driven by the data, it is most likely that the solution lies in the orthogonal rotation method. Although scholars argue that both rotation methods are similar, it is always better to identify the suitable method for factor rotation in order to generate a meaningful interpretation of the data (Rennie, 1997).

#### ***d) Step 4: Interpreting the Results of EFA***

To interpret the results of the analysis, the study focuses on (i) the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity, (ii) Cronbach's alpha, (iii) eigenvalues and (iv) communality. First, the Kaiser-Meyer-Olkin (KMO) measure verifies the sampling adequacy for the analysis (Williams, Onsman and Brown, 2010). The KMO index ranges from 0 to 1, with 0.5 considered satisfactory for factor analysis; i.e.,  $KMO > 0.5$  indicates that more than 50% of the samples are well-suited for factor analysis (Tabachnick, Fidell and Ullman, 2007). Specifically,  $KMO > 0.8$  is considered to represent good sampling adequacy (Oluseyi and Olufemi, 2015), while  $KMO < 0.5$  means that there are high partial correlations among the variables, which pose a serious problem for factor analysis (Budaev, 2010). Similarly, Bartlett's Test of Sphericity is performed to assess the suitability of the respondent data for factor analysis, with  $p < 0.05$  classified as very suitable (Bartlett, 1950).

Second, the study considers the eigenvalues of all the constructs. '*An eigenvalue represents the amount of variance in the original data set that is reproduced by a given factor.*' (Kieffer, 1998, p.9). The common method to determine the number of factors that should be retained is based on eigenvalues greater than 1 (Kaiser, 1960). However, Patil et al. (2008) argue that the 'eigenvalue greater than one' (EVG1) rule often results in over extraction, which leads to the development of limited theories in marketing research. The EVG1 rule in EFA often lead to more factors being retained (or overestimation of the true number of factors) (Velicer, Eaton and Fava, 2000). Instead, scholars highlight measures of model fit as alternative options available for determining the optimal number of factors to be retained (Fabrigar *et al.*, 1999).

Third, communality should be obtained for all the items. The communality coefficient can be defined as the amount of variance of a given variable that is reproduced by the extracted factors (Kieffer, 1998). Its value ranges from 0 to 1, and each individual item should have more than 0.2 score of communality (Child, 2006). An average communality score should be between 0.5 and 0.6 (Samuels, 2017). Specifically, the average value of communality for a study with a sample size of less than 300 is 0.6 (MacCallum *et al.*, 1999). This shows that at least 60% variance can be explained when regressing the reflective indicators on their latent variables (Fornell and Larcker, 1981).

#### **7.7.5 Measurement Model Assessment**

Although SEM is a quantitative data analytical technique that estimates and tests theoretical relationships between endogenous and exogenous latent variables (Hwang *et al.*, 2010), it does not designate a single statistical technique, but rather a set of relevant statistical procedures that combines regression and factor analysis (Hooper, Coughlan and Mullen, 2008). According to McQuitty (2004), there are three forms of SEM. The first form predicts the measurement model (Type 1); the second is a single-indicator structural model (Type 2); and the third form combines both measurement and structural parameters (Type 3) in a single analysis (McQuitty, 2004). As Type 2 is associated with a single-indicator structure model, Type 3 allows the research to focus on more than one indicator (or multi-item scales) to estimate the model (Martínez-López, Gázquez-Abad and Sousa, 2013). Therefore, this study focuses on using the Type 3 approach to test the measurement and structural parameters (with multi-item constructs).

To estimate the measurement and structural parameters, the study focuses on using the comformatory factory analysis (CFA) to examine the established underlying structure based on prior empirical and theoretical backgrounds (Brown and



Moore, 2012). CFA is considered an alternative method to effectively assess the measurement model (Choi and You, 2017). The individual manifest reliability, construct reliability, bivariate correlations, convergent validity and discrimination validity are conducted to analyse the data to ensure the quality of the measurement constructs (Zhu, 2000).

#### ***a) Internal Consistency Reliability***

To begin to evaluate the measurement model, consistency evaluations are conducted. Such consistency evaluations include individual manifest and construct reliability tests. Individual manifest reliability explains the variance in individual manifests relative to latent variables through its outer loadings (Götz, Liehr-Gobbers and Krafft, 2010). Hair et al. (2010) suggest an outer loading value of 0.5 as acceptable, while Halland (1999) argues that the threshold value of outer loadings should be 0.4. This is in line with the suggestion made by Henseler, Ringle and Sarstedt (2012) that outer loadings lower than 0.7 should be reviewed. If the elimination of these indicators increases the composite reliability, such indicators should be deleted. Vice versa, if such elimination of the indicators does not increase the composite reliability, the indicators should be retained.

In addition, Cronbach's alpha and composite reliability (CR) are calculated to evaluate construct reliability by indicating how well a set of manifest variables (or items) appraises a single latent construct (Wong, 2013). However, it is often considered that Cronbach's alpha is a conservative measure, as the measure items are unweighted (Hair et al., 2019). On the other hand, composite reliability provides better measurement of internal consistency, as it employs the standardised loadings of the manifest variables (Fornell and Larcker, 1981). Although Cronbach's alpha produces slight lower values than composite reliability, the scores of both tests are similar and therefore can be used to evaluate the construct reliability of the measurement measures. It is suggested that a value of 0.7 can act as a threshold value for both Cronbach's alpha and composite reliability; i.e., constructs with values greater than 0.7 are considered good (Hair *et al.*, 2017). Nonetheless, bootstrap confidence intervals were run to check the construct reliability. The 95% confidence interval of the construct reliability should range between 0.70 and 0.95 (Aguirre-Urreta and Rönkkö, 2018).

#### ***b) Bivariate Correlation***

To gain fundamental theoretical precision from the data, bivariate correlations should be performed between the construct measures by conducting overall measurement model analysis using all the items. Bivariate correlations measure the existence of relationships between two different constructs, showing how much one construct will change if there is a change in another (Swank and Mullen, 2017). High correlations between constructs mean that one has a great influence on another, and vice versa. Good bivariate correlation scores should exceed 0.3; correlation values below 0.3 are considered weak, 0.5-0.7 is considered moderate, and above 0.7 is considered a strong relationship (Akoglu, 2018).

### ***c) Construct Validity***

Originally, Brown (1996) categorised validity into three sub-divisions – (i) content validity, (ii) construct validity and (iii) criterion-related validity. Content validity refers to the degree to which a questionnaire represents the studied topic (Cohen, Manion and Morrison, 2007). This process of content validity includes the literature review, and pre-testing and pilot testing, to ensure that the questionnaire is designed in such a way that best explains the focus of the study. The process of content validity was conducted in Section 7.5. On the other hand, criterion-related validity measures how well scores of one measure predict scores of another measure of interest (Cohen, Manion and Morrison, 2007). However, some scholars argue that this type of validity is only useful when a new measure is developed, which is not the case in this study (Fink, 2010). Criterion-related validity estimates the extent to which a measure predicts performance and behaviour in past, present and future situations (Pulakos and Schmitt, 1996) but still lacks methodological rigor (Van Iddekinge *et al.*, 2012). Furthermore, construct validity assesses the degree to which the measurement represents the hypothetical construct (Kumar, 2005). Evidence of construct validity includes the theoretical and empirical support for the construct (Cohen, Manion and Morrison, 2007). Such support is discussed in Section 7.5.1. Statistical analysis, such as convergent and discriminant coefficients, can also be conducted to demonstrate the appropriateness of items under a construct (Zhu, 2000). Convergent validity refers to *‘the extent to which the scale correlates positively with other measures of the same construct’*, while discriminant validity is *‘the extent to which a measure does not correlate with other constructs from which is supposed to differ’* (Malhotra, 2002, p.294). Both types of validity can therefore be tested with multiple methods, including average variance extracted (AVE) and the heterotrait-monotrait (HTMT) ratio.

### ***d) Non-linearity***

When estimating the path models, the relationships between the constructs are considered to be linear. However, this is not necessarily always the case in reality, as relationships between constructs can also be non-linear (Ahrholdt, Gudergan and Ringle, 2019). If this is the case, the effect size between two constructs not only depends on the magnitude of the change in the exogenous construct, but also on its value (Hair Jr *et al.*, 2017). To assess non-linearity, a study can run Ramsey’s (1969) regression equation specification error test (RESET); it needs to first estimate the model and use the resulting construct scores as input for the RESET analysis using SPSS (Sarstedt *et al.*, 2020).

However, RESET analysis relies on construct scores estimated from a linear effect model. To check for non-linearity, Hair *et al.* (2019) argue that using a quadratic effect in PLS-SEM can also check for non-linearity; i.e., adding a quadratic term to a polynomial model. *‘The quadratic term is similar to an interaction term, which comprises the exogenous construct’s interaction with itself’* (Sarstedt *et al.*, 2020, p.537). If the results show a significant interaction term, it is more likely that non-linearity is present. If the significant interaction term is positive, the strength of the exogenous construct’s effect increases in its higher values, and vice versa (Rigdon, Ringle and Sarstedt, 2010). Conversely, a non-significant interaction term provides evidence showing that the linear effects are robust.

### 7.7.6 Structural Model Assessment

The structural model assesses the relationship between exogenous and endogenous latent variables through the evaluation of the  $R^2$  value (Rigdon, Sarstedt and Ringle, 2017); i.e., it evaluates the coefficient of determination and path coefficient ( $\beta$ ) of the model (Hair *et al.*, 2012). The coefficient of determination ( $R^2$ ) indicates the degree to which the variance explains endogenous latent variables (Akter, D'Ambra and Ray, 2011). According to Cohen *et al.* (2013), the value of  $R^2$  should be higher than 0.26 to indicate a good model. In addition, Hair *et al.* (2011) suggest the  $R^2$  value greater than 0.25 is weak, 0.50 is moderate and 0.75 shows substantial predictive accuracy of the model. On the other hand,  $\beta$  indicates the strength of an effect of one variable on endogenous variables (Hair Jr *et al.*, 2014). The path coefficient predicts the effect of an exogenous latent variable on an endogenous latent one (McIntosh, Edwards and Antonakis, 2014). To assess the path coefficients, the t-value and its significance level should also be tested using the bootstrapping method (Streukens and Leroi-Werelds, 2016). This is a non-parametric resampling method that examines the variability of the sample data by computing t-values for a two-tailed test (Efron, 1982). Acceptable t-values for a two-tailed test are 1.65 for a significance level of 0.10; 1.96 for a significance level at 0.05; and 2.58 for a significance level of 0.01 (Hair, Ringle and Sarstedt, 2011). However, Hair *et al.* (2019) suggest conducting collinearity statistics (VIF) before proceeding with the evaluation of the  $R^2$  value. VIF measures collinearity to ensure that the regression result is not biased; i.e., VIF should be lower than 3 to indicate that there is no collinearity (Beacker *et al.*, 2015).

Although the  $R^2$  value provides insights into the model's predictive accuracy, the measure does not assess its predictive relevance (Hair *et al.*, 2019). To assess the model's predictive relevance, cross-validated redundancy ( $Q^2$ ) is introduced; a higher value of  $Q^2$  indicates higher predictive relevance of the path model (Geisser, 1974). The  $Q^2$  value can be obtained by removing single points in the data matrix and imputing the removed points with the mean before estimating the model parameters (Sarstedt, Ringle and Hair, 2017). Smaller differences between predicted and original values often generate greater  $Q^2$  values, which indicate that the model is predictively relevant (Hair Jr *et al.*, 2014). However,  $Q^2$  does not provide insights into the quality of the prediction (Sarstedt, Ringle and Hair, 2017).

To assess the quality of the prediction, the  $f^2$  value is calculated in order to evaluate the effect size of the path estimations. To assess this value, two path models are compared; i.e., a full path model and a reduced model (a selected exogenous construct eliminated from the model) (Hair Jr *et al.*, 2014). The differences between the  $R^2$  value of the full model and reduced model provide the  $f^2$  value; the greater the differences in the  $R^2$  value, the higher the  $f^2$  value generated, indicating a small effect size if the  $f^2$  value  $> 0.02$ , a moderate effect size if the  $f^2$  value  $> 0.15$ , and a large effect size if the  $f^2$  value  $> 0.32$  (Cohen, 2013).

### 7.7.7 Moderating Effects

Moderating effects occur when a variable affects the direction and/or strength of the relationship between the independent and dependent variables (Baron and Kenny, 1986). When a moderating effect is present, it can (i) increase the effect of the predictor on the outcome, (ii) decrease the effect of the predictor on the outcome, or (iii) reverse the effect of the predictor on the outcome (Dawson, 2014). In this study, organisational structure capability (OS) was tested as a moderator that may or may not have effects on the relationships between key capabilities and value co-creation (VCC). To test the

moderating effect of organisational structure (OS) capability, the study conducted the analysis using PROCESS Version 3.5 on SPSS. According to Hayes (2017), PROCESS is a tool that examines the regression paths of moderation models. Within PROCESS, the study further conducted a simple slope analysis to understand the regression of the predictor on the dependent measure for low, average and high levels of the moderating variable. Comparing the slopes in terms of their significance and values of beta allowed better understanding of the moderating influence on the prediction of key capabilities and value co-creation (Field, 2013).

To confirm this significant moderating effect, the study further conducted multi-group analysis using SmartPLS. It followed a proportional split method to determine the cut-off point for group categorisation between SMEs with low and high organisational structure capability (DeCoster, Gallucci and Iselin, 2011). Although a number of studies consider median split as a valuable analytic technique when analysing the moderating effect using multi-group analysis in SmartPLS (Iacobucci *et al.*, 2015), it can be limited in non-normally distributed datasets (Cohen, 1983) and may cause Type 1 and Type 2 errors (McClelland *et al.*, 2015). Unlike median split, group categorisation in a proportional split can be based on the values above or below the median, depending upon the focus of the study (DeCoster, Gallucci and Iselin, 2011). In this study, the focus is on SMEs that adopt decentralised organisational structures in order to support the process of value co-creation with customers for greater innovativeness. Using a 7-point Likert scale, the study only focuses on responses with scores above 4 in the organisational structure capability construct. Hence, the proportional split method is more suitable as it employs group categorisation based on scores that are above the average to ascertain those that match the targeted population of the study; i.e., above and below scores of 5.5. A 'low' group is categorised with scores between 4 and 5.4 and a 'high' group with ones between 5.6 and 7.

### **7.7.8 Unobserved Heterogeneity**

Unobserved heterogeneity occurs when there exist sub-groups of data, which have potential effects on the estimation of the model (Sarstedt *et al.*, 2020). In such a case, estimating the model based on the entire dataset is more likely to produce misleading results (Sarstedt, Ringle and Hair, 2017). Latent class techniques can be used to identify and assess unobserved heterogeneity in PLS-SEM using finite mixture PLS (FIMIX-PLS) (Sarstedt, 2008). FIMIX-PLS produces model selection criteria that guide decisions on how many segments to retain from the data (Hair Jr *et al.*, 2016). Studies need to run FIMIX-PLS to ascertain whether unobserved heterogeneity is an issue or not (Matthews *et al.*, 2016). Once the results of FIMIX-PLS are obtained, a set of criteria need to be followed. First, studies need to consider the modified Akaike's information criterion with factor 3 (AIC<sub>3</sub>) and consistent AIC (CAIC) (Bozdogan, 1987). In addition, the modified AIC with factor 4 (AIC<sub>4</sub>) should be consistent with the Bayesian information criterion (BIC) to determine the number of segments (Sarstedt, Henseler and Ringle, 2011). Second, studies need to decide the number of segments based on (i) their fuzziness, expressed by the higher value of the entropy statistic (EN), and (ii) the segment size (Ramaswamy *et al.*, 1993). Based on these criteria, if the metrics point to a one-segment solution or produce divergent results, it can be concluded that unobserved heterogeneity is not present and does not significantly affect the data (Sarstedt, Ringle and Hair, 2017).

## CHAPTER 8: QUANTITATIVE ANALYSIS AND RESULTS

In Chapter 7, the research methodology and research design were discussed, including the sample size, key informants, pre-testing, data collection and analysis procedures, as well as CMB and endogeneity. The data collected from the studied sample varied widely in terms of the characteristics of the respondents and firms. Due to the nature of the self-administrated questionnaire used in the research, an issue of response error also arose, as the researcher had no control over the questionnaire completion (Highman, 1955). To control this response error, data screening techniques were required, including descriptive statistics, treatment of missing data and identification of outlier cases to assess the quality of the data. In this chapter, the profiles of the respondents and participating firms are explored in the following sections as part of the data assessment, along with sample characteristics, data screening, measurement model assessment and structural model fit. In other words, this chapter explains the outcomes of the quantitative data collection.

### 8.1 Respondent and Firm Profiles

Based on the sample demographics, the respondent and firm characteristics varied greatly (Morgan and Hunt, 1999). The respondents' job position and years of experience in their organisation were relevant personal data required for the study. In addition, type of industry, years of operation in the industry, number of employees and the use of social media in the organisation were relevant characteristics of the firms. Although the demographic information has no impact on the level of analysis in the study, it may provide a generalised view in terms of the role and length of experience of the respondents in the SMEs aiming to achieve value co-creation for innovation, specifically in developing countries. Table 8.1 shows that 89.7% of the key informants in the survey were in key decision-making positions, as owners, founders, managers or senior employees. The other 10.3% were junior employees and other job-related employees (e.g. marketing employees, social media employees, family members and solo entrepreneurs) who played a key role in interacting with customers on social media. The overall position of the key informants therefore provided a high profile of participation in the survey, resulting in quality data (Thomson *et al.*, 1999). In terms of years in experience, the mean score is 1.21, which translates into an average of 2.5 years working in the organisation. 70.6% of the respondents had more than two years' employment experience. The results indicate that most of the respondents were experienced in social media marketing and technology-enabled value co-creation.

**Table 8.1: Profile of the respondents**

Demographic factors	Frequency	Percent
<b>Job position</b>		
Owner/Founder/Co-founder	149	73.0%
Manager	20	9.8%
Senior employee (2-5 years' experience)	14	6.9%
Junior employee (0-2 years' experience)	10	4.9%
Others	11	5.4%
Total	204	100%
Missing	0	
Total	204	
Mean = 0.60, S.D. = 1.151		
<b>Length of experience</b>		
Less than 2 years	60	29.4%
2-5 years	66	32.4%
5-10 years	53	26.0%
Over 10 years	25	12.3%
Total	204	100%
Missing	0	
Total	204	
Mean = 1.21, S.D. = 1.002		

In addition, firm characteristics are an integral part of the data analysis in order to categorise the participating SMEs. Based on the quantitative analysis, around 51% of the SMEs were operating in the manufacturing sector, with 49% in the service sector. These results represent the segmentation of manufacturing (58%) and service (41%) industries in Thailand (OSMEP, 2020). Table 8.2 presents an overview of the SME characteristics across manufacturing and service industries, including years of operation (firm age), firm size and the extent of value co-creation activities on social media. 22.1% of the SMEs sampled had more than ten years' experience of operating their businesses on social media in relation to value co-creation. 54.9% had more than two years' experience and 23.0% had less than two years' experience of using social media for value co-creation. The mean score of firm age was 1.48, which translates into approximately 3 years in the respective industries. These findings show that the sampled SMEs were experienced, thus providing a high profile of participation in the survey and giving insights into the key capabilities supporting an e-transition model of value co-creation for innovation.

Moreover, the respondents were asked to give the number of employees in their organisation for classification purposes, and these data were categorised using the Ministry of Industry of Thailand classification of SME size. A classification of SMEs was provided based on the number of employees within the organisation. A firm was defined as 'micro' if it employed fewer than ten employees; 'small' if it employed 10-49 employees and 'medium' if there were 50-200 employees in the organisation. Based on this classification, Table 8.2 demonstrates that most SMEs participating in the survey were micro (63.2%), whilst 23.5% were small and 13.2% medium. Specifically, it was found that there was little

difference in the number of micro firms who participated in the survey across the two industries. That is, the number was equally distributed across the manufacturing and service industries. However, 58.3% of small firms operated in the service sector and 63.0% of medium firms were in manufacturing businesses.

In addition, the sampled SMEs varied in the degree of value co-creation activities with customers on social media. Around 51% organised a high number of such activities, 32.4% a medium level and 16.7% a low level. The different degrees of value co-creation provide insights into the amount of time SMEs spend learning about customers and involving them in multiple interactions aimed at innovation (Verma *et al.*, 2012). Specifically, service firms widely co-create with customers using social media, compared to those operating in the manufacturing industry. Due to the nature of service firms, SMEs are more likely to interact with customers in order to provide quality services and customer experiences. On the other hand, manufacturing firms are less likely to spend time on daily customer interactions, but instead create various activities from time to time to generate insights for greater innovation. The average degree of value co-creation was 6.30.

**Table 8.2: Profile of the firms**

Firm characteristics	Manufacturing		Service		Total	
	No.	Percent	No.	Percent	No.	Percent
<b>Years of operation</b>						
Less than 2 years	13	12.5%	34	34.0%	47	23.0%
2-5 years	36	34.6%	22	22.0%	58	28.4%
5-10 years	27	26.0%	27	27.0%	54	26.5%
More than 10 years	28	26.9%	17	17.0%	45	22.1%
Total	104	100%	100	100%	204	100%
Mean	1.67		1.28		1.48	
SD = 1.076						
<b>Firm size (No. of employees)</b>						
Micro firms (< 10 employees)	67	64.4%	62	62.0%	129	63.2%
Small firms (10-49 employees)	20	19.2%	28	28.0%	48	23.5%
Medium firms (50-200 employees)	17	16.4%	10	10.0%	27	13.2%
Total	104	100%	100	100%	204	100%
Mean	0.52		0.48		0.50	
SD = 0.719						
<b>Value co-creation on social media</b>						
High	58	55.8%	46	46.0%	104	51.0%
Average	30	28.9%	36	36.0%	66	32.4%
Low	16	15.4%	18	18.0%	34	16.7%
Total	104	100%	100	100%	204	100%
Mean	6.37		6.23		6.30	
SD = 0.840						

**Note:** No. = Number of responses; SD = Standard deviation

Table 8.3 further illustrates the use of social media platforms in value co-creation with customers in SMEs. It demonstrates how different social media platforms are used to conduct different degrees of value co-creation with customers. Based on the results, Facebook is the most common social media platform (40.0%), followed by Instagram (32.0%), Line (13.0%), YouTube (6.9%), other social media platforms (e.g. TikTok and LinkedIn) (4.5%) and Twitter (3.7%). Although Facebook is the most common means used by SMEs to connect with customers and engage them in value co-creation activities for innovation, it often supports a lower degree of such co-creation (43.8%), while Instagram is used for higher and average levels of value co-creation (about 32%). This shows a shift in the trend from using Facebook to Instagram for value co-creation in SMEs in developing countries. In other words, Instagram is preferred in terms of customer interactions aimed at value co-creation for innovation.

The Line application is another common platform used in SMEs in Thailand, but is likely support a lower degree of value co-creation (17.8%). Due to its limited features, Line (a chat platform) only supports information exchange via messaging, photo and video sharing, and voice recording, while social media platforms such as Facebook and Instagram provide additional features, including likes, comments and private messaging. Engaging customers in value co-creation via Line often requires close relationships in order to maintain continuous interactions with them. This therefore limits firms' ability to engage customers at a higher level of value co-creation. On the other hand, other platforms, such as LinkedIn, are used to support a low level of value co-creation with customers (6.7%).

**Table 8.3: SMEs' social media platforms for value co-creation with customers**

Social media platform	Degree of value co-creation with customers							
	High		Average		Low		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Facebook	98	38.6%	55	40.4%	32	43.8%	185	40.0%
Instagram	83	32.7%	44	32.4%	21	28.8%	148	32.0%
Twitter	10	3.9%	6	4.4%	1	1.4%	17	3.7%
YouTube	17	6.7%	10	7.4%	5	6.8%	32	6.9%
Line	29	11.4%	18	13.2%	13	17.8%	60	13.0%
Others	17	6.7%	3	2.2%	1	1.4%	21	4.5%
Total	254	100.0%	136	100.0%	73	100.0%	463	100.0%

Although there was no hypothesised relationship between the social media platforms used and value co-creation activities, the information in Table 8.3 partially supports the theoretical argument given in Section 2.6, that different social media affordances support different degrees or aspects of value co-creation (Treem and Leonardi, 2013). Specifically, each social media platform provides different sets of social media affordances, which enable SMEs to facilitate different types of customer value co-creation. Social media, such as Facebook and Instagram, which provide the chance to like, comment (or meta-voicing), receive notifications (or triggered attending), create hashtags (or network-informed associating) and send private messages (or generative role taking) are likely to enable SMEs to organise a varying degree of value co-creation activities. However, Line provides limited affordances (e.g. messages and notifications), which only facilitate a lower level of value co-creation with customers. Put briefly, the characteristics of each social media platform determine firms' ability to connect, collaborate and co-create value with customers for greater innovation. Hence, such findings provide additional insights into current theorising on technology-enabled value co-creation and social media marketing.



## 8.2 Non-Response Bias

The study further conducted a test on non-response bias by comparing early to late respondents in relation to all the study variables (Armstrong and Overton, 1977). The results show that 60.8% were early responses and the remaining 39.2% were classified as late responses. Table 8.4 summarises the mean, standard deviation and t-values of early and late responses in order to minimise any non-response bias. It is shown that there are no differences between early and late responses in any of the variables, apart from technology adaptive capability, management system adaptive capability and organisational innovativeness. The p-values of technology adaptive capability, management system adaptive capability and organisational innovativeness were 0.006, 0.020 and 0.049 respectively, which indicates that there were significant differences between early and late responses ( $p \leq 0.05$ ) for all the variables. The study further conducted non-response bias assessment of individual constructs that were found to be significant in order to further gain insights into such outcomes and their effects on the overall data analysis.

**Table 8.4: Assessment of non-response bias**

Item	Early responses (N=124)		Late responses (N=80)		t-value
	Mean	Standard deviation	Mean	Standard deviation	
TA	5.97	0.666	5.90	0.869	0.650*
MA	6.07	0.725	5.88	0.829	1.728
MSA	5.88	0.818	5.93	1.034	-0.315*
IG	5.79	0.843	5.68	0.965	0.879
ID	5.62	0.975	5.51	1.084	0.771
RP	5.67	0.857	5.57	1.085	0.672
OS	5.69	0.882	5.74	0.845	-0.398
VCC	5.58	1.047	5.48	1.000	0.742
OI	6.11	0.763	5.93	0.809	1.516*

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness; \* indicates a t-value with a significant p-value ( $p < 0.05$ )

To further assess the non-response bias, the study specifically examined the mean, standard deviation and t-values of all the items under technology adaptive capability, management system adaptive capability and organisational innovativeness. As shown in Table 8.5, it was found that out of the five items, one item (TA2) was found to be statistically significant in the differences between early and late responses; its p-value was 0.000 ( $p < 0.05$ ). For example, early responders were more likely to agree to the ability to monitor technological changes. On the other hand, late responders only somewhat agreed on this specific aspect of technology adaptive capability. Specifically, the answers of the late responders were more likely to range from disagree to agree. That is, some of the late responders strongly believed that it was not always necessary to monitor technological changes, as technologies keep changing (Day and Lloyd, 2007). For example, start-ups (31%) were less likely to agree with the importance of monitoring technological changes. On the other

hand, small (85%) and medium (77%) firms believed that developing the ability to monitor technological changes would enable them to better co-create with customers. The possible reason for this outcome is that start-ups tend to have fewer resources compared to small and medium firms in terms of financial, technical and human resources. However, although TA2 are statistically different, the differences are relatively small and generally would not affect the overall interpretation of the results (Bradburn *et al.*, 1979).

**Table 8.5: Assessment of non-response bias for technology adaptive capability**

Item	Early responses (N=124)		Late responses (N=80)		t-value
	Mean	Standard deviation	Mean	Standard deviation	
TA1	6.14	0.769	5.90	0.989	1.919
TA2	6.03	0.764	5.86	1.052	1.246*
TA3	6.14	0.758	6.05	0.913	0.739
TA4	5.99	0.950	5.99	0.974	0.032
TA5	5.57	0.973	5.70	1.174	-0.842

**Notes:** TA = Technology adaptive capability; \* indicates a t-value with a significant p-value ( $p < 0.05$ )

Furthermore, the study examined the mean, standard deviation and t-values for the three items under management system adaptive capability (Table 8.6). It was found that two items associated with firms' ability to be flexible and to evolve rapidly in response to shifts in business proprieties (MSA2 and MSA3) were significant in the differences between early and late responses. Their p-values were 0.044 and 0.002 respectively ( $p < 0.05$ ). Specifically, early responders were more likely to agree with the ability to be flexible and evolve rapidly in response to shifts in business proprieties. On the other hand, the answers from late responders were spread out from strongly agree to disagree. A possible reason for this is that late responders consisted of a higher proportion of young SMEs (firm age  $\leq 5$  years) (56.3%), while around 51.2% of early responders had more than 5 years' experience in the industry. Due to the age of the firms, it is possible that young SMEs are more likely to evolve rapidly, compared to mature SMEs, due to their flexibility in management and structure. Although MSA2 and MSA3 were found to be statistically significant, the differences between early and late responses were very small and generally would not have an effect on the estimation (Bradburn *et al.*, 1979). In other words, the data should accurately reflect the opinions of the respondents in the survey.

**Table 8.6: Assessment of non-response bias for management system adaptive capability**

Item	Early responses (N=124)		Late responses (N=80)		t-value
	Mean	Standard deviation	Mean	Standard deviation	
MSA1	5.71	1.125	5.86	1.177	-0.930
MSA2	5.93	0.981	6.03	1.147	-0.627*
MSA3	6.01	0.870	5.89	1.158	0.797*

**Notes:** MSA = Management system adaptive capability; \* indicates a t-value with a significant p-value ( $p < 0.05$ )

Finally, the study also examined the mean, standard deviation and t-values for the three items under organisational innovativeness. Although it was found that in this category, there were significant differences between early and late responses. Table 8.7 shows that the mean values of each item under organisational innovativeness were very similar, given that all three items had  $p > 0.05$  (0.078, 0.786 and 0.524 respectively). Therefore, it can be viewed that such differences are minimal and would not affect the estimation.

**Table 8.7: Assessment of non-response bias for organisational innovativeness**

Item	Early responses (N=124)		Late responses (N=80)		t-value
	Mean	Standard deviation	Mean	Standard deviation	
OI1	5.93	0.921	5.70	0.973	1.684
OI2	6.09	0.937	6.00	0.900	0.670
OI3	6.30	0.796	6.10	0.836	1.704

*Notes: OI = Organisational innovativeness; \* indicates a t-value with a significant p-value ( $p < 0.05$ )*

### 8.3 Examination of Data Entry and Missing Data

In examining the completeness of the returned questionnaires, all entries were verified case by case, followed by a second check by a number of statistical tests (e.g. frequency distribution, mean and standard deviation) to identify any missing data due to mistakes in responses and/or data entry. Based on the process of examination and testing, it was found that there was no missing data. This outcome is possible due to the questionnaire design, as it is considered the main tool for reducing the level of missing data in a survey (De Leeuw, 2001). During the questionnaire design process, this study adopted a forced answering option to ensure that the questions were carefully read and completed before moving on to the next question. Although some scholars argue that using a forced answering option may lead to a higher non-response rate (Sischka *et al.*, 2020), in this case it was revealed that there were no significant differences between early and late responses overall (see Table 8.4). Instead, the study was able to reduce the number of overlooked questions. That is, the required responses allowed the respondents to be more careful when answering the questions in terms of noticing their mistakes and providing adequate responses before moving to the next questions, thus reducing missing data and generating quality responses (Pierre Décieux *et al.*, 2015). Hence, in this study, no missing data were found and all 204 responses could be used to further assess normality and outliers.

### 8.4 Assessment of Normality and Outliers

The study conducted a descriptive statistics test to assess normality and outliers within the dataset. The univariate normality was evident in all the manifest variables, as the skewness and kurtosis scores for all the constructs were within the maximum level of normality range ( $\leq 3$ ), apart from one manifest variable (TA4), which was found to have kurtosis score of 3.607 (see Appendix 18). These results show that TA4 is leptokurtic, which indicates that it is a possible for

outliers to be present in the dataset. Specifically, it is more likely that the responses in this particular question may be prone to extreme values, resulting in inconsistent estimation. Therefore, it was necessary to further assess the outlier cases to ensure that the quality of the data was not distorted (Tabachnick and Fidell, 2001). However, some scholars argue that the data should be considered as non-normal when the z-value exceeds 3.29 if the sample size is medium ( $n < 300$ ) (Kim, 2013).

Furthermore, the study conducted tests for outliers among the independent variables. This process was preceded by identifying univariate outliers using standardised z scores of  $\pm 3$  (Hair *et al.*, 2009) and multivariate outliers using Mahalanobis distances greater than  $p < 0.001$  (Tabachnick, Fidell and Ullman, 2007). Based on the analysis, the statistical results reveal eighteen cases of univariate and multivariate outliers. These cases were checked one by one to interpret the results and their effects on generalisability. It was found that six cases were less likely to actively organise value co-creation activities with customers on social media for innovation, while five were more likely to adopt formalised or centralised organisational structures, rather than a decentralised one, which is the focus in this study. The other four outlier cases were due to the respondents being less likely to focus on the development of the capabilities studied. This is possibly due to the strong beliefs of the respondents concerning these key issues. Since the study aims to understand the key capabilities required to support value co-creation for innovation, cases that are less likely to focus on key capabilities and with limited value co-creation and innovation activities may limit the findings of the study. Therefore, fifteen cases were removed because they did not represent the targeted population of the study (Filzmoser, 2004).

Three outlier cases were caused by their natural variability (Pollet and van der Meij, 2017). One possible reason to explain this is the respondents' current situations and strong beliefs regarding the observed relationships of organisational adaptive capabilities and e-marketing capabilities on value co-creation for innovation. For example, some cases disagreed on the significance of firms' ability to capture and apply technological capabilities and achieve technological complementarity, while believing that other aspects of technology adaptive capabilities were still important for value co-creation. This explanation also applies to other variables (e.g. information dissemination and responsiveness) on which the respondents had strong beliefs that some of their aspects might not be as important as others. As recommended by Hair *et al.* (2009), these specific three outlier cases were maintained within the dataset, as they might provide interesting insights into the results of the analysis (Tabachnick and Fidell, 2001) and beyond the theoretical expectations (Hair Jr *et al.*, 2016). Although some scholars argue that maintaining outlier cases may lower the statistic power (Hair *et al.*, 2009), the scores of KMO and Barlett's test and communalities confirm an improvement in sampling adequacy with the three outlier cases maintained (i.e. an increase from 0.887 to 0.893). Therefore, 189 valid cases were kept, with eight independent variables. This sample size satisfies the minimum recommended ( $N \geq 150$ ) for structural model analysis, specifically PLS-SEM, by Kock and Pierre (2018).

Therefore, the process of sample validation, respondent and firm profiles, non-response bias, examination of the data entry, patterns and missing data, and assessment of normality and outliers have been reported in this section. As shown, there were initially 204 responses (response rate 29.6%), which were used to report the profiles of the respondents and firms. These responses were then used to screen the data, with no missing data found. In addition, the assessment of normality showed no effects on the findings of the analysis, but eighteen cases of univariate and multivariate outliers ( $p > 0.001$ ) were identified. Fifteen cases were excluded from the data, while three were retained due to their natural variability. Therefore, the final sample size was 189, which was used in the confirmatory factor analysis and structural model testing.

## **8.5 Exploratory Factor Analysis**

To validate the item scales in the questionnaire, exploratory factor analysis (EFA) was conducted to examine the appropriateness of the items and the dimensionality of the constructs (Netemeyer, Bearden and Sharma, 2003). The EFA process was completed using SPSS software. The following sections explain the process step by step and discuss the results obtained from each of these. In relation to the discussion in Chapter 7 (Section 7.7.4), the related findings are reported.

### **8.5.1 Extraction method**

To assess the EFA analysis, PFA was adopted to analyse the relationship between the individual item variances and the common variances shared between items (or communality) using maximum likelihood. According to Child (2006), if items have communality scores lower than 0.2, this indicates additional factors and they should be removed from the dataset before proceeding to the next step. The initial item communalities obtained using maximum likelihood, which range between 0.334 and 0.893 (see Appendix 19). All the item communalities were found to be greater than 0.2, so were considered acceptable and suitable for EFA.

### **8.5.2 Multicollinearity**

To explore the factorial structure, all 43 items of the instruments were subjected to EFA using the Pearson bivariate correlation of all items to identify any multicollinearity in the dataset. Based on the analysis, three items were found to have bivariate correlation scores greater than 0.7 (VCC3, VCC5 and OI2). However, organisational innovativeness (OI) already met the minimum criteria, having at least three non-cross-loading items with acceptable loading scores (Hair *et al.*, 2010). Therefore, only two items (VCC3 and VCC5) were removed to eliminate multicollinearity. After eliminating multicollinearity, the remaining 41 items were carried forward to the next stage.

### **8.5.3 Rotation Method**

To identify the suitable rotation method, the 41 items of the instrument were subjected to both orthogonal and oblique rotation methods to observe the differences between the studied factors before deciding the method. The study first conducted factor rotation using oblique techniques (Promax). It was found that the correlations of the factors were less likely to be driven by the data, so the study proceeded to the orthogonal method (Varimax). As recommended by Tabachnick and Fidell (2007), if factor correlations exceed 0.32, it is most likely that the orthogonal method is more suitable. In this case, most factors did exceed 0.32 (just one factor had a loading below 0.32), so therefore orthogonal (Varimax) rotation was the final solution (Reise, Waller and Comrey, 2000). In other words, the study was able to produce

findings that could be replicated in future studies, since it could be said that there was less sampling error in the orthogonal rotation (Kieffer, 1998).

#### 8.5.4 Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity

The study conducted Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity to verify the sampling adequacy and suitability of the respondent data for factor analysis. The initial EFA showed  $KMO = 0.894$ , and Bartlett's test for sphericity  $\chi^2 (820) = 4342.47$ ,  $p = 0.000$ , indicating that the correlation structure was adequate. The maximum likelihood factor analysis with a cut-off point of .30 and the fixed number of nine factors yielded 65.99% of variance. Based on the results of the initial EFA analysis, five items were deleted due to cross-loadings and low loading scores ( $< 0.30$ ). After removing these, the average communality was 0.593, indicating an acceptable score. That is, the average communality for a sample size of between 100-200 should be between 0.5 and 0.6 (MacCallum *et al.*, 1999).

The study also compared the Cronbach's alpha of the initial factor and the following one after removing cross-loading items. The results showed that Cronbach's alpha decreased from 0.944 to 0.935. However, when observing it for each construct, it was found that: (i) removing an item (MA5) from market adaptive capability increased Cronbach's alpha from 0.832 to 0.843; (ii) removing one item (RP3) from responsiveness reduced the score of Cronbach's alpha from 0.803 to 0.788, while the elimination of two items reduced the score to 0.759; (iii) removing two items (OS1 and OS2) resulted in the same score of Cronbach's alpha as the initial score (0.854), while removing one item (OS2) increased it to 0.855; and (iv) removing two items (VCC3 and VCC5) decreased Cronbach's alpha from 0.860 to 0.744 (Table 8.8). Finally, the 36-item structure was found to explain 68.78% of the variance (Table 8.5). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, at  $KMO = 0.888$  and Bartlett's test for sphericity  $\chi^2 (630) = 3750.57$ ,  $p = 0.000$ , indicating that the correlation structure was adequate for factor analysis.

**Table 8.8: Summary of the EFA analysis**

Item	Factor loading	Cronbach's Alpha	Eigenvalue	% of variance explained
<b>Market adaptive capability</b>				
MA1	0.656	0.843	1.958	5.44%
MA2	0.665			
MA3	0.721			
MA4	0.437			
<b>Technology adaptive capability</b>				
TA1	0.718	0.852	11.694	32.49%
TA2	0.749			
TA3	0.697			
TA4	0.557			
TA5	0.668			

**Management system adaptive capability**

MSA1

MSA2

MSA3

0.389	0.783	1.110	3.08%
0.917			
0.466			

**Information generation**

IG1

IG2

IG3

0.466	0.769	0.945	2.63%
0.841			
0.384			

**Information dissemination**

ID1

ID2

ID3

ID4

0.704	0.810	2.160	6.00%
0.735			
0.579			
0.404			

**Responsiveness**

RP1

RP2

RP5

RP6

0.537	0.759	1.421	3.95%
0.480			
0.661			
0.562			

**Organisational structure capability**

OS3

OS4

OS5

OS6

OS7

OS8

0.488	0.854	2.687	7.46%
0.522			
0.691			
0.833			
0.696			
0.675			

**Value co-creation**

VCC1

VCC2

VCC4

VCC6

0.581	0.744	1.555	4.32%
0.701			
0.650			
0.485			

**Organisational innovativeness**

OI1

OI2

OI3

0.506	0.840	1.230	3.42%
0.823			
0.656			

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness

### 8.5.5 Eigenvalues

Based on the analysis, it was found that the eigenvalues were all above 1, apart from one, information generation = 0.945 (Table 8.8). According to the 'eigenvalue greater than one' rule, the information generation construct needed to be removed. However, as most scholars highlight the limitation of such a rule, it was decided to retain the construct to avoid under or overestimation. Although most marketing scholars do follow the 'eigenvalue greater than one' criterion (Ledesma and Valero-Mora, 2007), Patil et al. (2008) argue that such a rule gives '*an unwarranted air of legitimacy and the researchers a false sense of security*' (p. 167). That is, the use of the eigenvalue greater than one rule often results in over extraction, which leads to under or overestimation, as well as the development of limited theories (Velicer, Eaton and Fava, 2000). Instead, researchers highlight measures of model fit as alternative options for determining the optimal number of factors to be retained (Fabrigar *et al.*, 1999). Specifically, the factor structure can be further assessed using CFA, which allows for modification of constructs and/or item loadings (Brown and Moore, 2012).

Although the EFA results using Harman's single-factor test show an adequate correlation structure, Baumgartner, Weijters and Pieters (2021) strongly argue that Harman's single factor test is not an effective tool to detect CMB. That is, it often has limited effectiveness in detecting the presence of CMB in terms of false positive and/or negative scores (Aguirre-Urreta and Hu, 2019). Some suggest confirmatory factor analysis (CFA) as an effective alternative way of measuring model structure (Choi and You, 2017). EFA is often conducted as an exploratory or descriptive data technique to determine the appropriate number of common factors in the process of scale development and construct validation (Suhr, 2006). On the other hand, CFA focuses on examination of the established underlying structure based on prior empirical and theoretical backgrounds, using pre-specified factors to evaluate the model fit (Brown and Moore, 2012). Therefore, CFA was further conducted to confirm the established measurements and relationships of the latent variables (Choi and You, 2017). The process of measurement development (CFA) is discussed in Section 8.6.

### 8.5.6 Communalities

Based on the EFA analysis, it was found that individual communalities scores for each item ranged between 0.3 and 0.9 (see Appendix 20). This shows that all the items retained met the minimum criterion for communality (individual communality > 0.2) and represented their respective constructs (Child, 2006). The average communality score was 0.593, which was considered adequate for this research. Specifically, the average communality score shows that around 59% of variance is explained when regressing the reflective indicators on their latent variables (Fornell and Larcker, 1981).

## 8.6 Measurement Model Assessment

The study conducted PLS-SEM using the bootstrapping method (Henseler, Hubona and Ray, 2016). The following sections examine the measurement model assessment to evaluate the validity and reliability of the constructs using PLS-SEM. The following sections discuss the tests used to assess the measurement model, including individual manifest reliability, construct reliability, bivariate correlations, convergent validity and discrimination validity. Reliability tests



(Cronbach's alpha and composite reliability tests) examine the internal consistency of the items used in the measurement to determine whether each observed variable should be retained or excluded. Validity tests (convergent and discrimination validity tests) examine the extent to which measurement scales represent a construct (Zhu, 2000), while bivariate correlations provide insights into the extent to which each measure construct correlates with another to assess the measurement model (Swank and Mullen, 2017).

### 8.6.1 Internal Consistency Reliability

Based on the criteria (discussed in Section 7.7.5), the measurement model was evaluated using a CFA process to discard the weak manifest variables (or items) from the model. The process of eliminating these included discarding items with bivariate correlation scores higher than 0.7 and reviewing items with outer loading values of less than 0.7 (Henseler, Ringle and Sarstedt, 2012). With such criteria, effective elimination of weak manifest variables can be made, and manifest and composite construct reliability tests can be conducted to guide whether or not to incorporate or delete the item(s) from the model (Anderson and Gerbing, 1988). Table 8.9 summarises the initial and final iterations, including outer loadings, composite reliability and Cronbach's alpha, showing that ten items were eliminated.

**Table 8.9: Summary of measurement model assessment**

Items	Initial iteration			Final iteration		
	Loadings	Cronbach's alpha	CR	Loadings	Cronbach's alpha	CR
MA1	0.644	0.834	0.836	0.672	0.847	0.846
MA2	0.748			0.784		
MA3	0.733			0.773		
MA4	0.781			0.811		
MA5	0.638			-		
TA1	0.703	0.864	0.864	0.704	0.864	0.864
TA2	0.729			0.738		
TA3	0.807			0.815		
TA4	0.755			0.742		
TA5	0.740			0.735		
MSA1	0.763	0.808	0.807	0.773	0.808	0.806
MSA2	0.683			0.681		
MSA3	0.838			0.828		
IG1	0.669	0.787	0.786	0.672	0.787	0.786
IG2	0.701			0.697		
IG3	0.849			0.850		
ID1	0.739	0.814	0.814	0.736	0.814	0.815
ID2	0.744			0.746		

ID3	0.687			0.689		
ID4	0.722			0.722		
RP1	0.535	0.812	0.808	na	0.759	0.760
RP2	0.755			0.720		
RP3	0.563			0.549		
RP4	0.835			0.784		
RP5	0.495			na		
RP6	0.639			0.593		
OS1	0.750	0.856	0.849	0.730	0.804	0.803
OS2	0.691			na		
OS3	0.662			0.652		
OS4	0.756			0.733		
OS5	0.628			0.603		
OS6	0.478			na		
OS7	0.657			0.630		
OS8	0.489			na		
VCC1	0.639	0.860	0.856	na	0.708	0.703
VCC2	0.669			0.603		
VCC3	0.625			na		
VCC4	0.691			0.619		
VCC5	0.762			na		
VCC6	0.837			0.765		
OI1	0.770	0.845	0.845	0.724	0.735	0.737
OI2	0.782			na		
OI3	0.857			0.803		

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness; na = not available

In the initial iteration shown in Table 8.9, all the constructs showed good reliability scores. However, when considering individual items, it was found that ten did not meet the criteria. For example, three items (VCC3, VCC5 and OI2) had bivariate correlation scores higher than 0.7, so were removed to eliminate multicollinearity. Although scholars suggest obtaining at least three items per construct (Hair *et al.*, 2010), it is still acceptable to have fewer than three when such items are highly correlated with each other (Yong and Pearce, 2013). In addition, seven items were found to have outer loading values of less than 0.7 and were individually reviewed before being eliminated (Henseler, Ringle and Sarstedt, 2012). For instance, eliminating MA5 improved its composite reliability score from 0.836 to 0.846. In addition, the elimination of other items (RP1, RP5, OS2, OS6, OS8, VCC1, VCC3, VCC5 and OI2) might have reduced their composite reliability, as their scores are all greater than 0.70, which shows satisfactory internal consistency within the constructs (Hair *et al.*, 2019). Therefore, 33 items remained in the measurement model (see Appendix 21).

Once the iteration process was completed, the final model was checked for convergent and discriminant validity. The following section discusses the bivariate correlation and construct validity, including the assessment of average variance extracted (AVE) for convergent validity and the heterotrait-monotrait (HTMT) ratio of the correlations for discriminant validity.

### 8.6.2 Bivariate Correlation

As shown in Table 8.10, all the constructs are significantly correlated with each other ( $p < 0.05$ ) in the proposed model. Specifically, the dependent variable (organisational innovativeness) is significantly correlated with all the independent variables, and these are all significantly correlated with each other. This shows that all the constructs affect each other in one way or another. The highest scores of the coefficients range between 0.624 and 0.629, whereas the lowest score is 0.257. Although scholars may consider that correlation scores below 0.3 indicate weak relationships (Akoglu, 2018), some argue that scores between 0.2 and 0.4 are moderate, and those below 0.2 weak (Altman, 1990). This low level of correlations between constructs is normally expected to explain discriminant validity of the measures; i.e., one variable cannot be used to explain another (Campbell and Fiske, 1959). Some of these correlations will also be highlighted and discussed in Chapter 9 in the interpretation of the hypothesis testing.

**Table 8.10: Bivariate correlation of all items**

	TA	MA	MSA	IG	ID	RP	OS	VCC	OI
TA	1								
MA	.624**	1							
MSA	.551**	.569**	1						
IG	.485**	.595**	.460**	1					
ID	.463**	.525**	.428**	.629**	1				
RP	.433**	.526**	.327**	.532**	.587**	1			
OS	.428**	.446**	.466**	.367**	.367**	.490**	1		
VCC	.257**	.344**	.341**	.322**	.370**	.452**	.378**	1	
OI	.486**	.518**	.525**	.359**	.487**	.399**	.430**	.485**	1
<i>N</i> = 189									

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness; \*\* indicates correlation scores with a significant  $p$ -value ( $p < 0.001$ )

### 8.6.3 Construct Validity

To assess convergent validity, the AVE was calculated for all items on each construct. AVE is a type of statistical analysis used to measure the amount of variance of a construct in relation to the amount of variance due to measurement error

(Bagozzi and Yi, 1988). An acceptable AVE is equal or greater than 0.5, which will explain that the construct explains at least 50% of the variance in its items (Hair *et al.*, 2019). Table 8.11 shows that the AVE scores of all the constructs ranged between 0.44 and 0.59, which explains that around 44-59% of the variance in the items can be used to explain their respective constructs. Although the threshold of AVE is 0.5 (Hair *et al.*, 2010), it is still acceptable to have AVE scores greater than 0.4 when the composite reliability is higher than 0.6 (Fornell and Larcker, 1981) (refer to Section 8.5.1). In this case, the constructs RP, OS and VCC have AVE scores of 0.447, 0.451 and 0.444 scores, but scores of 0.760, 0.803 and 0.703 scores for composite reliability. This shows that convergent validity is still acceptable and considered satisfactory.

**Table 8.11: AVE scores for all the constructs**

Construct	AVE	
	Initial	Final
MA	0.506	0.580
TA	0.559	0.559
MSA	0.583	0.583
IG	0.554	0.553
ID	0.523	0.524
RP	0.421	0.447
OS	0.418	0.451
VCC	0.500	0.444
OI	0.646	0.585

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness

Furthermore, the HTMT ratio of the correlations was measured in addition to AVE for discriminant validity. Although previous studies highlight squared inter-construct correlation (or the Fornell-Larcker criterion) as a measure of discriminant validity assessment (Henseler and Chin, 2010), the criterion is only suitable when the factor loadings are between 0.65 and 0.85 (Henseler, Ringle and Sarstedt, 2015), which is not the case in this study (refer to Section 8.6.1). Instead, HTMT measures the mean value of the item correlations across constructs in relation to the mean of the average correlations for items under the same construct (Henseler, Ringle and Sarstedt, 2015). Failure to do this has potential implications for research studies commonly found in marketing literature; i.e., a lack of discriminant validity raises questions as to whether statistically significant parameters are in fact supported by the data or are the results of the modelling of the same constructs twice (Campbell and Fiske, 1959). Therefore, the HTMT technique is considered best overall for detecting discriminant validity violations, as its basic mechanics are more comprehensive and less constrained, especially in variance-based SEM research in the marketing literature (Voorhees *et al.*, 2016). The key criterion for the HTMT test is that a value close to 1 is considered a discriminant validity violation, and a value of 0.90 is considered a cut-off (Henseler, Ringle and Sarstedt, 2015). To obtain the HTMT value, the study applied the bootstrapping method to test HTMT and found that the upper bounds (95% confidence interval) were all lower than 0.90, showing that discriminant validity was not present in the study (Henseler, Ringle and Sarstedt, 2015) (see Appendix 22).

#### 8.6.4 Common Method Bias (CMB) Remedies

As discussed in Chapter 7 (Section 7.7), CMB is considered a serious problem which affects the estimation of the measurement model (Spector, 1987). To control for it, the study conducted several tests, including Harman's single factor, correlation, validity and reliability tests. As discussed in Section 8.5.3, the results of Harman's single factor test show that none of the constructs account for more than 50% of the variance between the items and the criterion constructs. This shows that CMB is not present within the dataset (Podsakoff *et al.*, 2003). Furthermore, the study also generated a bivariate correlation matrix between all the constructs (refer to Section 8.6.2). The results of the bivariate correlations show that there is no sign of CMB, as the highest correlation is 0.6 (Vatcheva *et al.*, 2016). Although a number of scholars argue that Harman's single factor test and correlation matrix do not offer mechanisms to quantify and control CMB, the method still provides insights into the presence of CMB (Rodríguez-Ardura and Meseguer-Artola, 2020).

To further detect CMB issues, the study performed CFA analysis. Such analysis includes factor loadings, Cronbach's alpha, composite reliability, AVE and HTMT. Based on the analysis, it was found that all the validity and reliability tests were satisfactory; that is, all the measurement items represent their respective constructs well. Specifically, each factor loading was above 0.5, with Cronbach's alpha and composite reliability scores above 0.6. This shows that the reliability of the constructs is not affected by CMB. Moreover, AVE and HTMT show that there is no convergent or discrimination validity violations and so the estimation is not affected by CMB. In other words, the CFA analysis enabled the research to test the existence of CMB, to quantify to what extent it affects construct reliability, and to examine the sensitivity of the estimation of the construct correlation and CMB (Rodríguez-Ardura and Meseguer-Artola, 2020). In conclusion, no CMB problems were detected that may have had an effect on the estimation of the model, meaning the model could be used to further assess the strengths of the effects of the constructs, predictive accuracy and relevance to further gain insights and develop the best model fit.

#### 8.6.5 Non-Linearity Assessment

To test for potential non-linearity in the structural model relationships, Ramsey's (1969) RESET was used on the latent variable scores extracted from the original model's PLS-SEM algorithm using SPSS. Based on the analysis, it was found that the model was subject to non-linearity. Although some of the individual relationships were shown to be significant, e.g.  $MSA \rightarrow VCC$ ,  $RP \rightarrow VCC$  and  $VCC \rightarrow OI$ , the partial regression of the key capabilities (MA, TA, MSA, IG, ID, RP and OS) on VCC ( $F(179) = 1.288$ ,  $p = 0.278$ ) and the partial regression of VCC on OI ( $F(185) = 2.416$ ,  $p = 0.092$ ) were insignificant at the 5% significant level (Table 8.12).

**Table 8.12: Ramsey's RESET analysis**

Non-linear relationship	Coefficient	p-value	f <sup>2</sup>	Ramsey's RESET
MA→VCC	-0.059	0.514	-0.159	F(179) = 1.288, p = 0.278
TA→VCC	0.008	0.927	-0.019	
MSA→VCC	0.202	0.039*	0.105	
IG→VCC	-0.019	0.842	-0.015	
ID→VCC	0.056	0.540	0.028	
RP→VCC	0.285	0.021*	0.198	
OS→VCC	0.138	0.077	-0.008	
VCC→OI	0.520	0.000*	0.021	F(185) = 2.416, p = 0.092

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness; \* indicates  $p < 0.05$

To gain further insights into non-linearity, a test on the quadratic effect using SmartPLS was run, as suggested by Hair et al. (2018). With 5000 sample bootstrapping, the results show that out of seven relationships, the quadratic effects of six yield insignificant interactions, which indicates that the linear effects are robust (Table 8.13). However, one relationship (VCC → OI) was found to have a significant ( $p < 0.05$ ) and positive interaction effect. This means that the strength of the exogenous variable effect (value co-creation) increases in the exogenous variable higher values. The direct relationship between value co-creation and organisational innovativeness is not a straight line. Therefore, changes in organisational innovativeness do not change in direct proportion to changes in value co-creation.

**Table 8.13: Quadratic effect analysis**

Path relationship	Mean	SD	t-value	p-value
MA --> VCC	0.012	0.175	0.916	0.360
TA --> VCC	0.018	0.111	0.380	0.704
MSA --> VCC	-0.044	0.123	0.529	0.597
IG --> VCC	0.119	0.097	1.231	0.218
ID --> VCC	0.132	0.065	1.684	0.092
RP --> VCC	0.138	0.080	1.467	0.143
VCC --> OI	0.130	0.051	2.119	0.034

**Notes:** TA = Technology adaptive capability, MA = Market adaptive capability, MSA = Management system adaptive capability, IG = Information generation, ID = Information dissemination, RP = Responsiveness, OS = Organisational structure capability, VCC = Value co-creation, and OI = Organisational innovativeness

## 8.7 Structural Model Assessment

The study first conducted collinearity statistics (VIF) before proceeding with evaluation of the  $R^2$  values, to ensure that the regression results were not biased (Hair *et al.*, 2019). Based on the analysis, the VIF scores ranged from 1.280 to 2.250, showing that there was no collinearity within the structural model ( $VIF < 3$ ) (see Appendix 23). The study then obtained the  $R^2$  values to indicate the model's predictive accuracy. Based on the analysis, the  $R^2$  values were 0.541 for VCC and 0.556 for OI, indicating moderate predictive accuracy of the structural model. In particular, the endogenous constructs can be explained by around 55% of the variance. To assess the path coefficients, the study generated 5000 bootstrapping samples, as recommended by Efron and Tishirani (1994). The  $\beta$  value and t-value among all the paths were then compared.

As shown in Table 8.14, three out of the seven paths are significant ( $p < 0.05$ ):  $MSA \rightarrow VCC$ ,  $RP \rightarrow VCC$  and  $VCC \rightarrow OI$ . This implies that three paths have strong effects on the endogenous latent variable. The highest  $\beta$  value is 0.817 for the positive relationship between responsiveness (RP) and value co-creation (VCC). The other two relationships,  $MSA \rightarrow VCC$  and  $VCC \rightarrow OI$ , show path coefficients of 0.497 and 0.718 respectively. Furthermore, two significant constructs have some degree of predictive relevance ( $Q^2$ ); i.e.,  $MSA \rightarrow VCC$  with small relevance and  $RP \rightarrow VCC$  with moderate relevance. To ensure the quality of the prediction, the study also obtained the  $f^2$  values to gain insights into the effect size of the path estimations (Sarstedt, Ringle and Hair, 2017). The results show that five path models had small to large effect sizes. Out of these, two significant paths show moderate and large effect sizes ( $MSA \rightarrow VCC$  and  $RP \rightarrow VCC$  respectively). Such results therefore indicate that the significant relationships can be used to explain the model, as the predictor relevance and quality are acceptable.

**Table 8.14: Summary of structural model assessment**

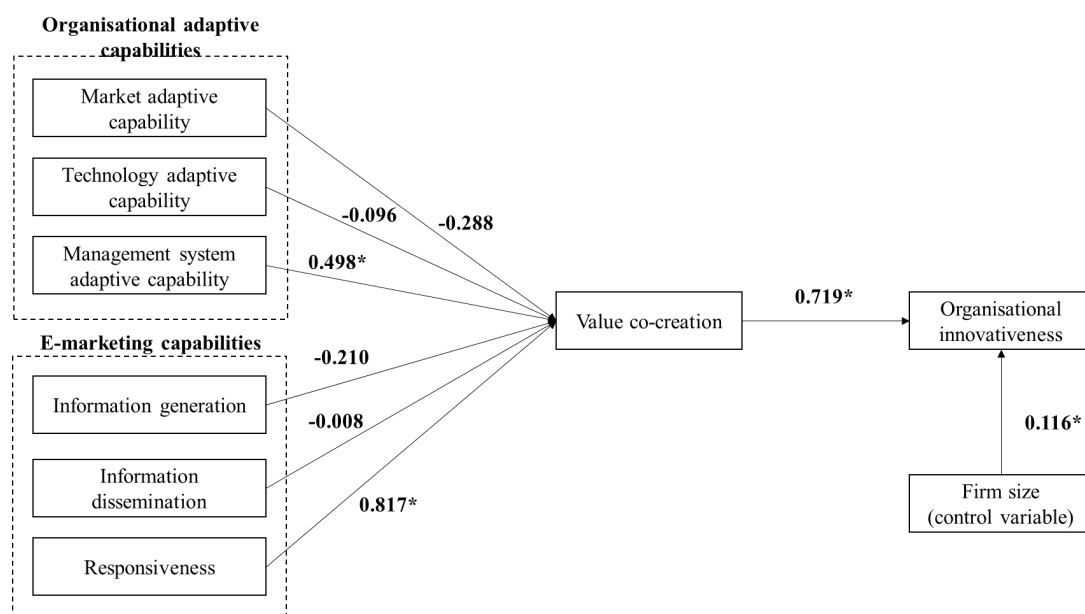
Construct	Path coefficient	t-value	$Q^2$	$f^2$
$MA \rightarrow VCC$	-0.080	0.764	0.00	-0.01
$TA \rightarrow VCC$	-0.017	0.221	0.00	0.05
$MSA \rightarrow VCC$	0.281	3.425**	0.03	0.23
$IG \rightarrow VCC$	-0.037	0.403	0.00	0.04
$ID \rightarrow VCC$	-0.085	0.853	0.00	0.03
$RP \rightarrow VCC$	0.400	4.417**	0.06	0.44
$VCC \rightarrow OI$	0.527	9.143**	na	na
Firm industry	-0.202	0.480	0.00	0.02
Firm age	0.660	1.941	-0.01	-0.01
Firm size	0.954	2.266**	0.01	0.02

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; VCC = Value co-creation; OI = Organisational innovativeness; na = not available; \*\* indicates t-value with  $p < 0.05$

In addition, the control variables were associated with firm industry, age and size. It was found that the p-values for the two control (industry type and age) variables were insignificant ( $p > 0.05$ ). On the other hand, firm size was found to

significantly influence organisational innovativeness, as shown in Table 8.14. This means that industry type and age do not have an impact on the overall structural model. Although firm size significantly influences the model, its predictive relevance ( $Q^2$ ) and effect size ( $f^2$ ) are low. Such findings are consistent with previous studies in similar fields. For instance, Pallas et al. (2013) reported that industry type is less likely to significantly influence business performance towards innovation. In addition, Cheng and Shiu (2019) reported insignificant values for the influence of firm age on innovation performance in SMEs. However, the significant result of firm size as a control variable in organisational innovativeness is consistent with the study of Moohammad, Nor'Aini and Kamal (2014), who highlighted the positive impact of firm size and firms' innovativeness. Therefore, two control variables (firm age and industry) were removed and firm size remained in the model. After removing the insignificant control variables, the model was run again to obtain the final path coefficients of all constructs, including firm size. The results are shown in Figure 8.1.

**Figure 8.1: Tested direct path models without moderating effects**



\* indicates significant path coefficients ( $p < 0.05$ ).

## 8.8 Moderating Effects

To test the moderating effect of organisational structure capability, special PROCESS macros were added to the SPSS program to test the moderating effects. Table 8.15 summarises all moderating the effects of organisational structure capability on the performance of the key capabilities of value co-creation. The results show that out of six moderating effects, only one was found to significantly strengthen the performance of responsiveness in value co-creation at the 5% level of significance ( $p < 0.05$ ). To gain further insights into the effects, a simple slope analysis was also conducted to better understand the influence of the significant moderator (organisational structure capability). Such analysis further helps to identify the point where the development of organisational structure capability starts to influence the performance



of responsiveness in value co-creation. The results are presented according to the variables being predicted; i.e., value co-creation and organisational structure capability.

**Table 8.15: Moderating effect analysis**

Model	R <sup>2</sup>	R <sup>2</sup> change	Capability coefficient	Moderator coefficient	Interaction coefficient	F
MA	0.171**	0.011	-0.691	-0.575	0.162	12.727**
TA	0.147**	0.001	-0.075	0.176	0.041	10.591**
MSA	0.191**	0.003	-0.148	-0.141	0.079	14.564**
IG	0.175**	0.005	-0.489	-0.332	0.124	13.067**
ID	0.211**	0.005	-0.285	-0.220	0.102	16.475**
RP	0.279**	0.020**	-1.015	-0.972*	0.273**	23.851**

*Notes:* TA = Technology adaptive capability, MA = Market adaptive capability, MSA = Management system adaptive capability, IG = Information generation, ID = Information dissemination, RP = Responsiveness, VCC = Value co-creation, and OI = Organisational innovativeness; \*\* indicates  $p < 0.05$ ; \* indicates  $p < 0.1$

### 8.8.1 Prediction of the Performance of Market Adaptive Capability (MA) and Value Co-Creation

Based on the moderation analysis, it was found that the moderating effect of organisational structure capability (OS) on the performance of market adaptive capability (MA) in value co-creation (VCC) was insignificant ( $\beta = 0.162$ ,  $t(185) = 1.573$ ,  $p > 0.05$ ). Such results indicate that the development of the former does not influence that of the latter in value co-creation. The possible reason for this outcome is that organisational structure capability has a direct impact on value co-creation, rather than acting as a moderator ( $\beta = 0.400$ ,  $t(185) = 4.086$ ,  $p < 0.05$ ). This means that as such capability increases, it is more likely that the performance of value co-creation will increase. The development of organisational structure capability can directly influence the way firms engage customers in value co-creation processes. This is in line with current marketing and management studies, which highlight the significance of organisational structure capability in facilitating the way firms work with more flexible systems and procedures to better integrate customers in value co-creation processes (e.g. Ketonen-Oksi and Valkokari, 2019; Lambert and Enz, 2012).

### 8.8.2 Prediction of the Performance of Technology Adaptive Capability (TA) and Value Co-Creation

Based on the moderation analysis, it was found that the moderating effect of organisational structure capability (OS) on the performance of technology adaptive capability (TA) in value co-creation (VCC) was insignificant ( $\beta = 0.041$ ,  $t(185) = 0.338$ ,  $p > 0.05$ ). The result indicates that the development of OS capability does not influence the development of TA capability in value co-creation. Instead, it was found that the former has a significant positive effect on value co-creation ( $\beta = 0.420$ ,  $t(185) = 4.174$ ,  $p > 0.05$ ). The study highlights the significance of organisational structure capability as a direct predictor of value co-creation. Specifically, it provides empirical evidence showing that a

decentralised structure (or organisational structure capability) enhances the way firms work and integrate customers in value co-creation processes. A decentralised structure strengthens firms' ability to collaboratively work with employees to find the best solutions to co-create innovation outcomes with customers. The possible reason for this result is that any changes in organisational structure capability are caused by the dynamic development of technologies; i.e., their rapid evolution influences firms to adapt and redesign their organisational structure to support business processes (Miśkiewicz, 2019).

### **8.8.3 Prediction of the Performance of Management System Adaptive Capability (MSA) and Value Co-Creation**

Based on the moderation analysis, it was found that the moderating effect of organisational structure capability (OS) on the performance of management system adaptive capability (MSA) in value co-creation (VCC) was insignificant ( $\beta = 0.079$ ,  $t(185) = 0.830$ ,  $p > 0.05$ ). This result indicates that the development of OS capability does not influence the development of MSA capability in value co-creation. Such a result is possible due to the direct (positive) effects of MSA capability ( $\beta = 0.312$ ,  $t(185) = 3.551$ ,  $p < 0.05$ ), and OS capability ( $\beta = 0.327$ ,  $t(185) = 3.315$ ,  $p < 0.05$ ) on value co-creation. A firm's ability to redesign its organisational structure in terms of flexibility and accordingly adapt to any internal changes enables it to better integrate customers in value co-creation processes. It is more likely that value co-creation is facilitated by MSA capability; i.e., a loose management style and behaviours (Akgün, Keskin and Byrne, 2012). In addition, a decentralised structure facilitates the way firms work and integrate customers in value co-creation processes.

### **8.8.4 Prediction of the Performance of Information Generation (IG) and Value Co-Creation**

Based on the moderation analysis, the study found that the moderating effect of OS capability on the performance of information generation (IG) in value co-creation (VCC) was insignificant ( $\beta = 0.124$ ,  $t(185) = 1.103$ ,  $p > 0.05$ ). This indicates that the development of OS capability does not influence the development of IG in value co-creation. This is possible because the way firms collect and generate customer information on social media does not depend on their organisational structure capability. Instead, the extent to which firms collect information from customers on social media to facilitate value co-creation depends on their ability to effectively use social media platforms and connect to relevant customers to gain relevant insights towards value co-creation (Trainor et al., 2011). Similar to other moderating effects, the results show a direct (positive) effect of organisational structure capability on value co-creation ( $\beta = 0.389$ ,  $t(185) = 4.083$ ,  $p < 0.05$ ). It seems that the development of OS capability enables firms to enhance communication within the organisation and with customers in engaging them in value co-creation activities.

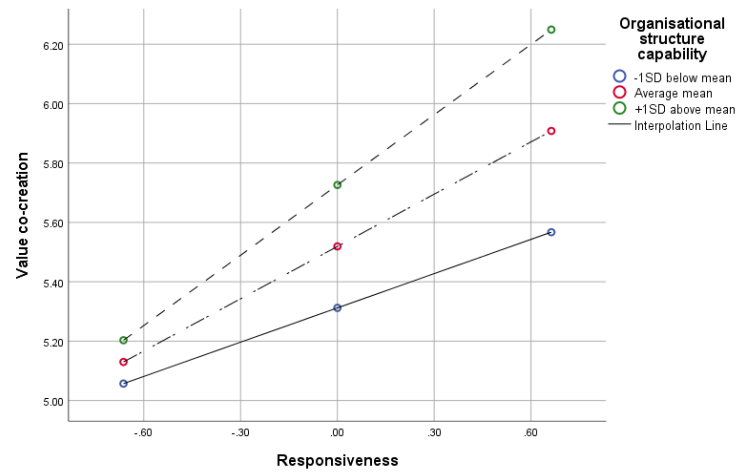
### 8.8.5 Prediction of the Performance of Information Dissemination (ID) and Value Co-Creation

Based on the moderation analysis, the study found that the moderating effect of OS capability on the performance of information dissemination (ID) in value co-creation (VCC) was insignificant ( $\beta = 0.102$ ,  $t(185) = 1.037$ ,  $p > 0.05$ ). This indicates that the development of OS capability does not influence the way firms use social media to disseminate customer information (or information dissemination) in value co-creation. This result is possible because firms' ability to disseminate customer information is not only associated with its ability to distribute information among employees, but also its ability to disseminate such information to customers to further attract them to participate in value co-creation activities (Zhang et al., 2015). Moreover, OS capability seems to have a significant positive impact on value co-creation ( $\beta = 0.359$ ,  $t(185) = 3.841$ ,  $p < 0.05$ ). This is consistent with current findings on value co-creation, in which OS capability is seen as a positive predictor for customer-centric firms to move towards value co-creation.

### 8.8.6 Prediction of the Performance of Responsiveness (RP) and Value Co-Creation

Based on the moderation analysis, it was found that the moderating effect of OS capability on the performance of responsiveness (RP) in value co-creation (VCC) was significant ( $\beta = 0.274$ ,  $t(185) = 2.258$ ,  $p < 0.05$ ). The  $R^2$  value was 0.279 ( $p < 0.001$ ). Although the  $R^2$  is relatively low, it is still considered an acceptable fit for the model. This indicates that the development of OS capability positively influences the way firms develop responsiveness towards value co-creation. To gain more insights into this significant moderating effect, the study ran a simple slope analysis at three levels of means (-1SD mean, mean and +1SD mean) using SPSS. As shown in Figure 8.2, the results indicate that the steepness of the slope is higher for medium ( $\beta = 0.570$ ,  $t(185) = 5.621$ ,  $p < 0.05$ ) and high measures of organisational structure capability ( $\beta = 0.789$ ,  $t(185) = 5.740$ ,  $p < 0.05$ ), compared to low measures ( $\beta = 0.385$ ,  $t(185) = 2.800$ ,  $p < 0.05$ ). Therefore, responsiveness becomes a strong predictor of value co-creation as OS capability increases, and vice versa. To further gain insights into this significant moderating effect of organisational structure capability, the study found that the moderating effect of OS capability becomes significant at -0.995 below the means; i.e., at the point of -0.995 and onwards, the relationship between responsiveness and value co-creation is significantly influenced by the development of organisational structure capability.

**Figure 8.2: Simple slope analysis of the significant effect of responsiveness on value co-creation, moderated by organisational structure capability**



To confirm this significant moderating effect, the study further conducted a multi-group analysis using SmartPLS. The results show that higher OS capability significantly strengthens the management system adaptive capability → value co-creation, and responsiveness → value co-creation relationship. Based on Table 8.16, firms that adopt a lower level of organisational structure capability are less likely to develop key firm-level capabilities and be able to facilitate value co-creation processes with customers. On the other hand, firms that adopt a higher level of organisational structure capability tend to develop significant key firm-level capabilities for value co-creation processes towards innovation. Specifically, a higher level of organisational structure capability enhances a firm's ability to adapt its management system (or management system adaptive capability – MSA) and quickly respond to customers (or responsiveness – RP) in value co-creation. In other words, the moderating effect of OS capability significantly facilitates management system adaptive capability ( $p < 0.05$ ) and responsiveness ( $p < 0.001$ ) in value co-creation for greater innovation.

**Table 8.16: Multi-group analysis**

Path	Coefficients		Standard deviation		t-value	
	Low OS	High OS	Low OS	High OS	Low OS	High OS
MA → VCC	0.133	-0.083	0.153	0.100	0.873	0.823
TA → VCC	-0.191	-0.017	0.201	0.110	0.950	0.156
MSA → VCC	0.294	0.206	0.168	0.095	1.743	2.181*
IG → VCC	0.212	-0.178	0.197	0.113	1.076	1.580
ID → VCC	-0.013	0.133	0.186	0.113	0.070	1.179
RP → VCC	0.279	0.461	0.191	0.104	1.461	4.450**
VCC → OI	0.522	0.473	0.119	0.079	4.377**	5.978**

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; VCC = Value co-creation; OI = Organisational innovativeness; \* indicates t-value with  $p < 0.05$ ; \*\* indicates t-value with  $p < 0.001$

## 8.9 Testing the Complete Model and Fit Indices

To test the complete model, the bootstrapping method was re-run in SmartPLS to generate the required statistics (adjusted  $R^2$ , path coefficients, t-value,  $Q^2$ ,  $f^2$  and fit indices). The study then compared two models (with and without a moderator). The results reveal that there is an overall improvement in the path coefficients, t-value, predictive accuracy of the model, and relevance. The inclusion of a significant moderating effect of organisational structure capability significantly improves the overall structural model. The values of adjusted  $R^2$  and fit indices of the complete model with and without a significant moderating effect were shown in Section 8.8). Although the results on the moderating effects show that that on  $MSA \rightarrow VCC$  is partially significant; i.e., the performance of MSA on VCC is only enhanced when the development of organisational structure capability is at a high level, when included in the model the results of the model estimation show no change and therefore were removed from the model. Hence, only the moderating effect on  $RP \rightarrow VCC$  was included in the model with a moderator.

The results show that including a significant moderating effect on  $RP \rightarrow VCC$  revealed a significant decrease in the value of adjusted  $R^2$  from 53.9% to 53.6%. However, such a decrease is very minimal and it can be concluded it had no effect on the model estimation. To draw a better conclusion, fit indices were also obtained from both models. As shown in Table 8.17, these slightly improved the model fit when including a moderating effect. According to Hair et al. (2012), testing the model fit in PLS-SEM is often associated with reporting the value of NFI and the SRMR. NFI is an incremental measure of goodness of fit for a statistical model; a threshold value of 0.8 indicates a good model fit (Lohmöller, 2013). However, in recent years, a number of scholars have argued that NFI is not suitable for testing model complexity and is not often reported in PLS-SEM-based papers (Cepeda-Carrion, Cegarra-Navarro and Cillo, 2019). Instead, it is argued that SRMR should be used to report fit indices when testing the complete model using PLS-SEM (Hair *et al.*, 2017). According to Hair et al. (2016), SRMR is a measure of the mean absolute value of the covariance residuals, with a cut-off value of 0.08. That is, a value less than 0.08 indicates a good model fit. Based on the analysis, the value of SRMR in the direct path model was 0.076, which decreased to 0.073, yielding an adequate model fit for the proposed model. Although the decrease in the value of SRMR is minimal, it still shows a slight improvement in the model fit when including a significant moderating effect. This means that the inclusion of organisational structure capability as a moderator to enhance the performance of responsiveness in value co-creation helps to better facilitate an e-transition model.

**Table 8.17: Summary of models with and without a moderator**

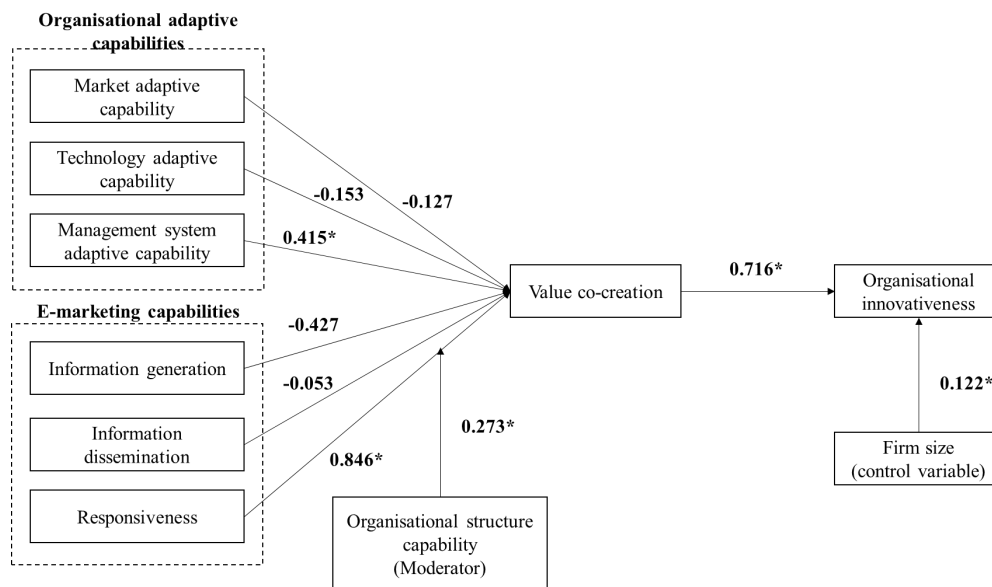
PATH	MODEL WITHOUT A MODERATOR				MODEL WITH A MODERATOR			
	Beta	t-value	Q <sup>2</sup>	F <sup>2</sup>	Beta	t-value	Q <sup>2</sup>	F <sup>2</sup>
MA → VCC	-0.080	0.764	0.00	-0.01	-0.127	0.469	0.00	0.00
TA → VCC	-0.017	0.221	0.00	0.05	-0.153	0.713	0.00	0.01
MSA → VCC	0.281	3.425*	0.03	0.23	0.415	2.761*	0.02	0.15
IG → VCC	-0.037	0.403	0.00	0.04	-0.427	0.888	0.00	0.11
ID → VCC	-0.085	0.853	0.00	0.03	0.053	0.974	0.00	0.03
RP → VCC	0.400	4.417*	0.06	0.44	0.846	3.793*	0.05	0.55
VCC → OI	0.527	9.143*	na	na	0.716	9.021*	na	na
FIRM SIZE	0.122	2.057*	0.01	0.02	0.122	2.024*	0.01	0.04
MODERATOR	na	na	na	na	0.273	1.974*	0.01	0.16
	Adjusted R <sup>2</sup> = 0.539				Adjusted R <sup>2</sup> = 0.536			
	SRMR = 0.076				SRMR = 0.073			

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; VCC = Value co-creation; OI = Organisational innovativeness; na = not available; \* indicates t-value with significant p-value ( $p < 0.05$ )

As shown in Figure 8.2, four hypotheses are significantly supported, and firm size was found to control the performance of organisational innovativeness ( $p < 0.05$ ). Specifically, changes in value co-creation can be directly influenced by changes in key capabilities. In this case, if management system adaptive capability changes by one standard deviation, value co-creation changes by 0.415 standard deviations. Similarly, with changes in responsiveness of one standard deviation, value co-creation changes by 0.846. This means that the development of responsiveness is the most important element in the model, as its effect greatly influences the performance of value co-creation. In addition, changes in value co-creation by one standard deviation lead to a 0.716 standard deviation change in organisational innovativeness. This lower value, compared to the path coefficient of responsiveness and value co-creation, may be caused by the non-linearity found between value co-creation and organisational innovativeness (refer to Section 8.6.5). In addition, the path coefficient of a moderator explains that around 27% of the performance of responsiveness and value co-creation can be strengthened by changes in organisational structure capability. This is consistent with the Q<sup>2</sup> and f<sup>2</sup> values shown in Table 8.17, showing that (i) responsiveness has the biggest effect size on the outcome in the model; (ii) management system adaptive capability and organisational structure capability (as moderators) have moderate effect sizes on the outcomes; and (iii) firm size has a small effect size (or control ability) on organisational innovativeness.

However, what is interesting in the model shown in Figure 8.1 is that although the relationship between information generation and value co-creation is insignificant ( $p > 0.05$ ), its path coefficient shows that there is a possibility that two constructs negatively influence each other. This may be possible due to firms' ability to collect data from customers and directly convert them into ideas for innovation. It is less likely that firms with information generation will need to co-create further ideas with customers (Sakellariou, Karantinou and Goffin, 2020). Instead, they can rely on such information to directly develop new products or services to better satisfy customer demand (Bashir, Papamichail and Malik, 2017). In addition, other insignificant paths are less likely to have an impact on the outcomes. To ensure that the dataset can be effectively used to explain the model estimation, it was necessary to further assess for unobserved heterogeneity. If the results show that this is not present, then only the results of the model estimation can be concluded and ensured that the entire dataset does not produce misleading results (Sarstedt, Ringle and Hair, 2017). The assessment of unobserved heterogeneity can also act as a method to control endogeneity bias in terms of omitted variables (Gormley and Matsa, 2014).

**Figure 8.3: Testing model**



\* indicates hypotheses with  $p$ -values  $< 0.05$

## 8.10 Assessment of Unobserved Heterogeneity

To further assess for any unobserved heterogeneity, the study conducted a Finite Mixture PLS (FIMIX-PLS) using SmartPLS. Following the procedure recommended by Sarstedt et al. (2020), the procedure was initiated by assuming a one-segment solution using the default settings for the stop criterion ( $1.0E-10$ ), the maximum number of iterations (5000) and the number of repetitions (10). To determine the maximum number of segments to extract, the study first computed the minimum sample size required to estimate each segment. The minimum sample size requirement was 45, with an effect size of 0.25 and a power level of 80%. The minimum sample size allowed for the extraction of a maximum of four segments. Therefore, the study ran FIMIX-PLS for one to four segments, using the initial settings.

As shown in Table 8.18, the results of the fit indices for the one to four segments show that AIC<sub>3</sub> and CAIC do not indicate the same number of segments. AIC<sub>3</sub> indicates a four-segment solution, whereas CAIC points to a one-segment solution. Similarly, AIC<sub>4</sub> points to a three-segment solution, while BIC indicates a one-segment solution. The highest value of EN (0.71) lies in the four-segment solution. Such numbers show inconsistent and divergent results across the segments. Therefore, it can be concluded that unobserved heterogeneity is not present and the results of the research are robust (Sarstedt *et al.*, 2020). Therefore, the results interpreted can be used to explain an e-transition model for value co-creation aimed at innovation from a capability-based perspective, since unobserved heterogeneity is not an issue in the study, so the results produced from the analysis are relevant to contribute to the current literature (Matthews et al., 2016).

**Table 8.18: FIMIX-PLS analysis**

Criterion	Number of segments			
	1 Segment	2 Segments	3 Segments	4 Segments
AIC	960.13	940.14	906.02	<b>892.73</b>
AIC <sub>3</sub>	971.13	963.14	941.02	<b>939.73</b>
AIC <sub>4</sub>	982.13	986.14	<b>976.02</b>	986.73
BIC	<b>995.79</b>	1014.70	1019.48	1045.09
CAIC	<b>1006.79</b>	1037.70	1054.48	1092.09
HQ	974.58	970.34	<b>951.98</b>	954.46
MDL <sub>5</sub>	<b>1226.43</b>	1496.94	1753.32	2030.54
LnL	-469.07	-447.07	-418.01	-399.37
EN	na	0.48	0.68	<b>0.71</b>
NFI	na	0.51	0.64	0.66
NEC	na	98.00	61.43	54.39

**Note:** AIC = Akaike's information criterion; AIC<sub>3</sub> = modified AIC with factor 3; AIC<sub>4</sub> = modified AIC with factor 4; BIC = Bayesian information criterion; CAIC = consistent AIC; HQ = Hannan Quinn criterion; MDL<sub>5</sub> = minimum description length with factor 5; LnL = Log Likelihood; EN = entropy statistics; NFI = non-fuzzy index; NEC = normalised entropy criterion; na = not available; numbers in bold indicate the best outcome per segment retention criterion



## CHAPTER 9: DISCUSSION

In the previous chapter (Chapter 8), sample validation, exploratory factor analysis, measurement model and structural model assessment were tested. The PLS-SEM analysis demonstrates the results of both the measurement model and structural model assessment. In the case of the former, the analysis revealed satisfactory sample validation, internal consistency and reliability. Such satisfactory results also act as remedies to control CMB problems. Moreover, the results show that CMB was not detected within the study. However, it was noted that there were some degrees of non-linearity in the model. Specifically, the relationship between value co-creation and organisational innovativeness was found to be non-linear. Although there is non-linearity in an individual relationship, the overall partial regression was found to be linear, meaning the model was robust. In addition, the structural model assessment revealed both significant and insignificant path models and moderating effects. Such findings are reported and further discussed in this chapter, in relation to the qualitative findings (study 1) in order to gain better insights and to develop an e-transition capabilities model of value co-creation for innovation in SMEs. The results of the hypothesis testing are also reported and discussed in relation to their theoretical implications.

### 9.1 Hypothesis Testing: Key Firm-Level Capabilities

Over the past few decades, great attention has been paid to social media-enabled value co-creation and the distinctive capabilities required supporting value co-creation activities for greater innovativeness. However, limited research has focused on the development of the key firm-level capabilities required to support such value co-creation activities on social media, particularly in the SME context (Chekfoung, Sunil and Binita, 2020). Since SMEs often have limited resources, it is difficult for them to develop all the firm-level capabilities needed to support value co-creation and innovation activities. This study has gone beyond the traditional perspective of dynamic capabilities and S-D logic, instead focusing on examining the key capabilities that need to be developed by SMEs to build a strong foundation and accelerate value co-creation activities with customers on social media for greater innovation.

To answer the research questions developed in Chapter 1 (Section 1.4), a proposed theoretical framework and a set of hypotheses (identified as core capabilities in the qualitative study) were developed in Chapter 6, which are now tested in this section by evaluating the results of the PLS-SEM analysis. The proposed model integrated six direct paths of key firm-level capabilities, market adaptive capability (MA), technology adaptive capability (TA), management system adaptive capability (MSA), information generation (IG), information dissemination (ID) and responsiveness (RP), predicting value co-creation and one direct path of value co-creation (VCC) predicting organisational innovativeness (OI), in which six paths have interaction effects in the proposed model. Specifically, six paths of key firm-level capabilities predicting value co-creation were also moderated by OS capability and were tested, as discussed in Chapter 6.

To test the above relationships, a bootstrap approximation was obtained by constructing a complete two-tailed bias-corrected and accelerated (BCa) method using 5000 bootstrapped samples in SmartPLS, as recommended by Efron and Tishirani (1994). The results show the level of effects and their significance (p-value) positions. The results of the proposed model indicate that three out of the seven direct paths, and one of the six moderating effects, are significant.

That is, the direct paths of management system adaptive capability (MSA) → value co-creation (VCC); responsiveness (RP) → value co-creation (VCC); and value co-creation (VCC) → organisational innovativeness (OI) are significant at the 5% level, while the moderating effect of OS capability significantly influences the relationship between RP and VCC. In addition, the moderating effect of OS on MSA → VCC was partially supported; i.e., the performance of MSA on VCC is strengthened when associated with a high level of organisational structure capability as a moderator. Table 9.1 summarises the results of the hypothesis testing based on the estimated path coefficient values with t-values and p-values discussed in the previous chapter. As discussed earlier, if the t-value is greater than or equal to 1.96, and p-value is less than 0.05, the significance of the path coefficient between dependent and independent variables is present, and vice versa (Hair *et al.*, 2012).

**Table 9. 1: Hypothesis testing**

Hypothesis	Path	Result
<b>H1a:</b> Market adaptive capability has a positive effect on value co-creation.	MA → VCC	Not supported
<b>H1b:</b> Technology adaptive capability has a positive effect on value co-creation.	TA → VCC	Not supported
<b>H1c:</b> Management system adaptive capability has a positive effect on value co-creation.	MSA → VCC	Supported
<b>H2a:</b> Information generation has a positive effect on value co-creation.	IG → VCC	Not supported
<b>H2b:</b> Information dissemination has a positive effect on value co-creation.	ID → VCC	Not supported
<b>H2c:</b> Responsiveness has a positive effect on value co-creation.	RP → VCC	Supported
<b>H3:</b> Value co-creation has a positive effect on organisational innovativeness.	VCC → OI	Supported
<b>H4a:</b> Organisational structure capability positively moderates the relationship between market adaptive capability and value co-creation.	OS → MA-VCC	Not supported
<b>H4b:</b> Organisational structure capability positively moderates the relationship between technology adaptive capability and value co-creation.	OS → TA-VCC	Not supported
<b>H4c:</b> Organisational structure capability positively moderates the relationship between management system adaptive capability and value co-creation.	OS → MSA-VCC	Partially supported
<b>H5a:</b> Organisational structure capability positively moderates the relationship between information generation and value co-creation.	OS → IG-VCC	Not supported

<b>H5b:</b> Organisational structure capability positively moderates the relationship between information dissemination and value co-creation.	OS → ID-VCC	Not supported
<b>H5c:</b> Organisational structure capability positively moderates the relationship between responsiveness and value co-creation.	OS → RP-VCC	Supported

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; OS = Organisational structure capability; RP = Responsiveness; VCC = Value co-creation; OI = Organisational innovativeness

### 9.1.1 Market Adaptive Capability and Value Co-Creation

Market adaptive capability, as discussed previously, is a firm's ability to quickly adapt to any changes in the market, such as market trends, customer demand and competitors' actions (Tuominen, Rajala and Möller, 2004). Based on the literature, the extent to which firms can adapt to these market changes helps to determine their ability to organise and manage value co-creation activities with customers (Xie *et al.*, 2016). That is, the more quickly firms adapt to customer demand, for example, the more quickly they identify the opportunities to engage customers in co-creating innovation initiatives (Shen, Sha and Wu, 2020). However, based on the analysis, the standardised estimated path coefficient for the relationship was found to be close to zero and not significant (Table 9.1) with a t-value < 1.96 and p-value > 0.05 for hypothesis 1a. This finding strongly rejects the hypothesised relationship between market adaptive capability and value co-creation.

To further interpret the finding, the study considered the bivariate correlation between market adaptive capability and value co-creation. It was found that the former significantly correlated with the latter (coefficient = 0.344 at p = 0.000). Although both variables are correlated, the non-significant result in PLS-SEM suggests that some of covariances of market adaptive capabilities may be explained by other variables, such as management system adaptive capability (coefficient = 0.569) and information generation (coefficient = 0.595), resulting in an insignificant amount of covariance for this specific path. This result is consistent with the work of Sopelana, Kunc and Hernáez (2014) on organisational flexibility; i.e., dynamic market adaption capability is more likely to be robust to organisational flexibility, in terms of decision-making, and management and organisational responsiveness. A firm's ability to adapt to market changes often associates with the processing of information (Volberda and Rutges, 1999). Firms can effectively generate, use and convert market information into insights, which they can accordingly adapt for their internal processes towards developing new offerings (Arnett, Sandvik and Sandvik, 2018). Another possible reason for this insignificant path is the country context and the sample characteristics. SMEs, especially in the emerging countries, often have no sensitivity in exploring markets, especially in the service industry (Rekarti and Doktoralina, 2017). Specifically, SMEs still lack financial and marketing strength to successfully adapt themselves in response to changing market situations, resulting in ineffective value co-creation activities (Babu *et al.*, 2020). Since the sample contains around 86.7% of micro and small firms in both manufacturing and service industries, the result may be affected by this fact.

Although the findings seem inconsistent with the theoretical expectations of the study (e.g. Hunt and Madhavaram, 2019; Nardelli and Broumels, 2018; Tuominen, Rajala and Möller, 2004; Tushman *et al.*, 2010; Zhou and Li, 2010), they are

consistent with other similar studies on firm innovativeness (Shen, Sha and Wu, 2020). Given the high correlation between the scores on market adaptive capability and organisational innovativeness reported, the findings provide additional insights into how such capability may greatly contribute to firm innovativeness. Such a finding is consistent with ones previously reported. For example, Tuominen et al. (2004) reported a significant positive relationship between market adaptive capability and firm innovativeness. In addition, Lam (2011) revealed that firms which are ready to adapt and respond to market changes are more likely to move towards innovation (coefficient = 0.518). Specifically, SMEs can become more innovative in terms of products and services due to their ability to adapt to market changes; i.e., they tend to have a lean management system that allows faster and better adaptability to new customer needs and preferences and the ability to innovate constantly to bring new products, services and/or experiences to the market without involving too much risk (Petkovska, 2015). In other words, the findings of this study highlight that the development of market adaptive capability is less likely to facilitate value co-creation, but rather has a direct influence on firm innovativeness in SMEs.

### **9.1.2 Technology Adaptive Capability and Value Co-Creation**

Technology adaptive capability, as a firm's ability to adapt to technological changes, is likely to facilitate the way they facilitate value co-creation activities with customers, specifically on social media platforms (Day, 2014). The more quickly firms adapt to such technological changes, the greater the chances they will use those technologies to aid their value co-creation processes with customers (Hsu, 2016). However, the study found an insignificant result for such a relationship. Based on the analysis, the standardised estimated path coefficient for the relationship was found to be close to zero and not significant (Table 9.1), with a t-value < 1.96 and p-value > 0.05 for hypothesis 1b. This finding strongly rejects the hypothesised relationship between technology adaptive capability and value co-creation.

Although the bivariate correlation between the two was found to be significant, the value was the lowest correlation amongst all the others (correlation = 0.257 at  $p = 0.000$ ). On the other hand, the correlations between technology adaptive capability and other variables are much higher, resulting in an insignificant amount of correlation for this path. Such findings are consistent with those reported in previous studies. For example, Tuominen et al. (2004) found that an adaptive capability in terms of searching for and utilising new technology was less likely to contribute to value co-creation and firm innovativeness, especially in market-based or customer-oriented businesses. Similarly, Zhou and Li (2010) reported that a firm's ability to acquire, collect and adapt to new technologies was less likely to contribute to value co-creation directly, but instead via market adaptive capability. Firms with technology adaptive capability are more likely to use social media technologies to connect with customers and to identify market opportunities, in terms of monitoring changes in market and customer preferences and expectations (Bassano *et al.*, 2018). To effectively respond to market changes, firms need to not only identify technological changes, but also effectively enhance its applications to develop new products and services (Benzidia and Makaoui, 2020). Similar to market adaptive capability, SMEs may require not only the ability to adapt to technological changes, but also other resources, including financial and marketing resources, to support any changes made towards value co-creation processes with customers (Babu *et al.*, 2020). Instead, technology adaptive capability can be considered as an operant resource that helps to facilitate the development of market adaptive capability for value co-creation, rather than having a direct impact on it (Zhou and Li, 2010).

Moreover, the findings reveal that technology adaptive capability is closely correlated with organisational innovativeness (correlation = 0.486). The development of such capability is more likely to contribute to greater innovativeness. This finding is consistent with the qualitative findings of the study (Study 1). SMEs' ability to adapt to technological changes enables them to find better solutions to providing services to customers aimed at innovation. For example, being flexible and ready to adapt to changes in digital payment systems would enable firms to better serve customers in the innovation process (Klus *et al.*, 2019). Similarly, Akgün *et al.* (2012) reported a significant direct path between technology adaptive capability and organisational innovation. Firms need to adapt their organisational resources to meet changing technologies in order to successfully implement digital transformation for innovation (Rachinger *et al.*, 2019). Therefore, the findings extend current knowledge on technology adaptive capability by demonstrating its significant effects on other variables, including market adaptive capability and organisational innovativeness. Specifically, technology adaptive capability does not (i) directly affect value co-creation, but may do so through market adaptive capability, and (ii) impact value co-creation for innovativeness, but directly influences organisational innovativeness.

### **9.1.3 Management System Adaptive Capability and Value Co-Creation**

Management system adaptive capability is a firm's ability to be flexible in management to quickly respond to changes in the environment (Gavric, Karavidic and Kirin, 2016). Based on the literature, if the firms are flexible in their management systems in response to environmental changes, they are more likely to better customise the way they interact and engage with customers in value co-creation processes (Zhou and Li, 2010). To support this argument, the study found that the standardised estimated path coefficient for the relationship was between zero and one, with a significant t-value > 1.96 and p-value < 0.05 (Table 9.1). This finding strongly supports the hypothesised relationship between management system adaptive capability and value co-creation in H1c. In addition, it was found that the bivariate correlation between management system adaptive capability and value co-creation was significantly higher than that among other variables (correlation = 0.373 at p = 0.000). This result shows that the covariance of management system adaptive capability can clearly explain value co-creation.

These results are consistent with the theoretical assertion that a firm's ability to adapt to environmental changes is a key firm-level capability in facilitating value co-creation (Preikschas *et al.*, 2017). Specifically, Romero and Molina (2011) argue that successful firms are those, which are capable of quickly adapting to different situations and environmental changes, and to provide instant customer feedback, which can be converted into products and services. That is, firms with management system adaptive capability are more likely to engage customers in value co-creation processes towards innovation. As a result, they can facilitate openness to value co-creation, which in turn dynamises their competitive advantages (Loureiro, Romero and Bilro, 2020). This confirms the expectation that management system adaptive capability not only facilitates value co-creation activities with customers, but also acts as a driver for collaborative business opportunities (Romero and Molina, 2011), which has a great influence on firm innovativeness (Akgün, Keskin and Byrne, 2012). In other words, management system adaptive capability allows firms to become more flexible in the way they work, thus integrating customers into the co-creation of new products before their launch, resulting in better firm performance related to innovation (Benzidia and Makaoui, 2020).

Therefore, the development of management system adaptive capability enables firms to be flexible and ready to adapt in response to environmental changes, helping to reshape organisational culture (Jouny-Rivier, Reynoso and Edvardsson, 2017), while also allowing them to better identify and capture new business opportunities to better involve customers in value co-creation activities on social media (Desai, 2010). Such findings and the overall knowledge are in agreement in terms of the direct effect of management system adaptive capability on value co-creation. Hence, the findings of this study provide additional insights into current knowledge on value co-creation by emphasising the significance of management system adaptive capability as a key one required to facilitate an e-transition model of value co-creation for innovation, specifically in SMEs.

#### **9.1.4 Information Generation and Value Co-Creation**

Information generation is a firm's ability to use social media technologies to generate information related to its customers and other relevant topics (Trainor et al., 2014a); its use therefore enables firms to connect and interact with customers (Cadogan, Souchon and Procter, 2008). Via social media, firms generate information and insights about customers to better understand their needs, problems and expectations in order to find the best ways to interact and engage with them in value co-creation processes (Strauss, Frost and Sinha, 2014). As a result, firms can effectively involve them in co-creating ideas or initiatives towards innovation (Mention, Barlatier and Josserand, 2019). However, the standardised estimated path coefficient for this relationship was found to be close to zero and not significant (Table 9.1), with a  $p\text{-value} > 0.05$  for hypothesis 2a. This finding strongly rejects the hypothesised relationship between information generation and value co-creation.

Although the bivariate correlation between information generation and value co-creation is significantly above 0.3, it is still lower than that between information generation and other variables; for example, the correlations with information dissemination and responsiveness are 0.629 and 0.532 respectively (refer to Section 8.5.2). This result explains that the covariance of information generation can be used to explain information dissemination and responsiveness more efficiently, resulting in insignificant path estimation. Possible reasons for this insignificant result could be the fact that SMEs often generate information from customers using social media and rely on that information to develop new products and services (or product innovation). In addition, they are less likely to confirm the received information with customers and co-create ideas or products for greater innovativeness. Such a finding is in line with ones reported in past studies. For example, Mount and Garcia Martinez (2014) revealed that information collection on social media could be used for open innovation, in terms of idea generation, R&D and commercialisation. As a result, customer satisfaction can be improved (Vega-Vazquez, Revilla-Camacho and Cossío-Silva, 2013). In addition, Polo et al. (2014) argue that using social media to generate information alone does not facilitate value co-creation, but instead firms also need to create dialogue with customers to really understand their preferences; i.e., to ensure that the information received is correct and in fact represents customer demand, in order to find the best ways to involve them in value co-creation processes. In line with this argument, Bhatt et al. (2010) provide evidence demonstrating a significant relationship between information generation and responsiveness towards competitive advantage.

In addition, the findings also reveal the positive linkage between information generation and information dissemination. Given their high correlation, it is likely that firms' ability to generate information from customers will beneficially

contribute to their ability to disseminate information across the organisation. That is, once firms collect and gain customer insights on social media, they are more likely to be able to effectively distribute and exchange important information across the organisation, resulting in an increase in creativity aimed at value co-creation (Wu, Li and Chang, 2016). Similarly, Sani et al. (2014) provide evidence demonstrating that the use of social media opens up communication and information generation, as well as information sharing and dissemination, between farmers, workers and policymakers. In other words, information generation can act as a potential antecedent to information dissemination towards value co-creation. Hence, the findings highlight that information generation does not directly influence value co-creation, but may instead facilitate information dissemination for value co-creation.

### **9.1.5 Information Dissemination and Value Co-Creation**

Information dissemination is described as a firm's ability to use social media technologies to disseminate information related to customers and other relevant topics across the organisation to gain better understanding of customer demand (Trainor et al., 2014a) and involve them in value co-creation processes for greater innovation (Carbonell and Escudero, 2010). The use of social media not only enables firms to communicate within and across organisational units, but also to generate insights into how to better serve customers and engage them in various activities (Chung, 2012). However, based on the analysis, it was found that the standardised estimated path coefficient for the relationship was close to zero and not significant (Table 9.1), with a  $p$ -value  $> 0.05$  for hypothesis 2b. This finding strongly rejects the hypothesised relationship between information dissemination and value co-creation. Similar to information generation, the bivariate correlation between the two factors is significantly above 0.3. However, such bivariate correlation is much lower than that between information dissemination and responsiveness (correlation = 0.587). Such results explain that the covariance of information dissemination can be used to explain responsiveness more than value co-creation. The higher covariance of information dissemination on responsiveness can therefore explain the relatively insignificant amount of covariance of the specific path between information dissemination and value co-creation.

Another possible reason for this insignificant result is the country context and the sample characteristics. SMEs in developing countries such as Thailand are less likely to use social media to disseminate information across the organisation. Although Thai SMEs heavily rely on the use of social media as a means of internal communication, some see it as a cause of reduced productivity and information leakage (Wilson, 2009). Employees may spend too much time on social media, resulting in delayed work completion and productivity (Ferreira and Du Plessis, 2009). In particular, disseminating wrong information on social media can also cause embarrassment to the organisation, resulting in reputation loss (Aguenza, Al-Kassem and Som, 2012). In addition, sharing information using social media may also result in the leakage of important information, increasing security risks (Hekkala, Väyrynen and Wiander, 2012). Therefore, the results could be affected by these perceptions of SMEs in Thailand.

Although the findings reject the theoretical expectations, it was found that information dissemination significantly correlates with responsiveness. This means that a firm's ability to disseminate customer information across the organisation is more likely to influence its ability to respond to customers in relation to value co-creation. Specifically, the ability to effectively disseminate customer information within the organisation provides the advantage of finding better ways to respond to customers and find further opportunities to involve them in value co-creation and innovation

processes (Carbonell and Escudero, 2010). The current literature often views information dissemination as an accelerator to improve organisational responsiveness towards firm performance (e.g, Bhatt *et al.*, 2010; Rodrigues and Pinho, 2012; Welsch, Liao and Stoica, 2001). For example, Carbonell and Escudero (2010) explain the significance of information dissemination in new product performance through the development of organisational responsiveness; firms are more likely to focus on customers and integrate them in innovation processes when they can effectively disseminate customer information and respond to customers at the same time. As a result, firms can implement strategic directions towards innovation (Wei and Wang, 2011). Hence, the study provides additional insights into e-marketing capabilities by highlighting the significance of information dissemination in responsiveness towards value co-creation, rather than the direct impact on value co-creation. In other words, the development of information dissemination can act as a potential antecedent to firms' responsiveness towards value co-creation for greater innovation.

### 9.1.6 Responsiveness and Value Co-Creation

Responsiveness is firms' ability to use social media to respond to customer demand (Trainor et al., 2014a). The way firms use social media to interact with and respond to customers opens up opportunities to involve and engage them in various activities organised on social media to co-create ideas and other innovation initiatives (Pérez-González, Trigueros-Preciado and Popa, 2017). Based on the analysis, the standardised estimated path coefficient for the relationship was found to be close to one, with a t-value > 1.96 and a significant p-value < 0.05 for hypothesis 2c (Table 9.1). This finding strongly confirms the hypothesised relationship between responsiveness and value co-creation. To confirm the finding, the study also considered the bivariate correlation between responsiveness and value co-creation, which indicates a significant relationship, at 0.452 (refer to Section 8.5.2). Such findings show that the covariance of responsiveness can be used to significantly explain value co-creation. The result is consistent with previous findings. For example, Wei and Wang (2011) reported a significance impact of responsiveness on market-driven strategies (e.g. value co-creation and innovation). Strong organisational responsiveness empowers organisations to effectively create interactions with customers and involve them in value co-creation (Homburg, Grozdanovic and Klarmann, 2007), resulting in competitive advantage (Brodie *et al.*, 2007). Customers are more likely to elicit friendly and responsive attitudes towards value co-creation when firms provide immediate feedback and responses (Ahn *et al.*, 2020; Shamim, Ghazali and Albinsson, 2017). In other words, a firm's ability to provide personalised responses will empower customers to co-create knowledge value with it and among the customers themselves (Shin, Perdue and Pandelaere, 2020).

Moreover, the finding is also in line with the results of Vooberg, Bekkers and Tummers's (2014) study, which highlighted that the development of organisational responsiveness enables firms (public organisations) to effectively respond to societal demands and to involve key economic actors in value co-creation processes. Firms' ability to respond to stakeholders, including customers, provides opportunities for creating dialogues between them and stakeholders to co-create value in terms of sustainability (Sarmah, Islam and Rahman, 2015). Specifically, organisational responsiveness positively influences participants' time spent in online co-creation brainstorming activities (Chen, Marsden and Zhang, 2012). As a result, firms can co-create value offerings and enhance organisational innovativeness (Mostafa, 2016). Therefore, responsiveness can act as a value co-creation mechanism (Lenka, Parida and Wincent, 2017). Such findings provide evidence of firms' responsiveness acting as a key capability in facilitating customer engagement in value co-creation (Lin *et al.*, 2018). Therefore, the result implies that the theoretical assertion from the literature is valid.



### 9.1.7 Value Co-Creation and Organisational Innovativeness

Value co-creation, as discussed earlier, is the process of interacting and collaborating with customers to jointly create value that mutually benefits both firms and customers (Brem and Bilgram, 2015). Based on the literature review, it is predominantly a facilitator to achieve greater innovation, specifically in the SME context (Balau, van der Bij and Faems, 2020). The extent to which SMEs co-create ideas and/or value with customers determines the value of the resources (e.g. knowledge) that can be used to generate or improve innovation processes (Voorberg, Bekkers and Tummers, 2015), thus showing a positive effect of value co-creation on organisational innovativeness. To prove this, the study conducted analysis to examine the path coefficient of the relationship between the two variables and it was found that the standardised estimated path coefficient for the relationship was close to one, with a significant p-value  $< 0.05$  for hypothesis 3 (Table 9.1). This finding strongly confirms the hypothesised relationship between value co-creation and organisational innovativeness. In addition, the bivariate correlation between value co-creation and organisational innovativeness is higher than 0.4 (correlation = 0.458), showing a significant linkage between the two constructs (refer to Section 8.5.2).

Such findings demonstrate that the covariance of value co-creation can explain organisational innovativeness and are in line with those reported by Cheng and Shiu (2019), who highlighted a significant positive impact of customer involvement on social media (value co-creation) on innovation performance in SMEs. The involvement of customers in such value co-creation processes enables SMEs to better generate ideas, which results in the development of new products and services for innovation (Preikschas *et al.*, 2017). Specifically, active collaboration between a firm and its customers can lead to a more trusting relationship, which encourages customers to disclose more detailed and sensitive information (Faems, Janssens and Van Looy, 2007). For example, Priharsari, Abedin and Mastio (2020) provide evidence showing that online communities, as a form of value co-creation, enable transparency and trust to be built among customers, as well as with firms, which in turn encourages the participation of customers in a number of innovation activities (Nardelli and Broumels, 2018). Such value co-creation activities enable (i) learning mechanisms and the development of customer relationships that lead to customer involvement in resource exchange and innovation processes, and (ii) firm strategies to be better positioned to differentiate them from rivals through the development of new products and services (Tanev *et al.*, 2011). Therefore, value co-creation can act as a crucial mechanism that integrates product development and innovation (Hsu, 2015). The result also implies that the theoretical assertion from the literature is valid and that value co-creation can be used to explain organisational innovativeness.

Although the results indicate a significant and positive relationship between value co-creation and organisational innovativeness, the non-linearity results show a non-linear relationship between them (refer to Section 8.6.5). This means that an increase in value co-creation may not lead to the same level of increase in organisational innovativeness. However, value co-creation practices can still be considered good indicators of firm innovativeness (di Tollo *et al.*, 2012). The authors stress that these value co-creation activities can lead to different degrees of organisational innovativeness in terms of new products, processes and services. Since innovation is considered to be a complex and non-linear process (Westergren, 2011), value co-creation processes can also be assumed to be non-linear, interactive and dynamic (Hamidi and Gharneh, 2017). Therefore, it is possible that a non-linear relationship between value co-creation and organisational innovativeness exists (Ye *et al.*, 2011).

### 9.1.8 Moderating Effect of Organisational Structure Capability

Apart from the direct relationships between key capabilities and value co-creation for innovation, the study also examined the interaction effect of organisational structure capability on these relationships; that is, the extent to which organisational structure capability strengthens the development of key capabilities for value co-creation for innovation. To examine such moderating effects of organisational structure capability, the study conducted two analyses – (i) a regression path analysis of moderator using PROCESS in SPSS, and (ii) a multi-group analysis using SmartPLS. First, the interaction effect of organisational structure capability and other capabilities were tested on value co-creation to identify significant results. Second, the moderating effect of organisational structure capability was divided into two groups, high and low organisational structure capability, and the analysis was run to identify the differences between the two groups in terms of the relationships between key capabilities and value co-creation. The results of both analyses show significant and insignificant moderating effects, which are discussed in the sections below.

#### *a) The Moderating Effect on The Performance of Market Adaptive Capability on Value Co-Creation*

Based on the moderator analysis, the interaction effects of organisational structure capability and market adaptive capability were tested on value co-creation. The results of both analyses clearly show that the moderating effect of organisational structure capability does not significantly influence the relationship between market adaptive capability and value co-creation ( $p > 0.05$ ). This result indicates that the type of organisational structure does not have an impact on how firms develop market adaptive capabilities for value co-creation. Such findings extend the framework proposed by Akgün, Keskin and Byrne (2012). Although loose management and organisational structure capability positively influence market adaptive capability, the findings of this study further suggest that there is a significant difference between Western-standard firms and Asian-standard SMEs. Unlike Western firms, SMEs in developing countries, specifically in Asia, are less likely to be influenced by flexibility in organisational structure in responding to external market changes due to inefficiencies and costs incurred (Chakrabarti, Singh and Mahmood, 2007). In particular, the development of a decentralised structure does not necessarily strengthen firms' ability to develop market adaptive capability aimed at value co-creation for innovation in Thai SMEs. A possible reason for this is that a decentralised structure would enable SMEs to be flexible in internal processes and management, rather than in external adaptation (Chen and Huang, 2007; Galbraith, 2005; Hoogervorst, Flier and Koopman, 2004; Vazifedoust, Nasiri and Norouzi, 2012; Zheng, Yang and McLean, 2010).

Moreover, the results also show the possible direct relationship between organisational structure capability and value co-creation (refer to Section 8.8.1). Such additional findings confirm the current theoretical knowledge within the marketing literature. For example, Ketonen-Oksi and Valkokari (2019) highlight the role of organisational structure capability to support '*a more networked and systematic nature of value co-creation*' (p.25). The development of organisational structure capability supports the way in which value co-creation actors engage in the process of continuous interaction, knowledge creation and exchange (Aarikka-Stenroos and Ritala, 2017). Specifically, a firm's ability to develop organisational structure capability helps to facilitate collaborative work processes that not only support cross-functional teams, but also the integration of customers in identifying and developing innovation initiatives (Lambert

and Enz, 2012). Therefore, such organisational structure capability is more likely to provide a better position to move towards customer centricity and value co-creation in a specific competitive environment, but at a higher cost (Lee et al., 2015).

#### ***b) The Moderating Effect on The Performance of Technology Adaptive Capability on Value Co-Creation***

Based on the moderation analysis, the results of both analyses revealed an insignificant moderating effect of organisational structure capability on the relationship between technology adaptive capability and value co-creation ( $p > 0.05$ ). This indicates that the development of organisational structure capability does not have a significant impact on firms' ability to adapt to technological changes for value co-creation. Similar to the previous section, the findings of this study extend the framework proposed by Akgün, Keskin and Byrne (2012) on organisational adaptive capability. Specifically, the development of organisational structure capability is less likely to strengthen firms' ability to develop technology adaptive capability towards value co-creation in SMEs. Although decentralised SMEs are more flexible in management and information sharing within and outside the firms, they still require a large amount of financial resources in order to successfully adapt to any technological changes related to value co-creation (Lee et al., 2015).

Another possible reason for the insignificant result is that firms require tacit understanding and knowledge of technologies before making any changes or adaption to such technology (Poon and MacPherson, 2005). Aslan (2021) argues that technological changes influence the way firms design their organisational structure; they try to adapt to such changes and accordingly modify their organisational structure in response to the perceived challenges. Such redesigning of organisational structure helps to promote flows of decision-making and information and enables firms to better exchange information within and outside the organisation, resulting in a better information technology implementation process (Bruque and Moyano, 2007). Such an argument can be supported by the results of this study. Based on these, it was found that there was a significant and direct relationship between organisational structure capability and value co-creation (refer to Section 8.8.3). The development of such capability enhances the internal reconfigurational fit between all business model elements and the external reconfigurational fit between firms' and customers' needs related to value co-creation (Nenonen and Storbacka, 2010). Therefore, the development of organisational structure capability is less likely to strengthen the performance of technology adaptive capability towards value co-creation, but instead direct facilitate value co-creation.

#### ***c) The Moderating Effect on The Performance of Management system Adaptive Capability on Value Co-Creation***

The results of the moderation analysis using SPSS were found to be non-significant, at the 5% level. However, the results of multi-group analysis for the moderating effect of organisational structure capability were found to be significant at the 5% level. This means that the moderating effect only facilitates the performance of management system adaptive capability on value co-creation when associated with a high level of organisational structure capability. Firms with a high

level of such capability, i.e. higher levels of decentralised management, decision-making and working style, are more likely to quickly adapt to any internal and external changes aimed at value co-creation. To adapt to internal and external changes, firms need to become organic organisations in order to enhance knowledge base flows within them (Cosh, Fu and Hughes, 2012). Once knowledge can be easily circulated, employees are more likely to be open to challenges, since they have the knowledge base and accordingly can make appropriate decisions on risk-taking (Lam, 2011). On the other hand, a low level of organisational structure capability will fail to support the way firms adapt to changes in management systems for value co-creation. In other words, firms with a high level of decentralised structure (or organisational structure capability) are more likely to be flexible and quick to respond to any changes in the environment, thus facilitating better support for customer involvement in value co-creation (Olson, Slater and Hult, 2005).

The above findings are consistent with those reported by several similar studies. For instance, Akgün, Keskin and Byrne (2012) revealed a significant positive impact of loose management and informal structure (or organisational structure capability) on management adaptive capability related to innovation. In addition, Ambrose and Schminke (2003) provide a clear description and test of the moderating effect of organisational structure capability in the organisational justice-outcome relationship. They find that firms' ability to redesign a high level of decentralised/informal structure provides opportunities for employees to be experts in their fields and to make their own judgements and decisions in response to external changes (Wee and Chua, 2013), stimulating explorative learning towards value co-creation and innovation (Balau, van der Bij and Faems, 2020). Specifically, with a high level of decentralised structure, employees will be more flexible in their work, which will give them the opportunities to think outside the box and find solutions to problems, including how they can integrate customers in value co-creation processes (Chen and Huang, 2007). Therefore, the findings of this study extend current knowledge on the justice-outcome relationship (e.g. Ambrose and Schminke, 2003) by demonstrating the significance of organisational structure capability as a moderator for facilitating the performance of management system adaptive capability in the context of value co-creation.

#### ***d) The Moderating Effect on The Performance of Information Generation on Value Co-Creation***

Based on the moderation analysis, the results reveal an insignificant moderating effect of organisational structure capability on the performance of information generation related to value co-creation ( $p > 0.05$ ). This means that such capability does not facilitate firms' ability to generate information from customers aimed at value co-creation. The possible reason for this insignificant result is that a firm's ability to use social media to generate information from customers does not depend on its internal structure. This is in line with Trainor et al. (2014a), who argue that organisational structure capability only influences the way firms integrate social media technologies with internal capabilities in the drive for value co-creation. For instance, a narrow hierarchical structure often involves lower levels of authority and a faster decision-making process (Chen and Huang, 2007). The decision to integrate social media technologies to better engage customers in value co-creation processes is therefore more flexible, resulting in better collaboration between firms and customers (Brey, 2019). However, such flexibility does not necessarily mean that SMEs are able to generate quality and relevant information from customers.

Although some scholars highlight the importance of internal competencies, including organisational structure capability, to leverage the use of social media (Valos et al., 2017), this is often done by using well-developed strategies that guide

the whole organisation towards achieving its goals (Dutta, 2010). Specifically, social media marketing strategies help firms to obtain customer and market information and knowledge more easily, which can be converted into ideas for better interaction with customers (Li, Larimo and Leonidou, 2021). The use of social media to effectively generate information depends on firms' ability to connect and interact with customers to obtain useful information from them (He and Lu, 2016; Kao *et al.*, 2016; Malhotra and Malhotra, 2012). Such abilities can be developed with the help of social media marketing strategies to specify the types of social media content, campaigns and activities to draw customers into participate in sharing and exchanging information for value co-creation (Harmeling *et al.*, 2017). Such findings extend the current knowledge on dynamic capability by highlighting the insignificant moderating effect of organisational structure capability on the performance of information generation in value co-creation. For example, the study provides additional insights into social media marketing in SMEs as proposed by Atanassova and Clark (2015), by suggesting that a decentralised structure (or organisational structure capability) does not necessarily enable SMEs to effectively generate information from customers. Instead, their ability to generate such information on social media depends on the effectiveness of social media marketing strategies to support the process of information generation. Therefore, it can be concluded that organisational structure capability does not significantly facilitate the performance of information generation in value co-creation.

#### ***e) The Moderating Effect on The Performance of Information Dissemination on Value Co-Creation***

Based on the moderation analyses, the results reveal an insignificant moderating effect on the relationship between information dissemination and value co-creation ( $p > 0.05$ ). This means that the development of organisational structure capability does not have an impact on firms' ability to dissemination customer information across the organisation for value co-creation. A possible reason for this insignificant result is that organisational structure capability is associated with the way firms work collaboratively (Willem and Buelens, 2009). However, such capability only provides the structural platforms to enable employees to collaboratively communicate and share information within the organisation, while their ability to use social media to support such processes depends on how well they can utilise it.

The findings extend current knowledge on dynamic capability, specifically on organisational structure capability. Similar to the previous section, this capability enables SMEs to be more flexible in their work processes and management (Willem and Buelens, 2009). However, such flexibility does not necessarily facilitate their ability to disseminate customer information across the organisation. Although organisational structure capability promotes internal collaboration and communication (Hilman and Siam, 2014; Olson, Slater and Hult, 2005) and supports the integration of technologies (Jonathan, 2020), it is not always the case that SMEs can effectively distribute relevant customer information throughout the organisation using social media (Dutta, 2010). One of the possible reasons for this is that social media allows information dissemination, but at a low level of interaction (Idris, 2018). This means that firms can use social media as a means of disseminating relevant customer information (Trainor *et al.*, 2014b); however, they are less likely to use it to interact and discuss issues regarding customers, resulting in insufficient solutions to engage customers in value co-creation processes (Kwayu, Lal and Abubakre, 2018). Another possible reason is that false information can be spread rapidly within the organisation, resulting in negative perceptions about customer demand and in less suitable solutions to improve customer participation in value co-creation processes (Zhu *et al.*, 2018).

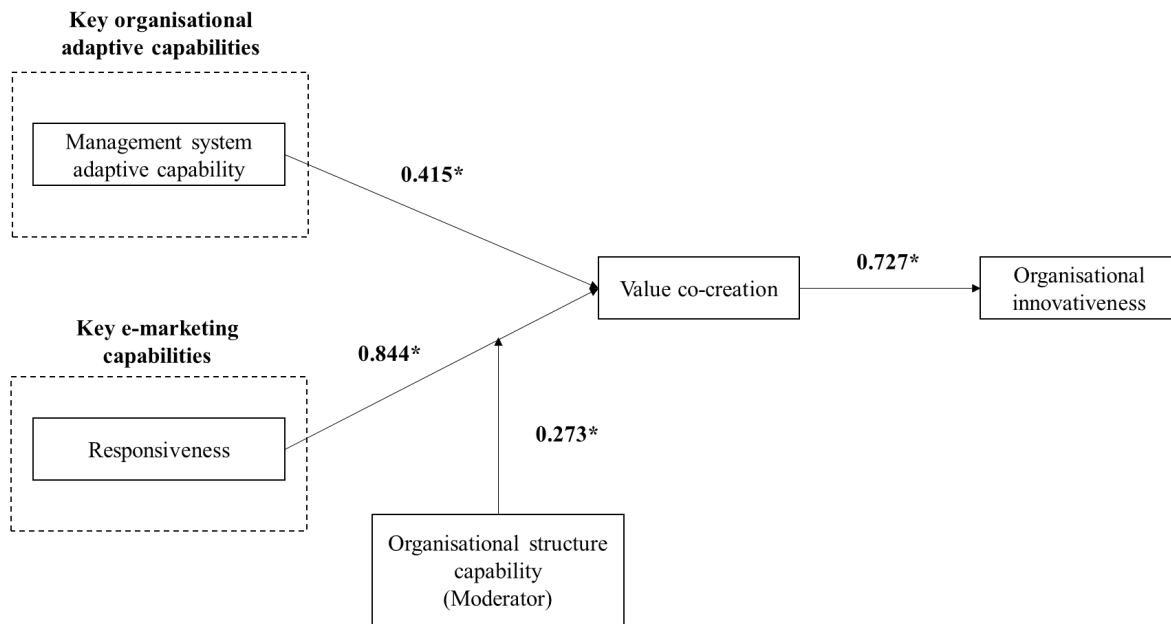
Instead, firms' ability to distribute customer information relies on customer-centric strategies (Bock *et al.*, 2012). Similar to information generation, firms need to develop social media and such strategies to support the use of social media in disseminating information within the organisation and with customers. In particular, firms need knowledge strategies to help organise and manage customer information and knowledge within the organisation (Ammirato *et al.*, 2019). In addition, such strategies help shape organisational actions and how firms use social media to disseminate information and facilitate collaborative value co-creation outcomes (Namisango, Kang and Beydoun, 2021). Therefore, the moderating effect of organisational structure capability is less likely to influence the performance of information dissemination in value co-creation.

#### ***f) The Moderating Effect on The Performance of Responsiveness on Value Co-Creation***

Based on the moderation analysis, the results reveal that organisational structure capability significantly moderates the relationship between responsiveness and value co-creation ( $p < 0.05$ ). The results further indicate that firms with a higher level of such capability are more likely to better respond to customers regarding value co-creation. Firms with a higher level of decentralised structure are given more freedom to work towards and find creative ways to respond to customers and engage and collaborate with them to develop innovation initiatives (Küpers, 2002). In particular, a decentralised structure (or organisational structure capability) promotes collaborative work processes that enable employees to share and exchange relevant information, and to develop the best possible solutions to respond to customer demand, which in turn influences the way firms can engage them in value co-creation processes (Leone *et al.*, 2020).

Such findings are consistent with those of previous studies. For instance, Lenka, Parida and Wincent (2017) provide evidence on the significant positive influence of organisational structure capability on responsive mechanisms to achieve value co-creation. They argue that firms that wish to transform their businesses towards digitalisation will require organisational structure capability to enable the free flow of communication between them and customers in the development of value co-creation. Specifically, a narrow hierarchical structure (or organisational structure capability) promotes flexible work management and faster decision-making processes, thus reducing the time gap in responding to customers (Willem and Buelens, 2009). Such flexibility in organisational structure enables employees to freely discuss matters with teams and devise the best solutions to effectively respond to customer needs (Preikschas *et al.*, 2017). As a result, firms can effectively use social media to share knowledge and resources with customers to generate creativity and decision-making in relation to innovation (Mačiulienė and Skaržauskienė, 2016). In other words, flexibility in organisational structure (or organisational structure capability) positively influences the performance of responsiveness in value co-creation (Benzidia and Makaoui, 2020).

**Figure 9.1: Significant paths in the proposed model**



## 9.2 An Integrated Framework of E-transition Capabilities Model

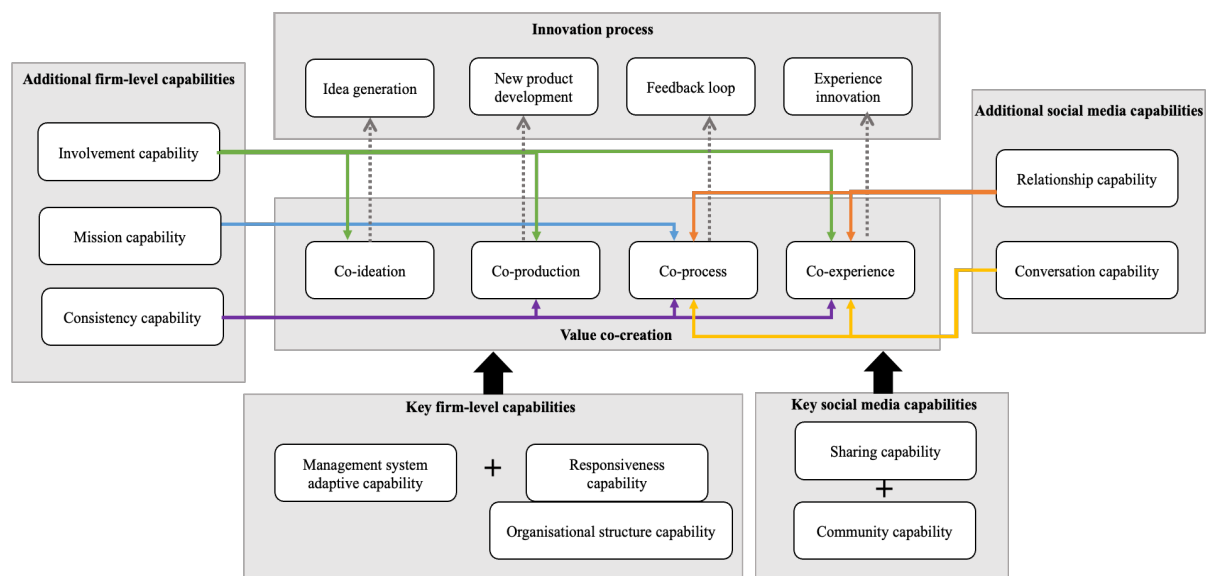
To provide a more complete picture of the empirical domain, this chapter follows the concept of meta-inference proposed by Venkatesh, Brown and Sullivan (2016) who highlight the importance of integrating the findings of both qualitative and quantitative studies in a mixed-methods research. In this research, the qualitative findings focus on the identification of the key and additional capabilities to support an e-transition model (Chapter 5). However, only the key capabilities were tested in the quantitative study (Chapter 8) to understand their structural relationships on value co-creation for innovation. Since the results of both studies relate to different aspects of the phenomena, the qualitative insights on additional capabilities (Chapter 5, Section 5.5.2) are brought forward in this chapter to provide better understandings on the development of an e-transition capabilities model.

Figure 9.2 summarises the capabilities (i.e., key and additional capabilities) required to support an e-transition model to achieve value co-creation for greater innovation. Based on the results of qualitative and quantitative studies, this research develops an integrated framework that explains how firms, especially SMEs, require to focus on different capabilities (i.e., firm-level and social media capabilities) to support value co-creation processes with customers. The below model highlights sharing and community capabilities as key social media capabilities, and management system adaptive capability, organisational structure and responsiveness as key firm-level capabilities, to support an e-transition model towards value co-creation regardless the stages of innovation. Specifically, the key firm-level and social media capabilities can be developed to support the organisation and management of any types of value co-creation activities at all stages of innovation processes. Predominantly, SMEs should utilise different social media affordances (or functions) to enhance information and knowledge sharing (i.e., sharing capability) and community-based interactions (i.e., community capability) with customers to implement an e-transition model and better engage them in value co-creation activities (Abed, Dwivedi and Williams, 2015; Price and Wrigley, 2016).

To support such a process, the development of management system adaptive capability helps SMEs to internally adapt in response to any external changes (e.g. changes in customer demand) (Dean et al, 2016). Simultaneously, responsiveness capability allows SMEs to better use social media to respond to customer request and continuously interact with them to promote value co-creation (Shin, Perdue and Pandelaere, 2020). With a higher level of organisational structure capability (i.e., flexible and decentralised structure), the firm's ability to respond to customers can be more efficient, in terms of resources and time spent (Lenka, Parida and Wincent, 2017). With limited resources, SMEs therefore require the development of these key firm-level (i.e., management system adaptive, responsiveness and organisational structure capabilities) and social media (i.e., sharing and community capabilities) capabilities to primarily build a strong foundation for their businesses in order to implement an e-transition model towards value co-creation regardless the stages of innovation.

Furthermore, SMEs can further decide on the development of additional firm-level and social media capabilities to support specific value co-creation activities at particular stages of innovation when additional resources are available (see discussion in Section 5.5.2, Chapter 5). Specifically, involvement capability is required to boost employee motivation through training programs, in order to enhance creativity and internal competences (e.g. communication and coordination skills) to support customer integration in co-ideation, co-production and co-experience (e.g. Hewett and Shantz, 2021). Mission capability helps to guide and shape the mindsets of employees to effectively select and filter customer feedback in order to improve the current version of the products or services (e.g. Crotts, Dickson and Ford, 2005). Consistency capability, on the other hands, helps to provide internal and stable procedures that can be followed by employees when interacting with customers in co-production, co-process and co-experience (e.g. Iglesias, Ind and Alfaro, 2017). Whilst, the development of relationship and conversation capabilities enables SMEs to generate more in-depth information on customer demand and problems to find the best solutions to improve the existing products or services to generate superior customer experiences (Olanrewaju *et al.*, 2020).

**Figure 9.2: An e-transition capabilities model towards value co-creation for innovation**





## CHAPTER 10: CONCLUSION

This research has focused on an empirical investigation of an e-transition model to achieve value co-creation in relation to innovation in SMEs in a developing country context. The overall aim of the research was to develop an integrated framework that conceptualises the key firm-level capabilities required to support such a model. The underpinning research questions focused on (i) how social media enables SMEs to transition towards value co-creation; (ii) what distinctive capabilities are required to support value co-creation processes; (iii) the way in which key capabilities are required in different types of value co-creation, namely co-ideation, co-production, co-process and co-experience, in SMEs (iv) the key capabilities required to support value co-creation aimed at innovation in SMEs; and (v) the extent to which the relationship between key capabilities (organisational adaptive and e-marketing) and value co-creation is positively influenced by organisational structure capability in SMEs. To address these, a comprehensive review of the related theories and theoretical literature was conducted to identify the capabilities needed to support value co-creation (Chapter 2). In Chapter 3, a mixed methodology was employed to gain insights into an e-transition model. Specifically, in Chapter 4 a qualitative model was proposed to understand the role of social media and to identify the key capabilities required to support such a model, with the results discussed in Chapter 5. Based on the qualitative results, a theoretical framework was then developed in Chapter 6 and a quantitative research model was discussed in Chapter 7. The quantitative data were primarily collected and the results discussed Chapters 8 and 9. Both qualitative and quantitative findings are then summarised in this chapter in an endeavour to address the theoretical and practical implications and the contributions of the study. The chapter then concludes with discussion of the limitations of the study and future research directions.

### 10.1 Summary of the Report

It is often viewed that value co-creation is one of the issues faced by SMEs when developing and maintaining competitive advantage in the market (Songwatanayotin and Bussaracumpakorn, 2017). It plays a significant role in integrating customer needs with firms' competences to develop products and services aimed at innovation. However, the extent to which firms, especially SMEs, need to utilise their limited resources and develop the key firm-level capabilities to support such processes has been overlooked by research in specific contexts (Rashid *et al.*, 2019). Although scholars currently highlight certain value co-creation capabilities, the question remains as to what key capabilities primarily need to be developed by SMEs, given that they have limited resources.

To narrow down the research questions, two main theories were utilised, namely service-dominant (S-D) logic and the dynamic capability approach. An extensive review of the literature was conducted to specify the key capabilities needed to support value co-creation and innovation processes in many different contexts, including those of SMEs and developing countries. The capabilities were identified as organisational culture, organisational structure and e-marketing. A qualitative research model was then developed to investigate the role of social media in facilitating an e-transition model and to identify the capabilities needed to support such processes. To achieve the research objectives, semi-structured interviews were conducted with 28 key informants (eight managers, eight employees and 12 customers) representing eight SMEs. These SMEs represented the four co-creation types, namely co-ideation, co-production, co-process and

co-experience. Framework analysis was used to structure and explore the data, as well as to identify the key firm-level capabilities. Based on the analysis, the capabilities were categorised as those required to support all the types of value co-creation. Three key capabilities were identified, namely organisational adaptive capabilities, organisational structure capabilities and e-marketing capabilities. In addition, other capabilities can be developed, depending on the characteristics of the value co-creation activities being organised. For example, employee involvement capability was required in all the types of value co-creation, apart from co-process. The reason behind this could be that co-process focuses on listening to customer feedback and accordingly modifying existing products and services to meet their expectations. The other three types of value co-creation still require the participation of employees in idea generation and decision-making.

Once the key capabilities had been identified, a quantitative model was developed to validate the proposed model of the effects of these capabilities on value co-creation, and the moderating role of organisational structure capability, and for empirical testing. The empirical setting and primary data were focused using an online survey completed by managers and employees in SMEs in Thailand. Two waves of mailing yielded 204 usable responses (a 29.6% response rate) from both manufacturing and service SMEs. The proposed model was then tested using SmartPLS. The results reveal both significant and insignificant paths (as discussed in Chapter 8). Among the hypothesised paths in the proposed model, five hypotheses were supported and theoretically justified. In brief, the results show that management system adaptive and responsiveness were key capabilities required to support value co-creation in the drive for innovation (H1c and H2c were supported respectively). Specifically, management system adaptive capability is considered to be a key organisational adaptive capability, while responsiveness is a key marketing capability to facilitate value co-creation processes with customers for greater innovativeness. At the same time, the relationship between value co-creation and organisational innovative was also found to be significant (H3 supported). The non-significant direct paths were mainly due to the co-sharing of variances with other constructs in the model.

In addition, two of the moderating effects were found to be significant (H4c was partially supported and H5c was supported). Specifically, the development of organisational structure capability is more likely to positively facilitate the performance of responsiveness in value co-creation, while only a high level of organisational structure capability facilitates the performance of management system adaptive capability in value co-creation. This means that firms with a higher level of decentralised structure can promote more flexible work processes, which enable employees to quickly adapt and respond to evolving customer demand, while a lower level of decentralised structure only supports the way firms respond to customer demand in creating continuous interactions and engaging customers in value co-creation processes. Based on this conclusion, the final model was then developed as an e-transition capabilities model.

## **10.2 Research Implications**

The findings of both the qualitative and quantitative studies, as reported in Chapters 5 and 8 and summarised in the previous sections, have several implications. These reflect how the findings of the research are important to the current theories, methods and practices. The following sections discuss the research contributions, in theoretical, methodological and practical terms. Specifically, the theoretical implications highlight how the results of the two studies together contribute to current theories; i.e., in this case, the implications associated with the perspectives of S-D logic and the

dynamic capability approach. On the other hand, the practical implications highlight the impacts of the research findings on business practices; i.e., how managers and policymakers can specifically benefit from the findings.

### 10.2.1 Theoretical Implications

In essence, theoretical developments describing the underpinning arguments in the literature have provided motivation for investigating an e-transition model to achieve value co-creation from a capability perspective, specifically in the SME context. Given that SMEs often have limited resources, understanding how they can effectively and efficiently utilise these and develop key firm-level capabilities to support value co-creation in the drive for innovativeness is significant. Two basic theoretical assertions, service-dominant (S-D) logic and the dynamic capability approach, have been synthesised in the qualitative and quantitative studies to explore and validate the key capabilities needed to facilitate an e-transition model. The qualitative study reveals the opinions of the key respondents that support the theoretical arguments in terms of the effects of organisational culture capability, organisational structure capability and e-marketing capability on value co-creation. Organisational culture capability is a valid factor which facilitates value co-creation; however, not all aspects of it act as key firm-level capabilities, but only in terms of organisational adaptive capability. Furthermore, organisational structure capability, as perceived by the key respondents, is an influencing factor on the way firms develop key capabilities to support an e-transition model. Specifically, it is a facilitating tool to increase firms' ability to develop organisational adaptive and e-marketing capability for value co-creation. Although such findings are consistent with the current knowledge of value co-creation and how firms should reconfigure their internal competencies to support such a process, some of the findings provide additional insights into the identification of the key and additional capabilities that need to be developed as a foundation for an e-transition model, and which should be addressed in the marketing research when focusing on the implementation of such a model to achieve value co-creation.

In relation to the qualitative findings, two theoretical assertions have been synthesised and a new theoretical model was tested in the quantitative study. The results suggest that a firm's ability to adapt to environmental changes and quickly respond to customer demand positively facilitates its ability to plan, implement and manage value co-creation activities on social media, which then has a positive impact on enhancing organisational innovativeness (Rashid *et al.*, 2019). Specifically, management system adaptive capability and responsiveness act as key firm-level capabilities to facilitate an e-transition model. In particular, management system adaptive capability is a key organisational adaptive capability, while responsiveness acts as a key e-marketing capability to support customer engagement in value co-creation processes aimed at innovation. Organisational structure capability significantly moderates the effect of management system adaptive capability and responsiveness on value co-creation for innovation. A higher level of organisational structure capability promotes more flexible systems and procedures to support any adaptations needed by firms and how they plan to take action and respond to customers in order to create continuous conversations and generate customer participation in value co-creation processes. On the other hand, a lower degree of organisational structure capability only supports the work processes related to how firms can effectively respond to customers and engage them in value co-creation processes. This study makes a significant contribution to the current literature. The results and analysis imply that the identified capabilities extend the current knowledge of two main theories in a new research setting; i.e., SMEs in a developing country. In this regard, practitioners may gain useful insights, as well as directions, from the academic body of knowledge,

signifying that these key internal abilities are a stimulus not only for internal reconfigurations, but also for value co-creation with customers for greater innovativeness (Preikschas *et al.*, 2017). The vast majority of the above theoretical arguments are therefore discussed and validated in the study, which should be of interest to academic practitioners.

Management system adaptive capability is valid evidence of the theoretical argument of Ali, Sun and Ali (2017) which supports the dynamic capability approach of the firm (Leonard-Barton, 1992). They argue that SMEs' ability to quickly adapt to changes in the environment is a source of competitive advantage in achieving value co-creation aimed at innovation. This research found that SMEs with a high degree of organisational structure capability are more likely to better develop management system adaptive capability, which significantly influences the way they organise value co-creation activities with customers on social media for greater creativity and innovativeness. Similarly, responsiveness is another demonstration of the theoretical arguments of Lenka, Parida and Wincent (2017), which lends support to the theoretical assertions. They argue that a firm's ability to quickly and simultaneously respond to customer demand facilitates collaboration between firms and customers towards value co-creation. Moreover, the research found that SMEs with organisational structure capability are more likely to be flexible and ready to respond to customer interactions. A higher degree of organisational structure capability facilitates a higher degree of responsiveness within an organisation. As a result, SMEs can generate value co-creation activities with customers in the development of innovation. Therefore, future researchers and practitioners can use this finding when generalising the dynamic capability approach in the SME context.

Although the dynamic capability approach suggests distinctive capabilities to facilitate value co-creation for innovation, the theoretical underpinnings of market adaptive capability, technology adaptive capability, information generation and information dissemination are unlikely to authenticate the connected assertions. The negative results of market and technology adaptive capabilities indicate that a firm's ability to adapt to changes in the market and technologies is less likely to facilitate value co-creation, but instead facilitate innovation directly (Akgün, Keskin and Byrne, 2012). Similarly, information generation and information dissemination are more likely to facilitate customer knowledge management (Raudeliūnienė, Davidavičienė and Jakubavičius, 2018) and customer relationship management (Trainor *et al.*, 2014b), which in turn results in better organisational responsiveness and firm performance in relation to innovation (Batista *et al.*, 2018). Specifically, a firm's ability to use social media to generate and disseminate information from and with customers enables them to collect, store and manage customer information and access it when required (Al-Emran *et al.*, 2018), generating better understanding of customer demand and problems and thus providing better solutions in terms of product innovation and/or experience innovation (Belkahla and Triki, 2011).

While the S-D logic approach suggests how value co-creation activities influence organisational innovativeness, the theoretical underpinnings of value co-creation have authenticated the related assertions directly. Specifically, the results for value co-creation imply that the degree to which SMEs can improve organisational innovativeness depends on the extent to which value co-creation online activities are organised by them (Hsu, 2016; Russo-Spena and Mele, 2012). This is a significant factor in the innovation outcome (Bugshan, 2015). However, a non-linear relationship between value co-creation and organisational innovativeness provides further insights into how value co-creation contributes to organisational innovativeness. Although the process of value co-creation is often seen as a straight line to organisational innovativeness (e.g. Hsu, 2016; Usman *et al.*, 2018), the study suggests the opposite; that the degree of increase in value co-creation may not lead to the same level of increase in organisational innovativeness (Smorodinskaya *et al.*, 2017).

Therefore, this argument significantly contributes to the current knowledge in the value co-creation and innovation literature.

### **10.2.2 Practical Implications**

The practical implications mainly emerged from the qualitative and quantitative findings in terms of what capabilities are significant and are key in facilitating customer integration in value co-creation processes aimed at innovation. In relation to the qualitative findings, the framework analysis suggests that although SMEs are familiar with the advantages of using social media technologies to engage customers in value co-creation, they still face difficulties in developing key firm-level capabilities to support such processes. Based on the interviews, such capabilities are often associated with firms' ability to internally change and quickly adapt to external changes. This implies that changes in internal factors, such as organisational culture, determine firms' ability to integrate external resources for value co-creation. In fact, SMEs may also need to concentrate more on external factors, such as markets, technologies, customers and competitors, in order to implement an effective e-transition model to achieve value co-creation. In addition, the quantitative insights imply that although organisational adaptive capabilities, organisational structure capabilities and e-marketing capabilities are considered as key firm-level ones, only few of them are core capabilities for supporting an e-transition model of value co-creation in SMEs.

The development of an integrated framework of organisational and e-marketing capabilities to support an e-transition model contributes to business practices in SMEs, especially in Thailand. As suggested by Herhausen et al. (2020), SMEs often face challenges related to the gap between practice and knowledge; i.e., how they can significantly develop internal capabilities to facilitate the integration of social media into business models in the development of value co-creation. To respond to this, the research provides a conceptual framework of an e-transition capabilities model. Managers can rely on this framework to effectively and efficiently utilise their available resources and develop the key firm-level capabilities needed to successfully support customer integration in value co-creation activities for innovation on social media. As a result, a strong foundation can be built to support an organisational shift to customer-centric business models in order to achieve value co-creation in the drive for innovation.

First, it is important that managers should recognise that shaping employees' behaviours and work environment towards customer centricity is crucial and acts as an important accelerator in promoting value co-creation with customers (Zheng, Yang and McLean, 2010). More precisely, marketing and management managers can work together to create a more flexible work environment that encourages employees to focus more on customers and their evolving demand in order to better understand them and find ways to encourage them to participate in various value co-creation activities (Romero and Molina, 2011). Since employees play an important role in business processes, managers need to motivate them to understand and identify customer needs, problems and expectations, and accordingly adapt themselves and implement different strategies that promote value co-creation (Mohiuddin Babu *et al.*, 2019).

Second, managers should focus on integrating social media in the process of responding to customers; the use of social media acts as a means to interact with customers and create continuous conversations that could lead to customer participation in value co-creation activities (Shin, Perdue and Pandelaere, 2020). Social media plays an important role in

businesses, especially those in developing countries (Dey *et al.*, 2019); through it, marketing managers can effectively connect with customers by interacting and responding to their demands (Simpson and Radford, 2011). As a result, the customer satisfaction level is more likely to increase, leading to a higher chance of customer participation in value co-creation processes (Harwood and Gary, 2010).

Third, to strengthen the above abilities, managers should also consider organisational structure capabilities as an important facilitator, as SMEs with a decentralised structure tend to quickly adapt and respond to customer needs (Lenka, Parida and Wincent, 2017). Firms that are able to develop such capabilities are more likely to gain advantages in terms of flexibility and responsiveness to changing customer demand (Balau, van der Bij and Faems, 2020). Based on the results of this study, the degree to which firms develop such a capability determines their ability to adapt or respond to customer demand, which in return can generate customer participation in innovation processes (Akgün, Keskin and Byrne, 2012). A higher level of organisational structure capability therefore provides a greater opportunity for firms to develop the necessary capabilities to support value co-creation with customers (Lenka, Parida and Wincent, 2017). Therefore, management managers should focus on promoting decentralised structures to move their organisations towards value co-creation more effectively.

Finally, the research contributes significantly to government policy making regarding support for the growth of SMEs in the economy. By understanding an e-transition capabilities model, the government can, for example, provide (i) training to improve the knowledge of how SMEs can efficiently utilise digital platforms, especially social media, and develop online capabilities (or e-marketing capabilities) to improve their innovation and marketing performance; and (ii) grants and incentives to encourage SMEs to reconfigure their organisational culture and structure towards innovation; i.e. providing collaborative a work environment and training to improve the knowledge and skills of employees, which in turn will contribute to human resource development. Supporting the development of these key firm-level capabilities will facilitate the collection of customer data, which can further be developed into big data in the future. Therefore, with the support of the government, SMEs can increase customers' and firms' long-term value, and generate greater innovativeness, which will help to accelerate economic growth (Dey *et al.*, 2019).

### **10.3 Research Contributions**

This research contributes to the marketing literature in a number of ways. Most significantly, an integrated framework drawn from existing theories satisfies the relevant conditions for S-D logic and dynamic capability approach, with an exceptional data fit. This result confirms the contribution in various respects, as discussed in the following sections.

From a theoretical perspective, the research has referred to two major theories and their causal arguments as a basic theoretical foundation to gain better understanding of the key firm-level capabilities required to support an e-transition model. Previous literature on S-D logic mainly focuses on how to involve customers, or other actors, in value co-creation processes (e.g. Breidbach and Maglio, 2016; Leone *et al.*, 2020; Ramaswamy and Ozcan, 2018). Through the lens of S-D logic, this research extends current theory by exploring the role of social media technologies in value co-creation processes for greater innovation. A typology of value co-creation has been developed that represents the four key types of value co-creation activities, namely co-ideation, coproduction, co-process and co-experience, in the innovation funnel. This typology of value co-creation provides a more comprehensive insight into how different value co-creation activities

can facilitate different stages of innovation. Specifically, the research answers the call from Ketonen-Oksi et al. (2016) and Hamidi et al. (2020) to provide insights into how SMEs can specifically organise and manage value co-creation activities with customers on social media for greater innovativeness. In doing so, the study was able to explore an e-transition model and to identify the distinctive capabilities required to support such a process. Therefore, the study contributes to existing knowledge on value co-creation, especially in the context of technology-enabled value co-creation, as well as to the innovation literature (Gassmann, Sandmeier and Wecht, 2006; Mitrega, Spacil and Pfajfar, 2020) by considering the topic from a capability perspective.

As discussed earlier, key capabilities, such as organisational adaptive capability, organisational structure capability and e-marketing capabilities were found to have extended their relationships in explaining value co-creation for innovation. This research explicitly extends current knowledge of dynamic capability by providing an integrated framework that conceptualises the key capabilities required to support an e-transition model, as well value co-creation for innovation. Such a model is valid evidence of the theoretical argument of Eisenhardt and Martin (2000) that supports the dynamic capability approach. They argue that dynamic capability emphasises the key capabilities needed to adapt, enhance and realign organisational resources and strategies in response to changing market conditions. In this regard, this research has clearly demonstrated that key capabilities often relate to a firm's ability to quickly adapt and respond to changing customer demand. By focusing on organisational culture, organisational structure and e-marketing capabilities, this research addresses the gap identified by Lichtenthaler (2011), who highlighted the need to explore both internal and external resource integration in innovation processes. The study provides additional insights into the significance of the key capabilities that enable firms to integrate such internal and external resources between firms and customers. In particular, this study suggests that the development of organisational adaptive capabilities, organisational structure capabilities and e-marketing capabilities are what SMEs should predominantly focus on when implementing e-transition models of value co-creation. In fact, management system adaptive capability was found to be a key organisational adaptive capability. This means that instead of focusing on such capability as a whole, the study recommends that management system adaptive capability should be a primary capability. In addition, responsiveness is the area on which SMEs should focus when developing e-marketing capabilities, which can be strengthened when SMEs also develop organisational structure capability, in order to effectively support customer integration in value co-creation processes. Whilst, the identification of additional capabilities further provides additional insights into the existing knowledge on dynamic capability, which contributes to the development of a more complete framework. As a result, the study developed an e-transition capabilities model that significantly contributes to the dynamic capability approach (Owoseni and Twinomurinzi, 2019).

Furthermore, geographic extension of knowledge can be achieved by focusing on SMEs in Thailand, as a representative of an emerging market; that is, how SMEs, which are known to be resource constrained and lack know-how and capabilities, shift from product-centric to customer-centric business models using social media to achieve value co-creation (Palacios-Marques, Guijarro and Carrilero 2016). Understanding this phenomenon in the context of SMEs in emerging markets allows us to establish the capabilities needed to support an e-transition model in order to achieve value co-creation for greater innovation. In other words, focusing on SMEs as a research context answers to research needs to provide an integrated framework as a guideline for businesses to effectively and efficiently utilise their available resources and develop required capabilities to support customer integration in value co-creation processes.

Next, using framework analysis enabled the research to focus on different types of value co-creation along an innovation funnel and to understand how each value co-creation process is enabled by social media and the development of distinctive

capabilities, in order to develop propositions on key and additional capabilities. These key propositions could then be tested in quantitative research using PLS-SEM in order to understand the significant relationships of the key capabilities in value co-creation for innovation, with the moderating effect of organisational structure capability. Whilst, the propositions on additional capabilities can be used to provide additional insights into the development of an e-transition capabilities model for SMEs. Using a mixed methodology allowed us to triangulate the data collected from the qualitative and quantitative phases and combine the knowledge from both studies to generate a more complete picture of the studied phenomenon (Venkatesh, Brown and Sullivan, 2016). In other words, it does not only help to understand the 'how' questions, but also to ultimately generalise the findings so that the model could be accountable and transferrable to SMEs in any emerging markets.

As shown in Appendix 4, similar studies have either adopted a qualitative or a quantitative approach in exploring and examining the distinctive capabilities needed to support value co-creation with customers or other stakeholders (e.g. service providers, partners and suppliers). By adopting a mixed methodology, this research greatly contributes to the existing knowledge on value co-creation by providing detailed information on (i) how an e-transition model takes place in SMEs and (ii) why distinctive capabilities are required to support such a process. On the other hand, the research also generates a broader view of the structural relationships of key firm-level capabilities in value co-creation for innovation in order to develop an e-transition capabilities model that can be applied to SMEs for better value co-creation with customers, leading to greater innovativeness. The use of a mixed methodology allowed the research to better understand an e-transition capabilities model of value co-creation from both firms' and customers' perspectives, while confirming the actual basic capabilities required by SMEs to better achieve value co-creation for innovation and remain competitive in the market. The significance of the relationships in the structural model represents the significance and necessity of any key capabilities required to support an e-transition model.

#### **10.4 Research Limitations**

This study has specifically examined an e-transition capabilities model of value co-creation for innovation. Despite the potential, the findings face a number of limitations that may inherently affect the results and contributions. These limitations will be discussed in order to warrant future research attention.

First, in the qualitative study, the research objectives were to explore an e-transition model of value co-creation for innovation. However, the study relied on both firm and customer perspectives in order to identify the key capabilities needed to support such value co-creation processes with customers. At first, difficulties arose in terms of access to customers. To overcome this issue, the researcher worked with selected SMEs to recruit their customers and ensure that each selected one met the research criteria for case selection. Moreover, the selection of respondents in the quantitative study required a long process and considerable efforts to ensure that the selected respondents represented the study population. Since the research focused on SMEs who were already implementing an e-transition model, it was difficult to draw up a list of qualifying ones SMEs. Therefore, the study obtained a list of SMEs and went through all the companies one by one to ensure that the selected ones met all the criteria. Hence, it is important to highlight that the study is based only on SMEs' business models and their networks in both the manufacturing and service industries.



Second, the findings rely on respondents' self-reported data, rather than longitudinal data. Such data may be affected by the respondents' beliefs about events that happened in the past or by their mental state during the period of taking part in the interviews and completing the questionnaire. Consequently, such findings may not reflect the changing situations of an e-transition model of value co-creation for innovation, as many of the findings were generated from the longitudinal study. Therefore, the research may not be able to capture the patterns of organisational needs in the development of capabilities to support value co-creation processes with customers.

Third, another limitation is related to the chosen methodology. The study adopted an abductive approach, which allowed theories to be both contextual and objective by maintaining both subjectivity in their reflections on the research, and objectivity in the data collection and analysis (Morgan, 2007). However, only a few academic sources provide clear guidelines on designing abductive studies in marketing research, especially when converting data into theory. Therefore, there is a need for more research on the concept of abduction to provide more insights into and clear steps on conducting a mixed methodology, specifically a exploratory sequential design, to effectively and efficiently draw solid conclusions around value co-creation and innovation.

Fourth, the data were collected from a limited number of SMEs in Thailand, and thus some insights may be limited to their particular environmental and organisational settings. This is in line with a number of previous studies which have highlighted that there is a significant difference between developing and developed countries in terms of organisational intentions (Iakovleva, Kolvereid and Stephan, 2011) and innovation aims (Akcali and Sismanoglu, 2015). Therefore, the results from a developing country context may not be applicable to that of developed countries or even similar developing countries.

Fifth, a total of seven items were removed during the quantitative analysis (i.e., EFA) in Study 2. Although the removal of these items were due to the requirements within the process, such removal can be viewed as a limitation. Specifically, the removal of these items may be caused by the quality of the measurement scales adopted within the research. A more careful selection of such measurement scales may be required to generate the quality of the quantitative data collection and analysis.

Finally, the results from the significant direct path between value co-creation and organisational innovativeness were found to be non-linear; i.e., the relationship between the two is not a straight line. Although this finding provides additional insights into the current knowledge in the value co-creation and innovation literature, it can also act as a limitation. Specifically, a model estimation that includes a non-linear relationship may require further tests to specify this particular effect on the model estimation.

Whilst acknowledging such limitations, the research demonstrates an e-transition capabilities model of value co-creation for innovation and provides insights into how future research should build additional knowledge in a marketing setting. Therefore, future research directions are discussed in the following the aim of overcoming the limitations of the research.

## 10.5 Future Research Directions

This research has examined SMEs in a developing country, which is an overlooked area in the academic research, and provided insights into how SMEs can effectively and efficiently utilise their available resources and develop key firm-level capabilities to support customer integration in value co-creation processes for innovation. The research has covered numerous strands of knowledge related to value co-creation, dynamic capabilities and innovation in SMEs, and therefore offers a framework, which can be used as a foundation on which future research can be built. Directions are provided for such research in the marketing and management disciplines. Although the study takes into account new challenges via qualitative and quantitative data using extant construct measures, there are a number of suggestions for further research.

First, this research has explored and examined an e-transition capabilities model to achieve value co-creation in the SME context. It has only emphasised the perception of SMEs with respect to their most significant customers. However, the reflection of value co-creation with regular customers was overlooked. Although SME participants were instructed to focus on value co-creation activities with key customers to generate a more meaningful presentation of the data, the perception of how firms can integrate mass customers in value co-creation processes was not captured. Instead, the perception of the overall e-transition capabilities model to achieve value co-creation was captured from a specific aspect of the organisation. Therefore, future research should incorporate other regular customers' perceptions to compare and contrast the findings. This is important, as there may be a significant difference between key and regular customers, and as a result the findings could be generalised.

Second, the research specifically focuses on the use of social media technologies in value co-creation with customers, so-called technology-enabled value co-creation. However, today's technologies are varied. Future research could examine the concept of technology-enabled value co-creation in terms of other technologies or online platforms, such as TikTok (Toscher, 2021), and gamification (Leclercq, Poncin and Hammedi, 2017). For example, Ren et al. (2021) argue that TikTok is a rapidly growing platform on which users integrate short clips of music into user-generated video content, and whereby resources can be exchanged between users and music providers; i.e., music providers make value propositions with their music into which users can integrate their lives. Specifically, TikTok can be used as a means to create virtual communities and co-create with users to improve marketing performance (Mou, 2020). At the same time, gamification offers a platform for the development of brand engagement, value co-creation and relationship enhancement, through its entertainment and challenges in exchange for experiences (Nobre and Ferreira, 2017). In other words, gamification helps in the interaction and idea exchange between users, customers and suppliers to co-create innovation initiatives (Patricio *et al.*, 2020). As suggested by Khajeheian and Ebrahimi (2020), the choice of technologies or platforms has a direct impact on the process of value co-creation with customers for greater innovation.

Third, this research specifically focuses on three key firm-level capabilities (organisational culture, organisational structure and e-marketing capabilities) as the basis for operant resources, rather than combining all the capabilities that already exist in the literature. However, there may be other possible capabilities that are needed by firms to support different aspects of value co-creation processes. For example, other aspects of organisational culture capabilities, as explained in this study, could also be further examined to understand their impacts on value co-creation and to provide additional insights into an e-transition capabilities model. Further research could extend this knowledge by examining

other capabilities associated with higher-level operant resources to support an e-transition model to achieve value co-creation in relation to innovation (Madhavaram and Hunt, 2008). Examples of the capabilities associated with higher-level operant resources are social CRM capabilities (Trainor et al., 2014c), the combination of social media and CRM capabilities.

Fourth, the study identified a non-linear relationship between value co-creation and organisational innovativeness. This means that an increase in organisational innovativeness is not in direct proportion to an increase in value co-creation. Future research could consider this result and further examine a non-linear model of value co-creation and organisational innovativeness to provide additional insights into the value co-creation literature in relation to innovation. The results generated from a non-linear relationship may reveal different research outcomes and conclusions (Hair Jr *et al.*, 2017). In addition, the study also encountered the possible inverse relationship between value co-creation and organisational innovativeness. Instead of developing firm-level capabilities to support value co-creation, it can also have an impact on the way firms develop dynamic capabilities. That is, continuous interactions with customers (or other actors) positively influence the way firms work, plan, implement and solve problems related to firm performance (Peng *et al.*, 2020). Future research could examine such an inverse relationship to generate understanding of how it may influence the development of these capabilities, and combine the results to develop an extended framework of an e-transition capabilities model for value co-creation.

Fifth, this research validates the findings with theoretical assertions from a developing country context. However, some of the findings are still tentative and need to be verified by future studies. Different country contexts could be a research avenue for further research. As this research specifically focuses on SME perspective in a developing country (in this case, Thailand), similar developing country contexts such as those of Malaysia, Vietnam or Indonesia, or other emerging market contexts could be worth exploring to validate and generalise the findings. Cross-country comparative studies could also be conducted to provide further insights into such findings. Furthermore, future research could also provide more comprehensive insights from the developed country context in order to extend the scope of the findings.

Sixth, manufacturing and service industries were included in the study to examine the key firm-level capabilities required to support an e-transition model of value co-creation in SMEs. However, it was found that some of the findings were affected by this randomly incorporated sample from both industries. In overcoming this issue, future research could conduct a separate analysis of manufacturing and service industries using a comparative study with a larger sample to provide more comprehensive insight into how key firm-level capabilities are needed differently in these two main industries.

Last but not least, due to the current COVID-19 crisis, future research could examine the impact of the pandemic on an e-transition capabilities model for SMEs. As suggested by Pedersen, Ritter and Di Benedetto (2020), the crisis has affected societies around the world, including businesses. For example, 757,312 SMEs in Thailand have been affected by the pandemic, which has resulted in a fall in employment (OSMEP, 2020). Consideration of the crisis conditions may provide additional insights into how firms, specifically SMEs in less developed countries, can survive in such difficult times. Due to COVID-19 crisis, businesses heavily depend on social media and other digital marketing to connect, communicate and collaborate with customers (Herhausen *et al.*, 2020). Therefore, the combination of COVID-19 and social media marketing could be a potential and interesting area for future research.

## 10.6 Conclusion

To answer the research questions and achieve the research objectives, the study developed an e-transition capabilities model for conceptual insights. Ultimately, an integrated framework was developed from the in-depth empirical findings from multiple case studies of eight SMEs, and with the participation of eight managers, eight employees and twelve customers. Based on framework analysis, the qualitative findings revealed that organisational culture, organisational structure and e-marketing capabilities were the key e-transition capabilities needed to achieve value co-creation. Such findings are consistent with theoretical expectation, while adding distinctive insights in terms of organisational adaptive capabilities. In the analysis, it was evident that organisational adaptive capabilities acted as key organisational culture capabilities in supporting customer integration in value co-creation for innovation in SMEs. In addition, other aspects of organisational culture capabilities were considered additional capabilities; that is, ones that support specific value co-creation activities at specific stages of innovation processes. Moreover, organisational structure capabilities were seen as influencers of the relationships between key firm-level capabilities and value co-creation. That is, SMEs with a decentralised structure (or organisational structure capabilities) were more likely to quickly adapt and respond to any changes in the market environment. The qualitative findings were then examined and tested in the quantitative study by focusing solely on organisational adaptive capabilities, organisational structure capabilities and e-marketing capabilities.

In the quantitative study, based on PLS-SEM analysis, the proposed model comprising the hypotheses was tested. It was found that management system adaptive capability and responsiveness were the key firm-level capabilities of an e-transition model to achieve value co-creation aimed at innovation in SMEs. The moderating effect of organisational structure capability in the model was clearly established. Such capability was found to insignificantly moderate the relationships between key firm-level capabilities (management system adaptive capability and responsiveness) and value co-creation. In fact, it can be concluded that SMEs with a high level of organisational structure capability are more likely to promote their ability to adapt to external changes and respond to customer demand. Decentralised structures provide managers and employees with an opportunity to be flexible in working systems, processes and authority. Therefore, SMEs can effectively and efficiently adapt in response to any changes in the market, including changing customer demand. As a result, they can facilitate continuous interactions and encourage customers to participate in value co-creation activities for greater innovativeness.

The overall findings of the study therefore extend the use of two key theories – (i) service-dominant logic and (ii) dynamic capability – in a new context by using these approaches as theoretical bases of the tested variables. In fact, the research underlines the significance of these theories in the understanding of an e-transition capabilities model of value co-creation for innovation in an attempt to extend current marketing theories. Specifically, the research offers a platform for value co-creation activities on social media and considers value co-creation to be a joint value creation process involving the creation of ideas, new products/services, improved products/services and/or experiences related to innovation (Romero, Molina and Camarinha-Matos, 2011), as well as the key capabilities required to support such value co-creation with customers in order to generate greater creativity and innovativeness. The framework intends to show that, rather than combining all the capabilities, value co-creation should be facilitated by a set of key firm-level capabilities in order to drive the whole organisation towards engaging customers in value co-creation processes. Furthermore, an e-transition capabilities model enables SMEs to take a step back in developing key capabilities in

order to move forward towards value co-creation and innovation. In other words, an e-transition capabilities model provides guidelines for practical implementation of value co-creation using social media for greater innovation in SMEs. Therefore, the research encourage SMEs and similar businesses to follow these proposed guidelines.

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## Appendices

### Appendix 1: Comparison of product-centric and customer-centric business models

	<b>Product-centric business model</b>	<b>Customer-centric business model</b>
<b>Basic philosophy</b>	Selling products	Serving customers
<b>Targeted customers</b>	Mass group of customers	The most profitable group of customers
<b>Value proposition</b>	Highlights the product and service features	Highlights the product and service benefits
<b>Value chain</b>	Internally-focused through business processes and activities (R&D and market research)	Externally-focused through the involvement of customers in business processes and activities (i.e. value co-creation)
<b>Revenue model</b>	Profitability, revenue and costs	Customer satisfaction and loyalty

### Appendix 2: Distinction between goods-dominant and service-dominant logic

	<b>Goods-dominant logic</b>	<b>Service-dominant logic</b>
<b>Primary unit of exchange</b>	Goods (or commodities) are the primary source of value exchange.	Services (including skills and knowledge) are exchanged for services.
<b>Role of goods</b>	Goods are operand resources and end products.	Goods are transmitters of operand resources that are later used by customers in value creation processes.
<b>Role of customers</b>	Customers are passive receivers; the recipients of the goods.	Customers are co-creators of value; firms interact with them to co-create operand resources.
<b>Determination and meaning of value</b>	Value is determined by the producers and is defined as value-in-exchange.	Value is perceived and determined by customers on the basis of value-in-use, where firms can only offer value propositions.
<b>Firm-customer interaction</b>	Customers are operand resources who act to create transactions of goods.	Customers are operand resources who actively participate in co-creating value.
<b>Business models</b>	Product-centric business models	Customer-centric business models
<b>Source of economic growth</b>	Wealth is obtained through the surplus of tangible resources.	Wealth is obtained through the application of skills and knowledge exchange.

*Source: Adapted from Vargo and Lusch (2004; 2008)*

### Appendix 3: Value co-creation typology review

Authors	Dimension of co-creation typology	Definition	Key focus
Piller, Ihl and Vossen (2010)	Degree of collaboration	The structure of the underlying relationships in co-creation activities for innovation; i.e., collaboration between a firm and a single customer or customer communities.	Selection process
	Degree of freedom	The degree to which customers have control over their contributions ranges from low to high; i.e., whether the activities involve predefined tasks (a low degree of freedom) for customers to complete the tasks, or whether the activities are open (a high degree of freedom) for customers to make contributions.	Customer contributions
	Stages of innovation process	The moment when customer input from co-creation activities enters innovation processes; e.g., in the early stages (idea generation and concept development), or back-end stages of innovation (design and testing).	Innovation stages
Pater (2009)	Openness	The firm's selection process for customer involvement in co-creation activities; i.e., activities can involve all customers or a specific group (lead users).	Selection process
	Ownership	The scope of the outcomes of customer contributions; i.e., whether the outcome is owned by the initiators (individual customers) or by both initiators and contributors (customer communities).	Customer contributions
O'Hern and Rindfleisch (2010)	Contribution activity	The extent to which the co-creation concepts are shared by customers; i.e., whether customer contributions come from all customers (open contributions) or a specific group (fixed contributions).	Customer contributions
	Selection activity	The extent to which customers have control over their contributions in co-creation activities; i.e., whether co-creation activities are based on predefined tasks (firm-led), or are wholly open to customers (customer-led).	Selection process

#### Appendix 4: Methodological Review

Authors	Value co-creation actors	Capabilities supporting value co-creation	Methodology	Data sample	Country	Data collection	Data analysis
Balau, van der Bij and Faems (2020)	Firms and customers	- The impact of value co-creation on organisational creativity	Quantitative	SMEs	Northern Netherlands	Annual survey - 432 responses (RR 16%)	CB-SEM
Bugshan (2015)	Firms and customers	- Informational support	Quantitative	Online communities	-	Online survey - 270 responses (RR 90%)	PLS-SEM
Chuang (2018)	Firms, sellers and customers	- Market orientation - E-marketing capabilities	Quantitative	International tourist hotels	Taiwan	Postal and email survey - 166 responses (RR 38.2%)	PLS-SEM
De Silva and Rossi (2018)	Firms and universities	- Relational capabilities - Communication capabilities - Knowledge acquisition	Mixed Methods	SMEs maintained by a university-owned research institutions	UK	Explanatory sequential design - online survey (190 responses, RR 21%) - in-depth interviews (8 interviews)	PCA and coding
Hanidi, Shams Ghameh and Khajehetian (2020)	Firms and customers	- Creating platforms - Value co-creation mechanisms - Resource planning - Factor engagement	Qualitative	SMEs in service sector (tourism agencies)	-	Semi-structure interviews - 23 employees and managers	Open and axial coding

Authors	Value co-creation actors	Capabilities supporting value co-creation	Methodology	Data sample	Country	Data collection	Data analysis
Jeansson et al. (2017)	Firms and customers	<ul style="list-style-type: none"> <li>- Optimising resources</li> <li>- Making money</li> <li>- Building networks</li> <li>- Knowing the customer</li> <li>- Creating point of interaction</li> <li>- Offering value</li> <li>- Informating</li> <li>- Finding new ways</li> </ul>	Qualitative	SMEs	Sweden	Semi-structured interviews - 16 companies (owners, managers and high-level decision makers)	3-round coding
Kao et al. (2016)	Firms and customers	<ul style="list-style-type: none"> <li>- Interaction</li> <li>- Engagement</li> <li>- Propose</li> <li>- Action</li> <li>- Realisation</li> </ul>	Qualitative	Service firms (digital and telecommunication)	-	Semi-structured interviews - 8 companies (chief brand managers) - Document reviews (articles and Facebook fan pages)	Pattern-matching rule
Killa (2014)	Firms and customers	- Entrepreneurial innovativeness orientation	Quantitative	Handcraft firms (creative industry)	Indonesia	Direct survey - 192 responses	CB-SEM
Marcos-Cuevas et al. (2016)	Service provider and customers	- Interaction capability (individuated, relational, ethical, empowered, developmental and concerted)	Qualitative	B2B firms	-	Multiple case studies - 2 case studies (Rolls-Royce TotalCare and SAP) - Interviews with 23 individuals (customers, suppliers, resellers and distributors) - Archival data reviews	Thematic content analysis
Matarazzo et al (2021)	Firms and customers	<ul style="list-style-type: none"> <li>- Digital transformation</li> <li>- Dynamic capabilities</li> </ul>	Qualitative	SMEs in food, fashion and furniture design industries	Italy	Multiple case studies - semi-structured interviews (entrepreneurs and managers)	Open coding

Authors	Value co-creation actors	Capabilities supporting value co-creation	Methodology	Data sample	Country	Data collection	Data analysis
Mihardjo <i>et al.</i> (2018)	Firms, customers, service providers and partners	- Organisational capability (leadership and digitalisation)	Quantitative	Telecommunication companies (Internet service provider and network provider and partners)	Indonesia	Self-administered survey - 35 firms (senior leaders)	PLS-SEM
Mount and Garcia Martinez (2014)	Firms and users	- Creativity - Expertise - Collective intelligence	Qualitative	Social media crowdsourcing firms	-	Multiple exploratory case studies - 3 case studies (UNAIDS, Rowntree's Randoms and Kit Kat) - Semi-structured interviews (senior managers)	Hybrid analytical approach
Ngugi, Johnsen and Erdélyi (2010)	Firms (suppliers) and customers	- Relational capabilities (technological, human, managerial and cultural)	Qualitative	SMEs (organic food suppliers)	UK (the Southwest of England)	Multiple case studies - in-depth interviews (managers to factory floor employees) - observations	Conceptual framework
Rahayu, Yuliawati and Fakhrudin (2020)	Firms and customers	- Collaboration strategy - Market attractiveness - Dynamic capabilities	Quantitative	SMEs in fashion industry	Indonesia	Descriptive and explanatory survey - 31 responses	PLS-SEM

Authors	Value co-creation actors	Capabilities supporting value co-creation	Methodology	Data sample	Country	Data collection	Data analysis
Rashidirad and Salimian (2020)	Firms and customers	- Dynamic capabilities - Value creation - Competitive strategy	Quantitative	SMEs in IT sector	UK	Online survey - 441 responses (RR 21%)	SEM
Royo-Vela and Velasquez Serrano (2021)	Firms and customers	- Measurement of value	Qualitative	SMEs in B2B marketing innovation context	-	Multiple case studies - 3 4.0 companies (those using VR and AR technologies) - 10 in-depth interviews	Coding
Sorensen, Andrews and Drennan (2017)	Firms and social media users	- Resource integration	Qualitative	Online communities	Australia	Netnography - 2 firms - 196 posts over a two-week period - Secondary data (annual reports, YouTube videos, newsletters and website content)	Thematic content analysis
Sulhaini and Sulaimiah (2017)	Firms and customers	- Organisational culture orientations - Relationship marketing	Quantitative	SMEs (handcraft and food and drink industries)	Indonesia	Door-to-door survey - 499 responses from employees (RR 84.2%)	CB-SEM

<b>Authors</b>	<b>Value co-creation actors</b>	<b>Capabilities supporting value co-creation</b>	<b>Methodology</b>	<b>Data sample</b>	<b>Country</b>	<b>Data collection</b>	<b>Data analysis</b>
Xie <i>et al.</i> , (2016)	Firms and customers	<ul style="list-style-type: none"> <li>- Transactional big data</li> <li>- Communication big data</li> <li>- Participative big data</li> <li>- Transboundary big data</li> </ul>	Qualitative	B2C firms in clothing and furniture industries	China	<ul style="list-style-type: none"> <li>- Multiple case studies</li> <li>- 4 case studies</li> <li>- 78 semi-structured interviews (top executives, top management and frontline employees)</li> <li>- Field observation</li> <li>- Secondary internet data search</li> </ul>	Open coding approach
Zhang and Chen (2008)	Firms and customers	<ul style="list-style-type: none"> <li>- Customisation capability</li> <li>- Service capability</li> </ul>	Quantitative	Firms located in Mid-China	China	<ul style="list-style-type: none"> <li>- Email survey</li> <li>- 79 responses from senior managers (RR 58%)</li> </ul>	SEM
Zhang <i>et al.</i> (2015)	Firms and customers	<ul style="list-style-type: none"> <li>- Marketing capability</li> <li>- Network capability</li> <li>- Innovation capability</li> </ul>	Quantitative	B2B industrial firms	China	<ul style="list-style-type: none"> <li>- On-site survey</li> <li>- 212 responses from senior managers (RR 46.2%)</li> </ul>	SEM (LISREL)



**Appendix 5: Criterion for selecting cases to represent four types of value co-creation**

<b>Value co-creation types</b>	<b>Criterion</b>
Co-ideation	SMEs should focus on idea-generating activities that aim to exchange information with a large group of customers in order to generate a large quantity of insights for future campaigns, products and services (Russo-Spena and Mele, 2012). These activities should include discussion of certain topics related to the products and services to gain overall ideas on customer interests and how they can be encouraged to participate in co-creating activities.
Co-production	SMEs should focus on online activities that aim to involve a specific group of customers in co-creating concepts for new products and services (Etgar, 2009). These activities include asking for customer participation in explaining their current needs and discussing the possible concepts that they think would best satisfy their unmet needs.
Co-process	SMEs should focus on organising activities that aim to generate feedback on current products and services from customers by allowing them to comment on posts to express their opinions on any problems (Battarbee and Koskinen, 2005). These activities include customers expressing what they like or dislike about current features of the products or services, and how they would improve current features to make produce better versions of them.
Co-experience	SMEs should focus on organising activities that aim to maximise customer experience by allowing them to share and discuss their experiences with products and services with the firms and among themselves (Battarbee and Koskinen, 2005). These activities include online communities that aim to bring customers together to interact about their experiences in order to add more value and create superior experiences.

## **Appendix 6: Interview Guide**

This case study is part of a research involving 3-4 SMEs in Thailand. SMEs will be selected based on a number of criteria:

- SMEs operating in Thailand for more than 2 years
- Have transitioned, or in the progress of transition, towards customer centricity
- Aim to achieve value co-creation
- Using social media platforms as an enabling tool towards engaging customers in firms' activities to achieve value co-creation

### **For managers**

- At least 2-years' experience in managing roles in SMEs
- Aims to implement customer-centric business model
- Have leadership ability to implement changes towards customer centricity

### **For employees**

- At least 2-years' experience in engaging customers into value co-creation activities
- Using social media to engage customers into various activities organised by the company
- High engagement with customers

### **For customers**

- Currently customers of respective SMEs
- Using social media platforms as a mean to interact and connect with SMEs
- Engage in value co-creation processes of SMEs

The results of all case studies and a discussion concerning an e-transition model towards value co-creation in SMEs will further be used to structure questionnaire for quantitative data collection. Since the study adopts a mixed method approach, perceptions of managers, employees and customers on an e-transition towards value co-creation will help to form questions in the survey in order to best understand different capabilities required to facilitate an e-transition model towards value co-creation for SMEs.

## Research method

The case study comprises two areas, the first one concerning SMEs' e-transition towards value co-creation on social media platforms and the second one concerning different sets of capabilities required to enable an e-transition model towards value co-creation. In order to understand these two areas, the study requires to understand the process of an e-transition and how different capabilities are developed and utilised to facilitate such e-transition towards value co-creation, and this will be done through the interviews in order to further develop and structure questionnaire for quantitative data collection.

The interview aims to understand an e-transition capabilities towards value co-creation in SMEs. Each interview will last approximately 1 hour per interview, involving a manager, employee and customer in each SME separately. An open questions protocol, reported below, will be used as a guideline during the interview, in order to ensure homogeneity in data collection among different companies.

A case report will be drawn based upon the interview and then sent to the companies, in order to verify whether data and information reported are correct.

When necessary, a second follow-up interview, either by telephone or direct, will be conducted to implement the necessary modifications to the report or to discuss some specific topics more in depth.

**\*\* E-transition:** *A transition from product centricity and customer centricity on a social media platform in order to achieve value co-creation* ADDIN RW.CITE{{37 Jeansson,John 2017}}(Jeansson et al., 2017).

**\*\* Product centricity:** *Focuses on the change and development efforts on various internal processes and capabilities in order to support the products and services delivered to the customers* ADDIN RW.CITE{{251 Kindström,Daniel 2010}}(Kindström, 2010).

**\*\* Customer centricity:** *Focuses on aligning a company's development and delivery of its products and services with the current and future needs of a selected set of customers in order to maximise their long-term financial value to the firm* ADDIN RW.CITE{{173 Fader,P. 2012}}(Fader, 2012).

**\*\* Value co-creation:** *An increasing blurring of boundaries between firm and customers that is held together throughout by high levels of trust, as well as social and emotional ties* ADDIN RW.CITE{{42 Marcos-Cuevas,Javier 2016}}(Marcos-Cuevas et al., 2016).

## Interview guide for managers

Theme	Questions	Prompts
<b>Product centrality VS Customer centricity</b>	<ol style="list-style-type: none"> <li>1. What are the benefits of customer centrality compared to product centrality? <ul style="list-style-type: none"> <li>• Consider both actual and perceived benefits of customer centrality from the perspective of SMEs</li> </ul> </li> <li>2. Why should SMEs become more customer-centric?</li> <li>3. Do you think this firm is customer-centric?</li> </ol>	<ol style="list-style-type: none"> <li>1. Understanding customers' true needs and wants</li> <li>2. Greater customer satisfaction and experience</li> </ol>
<b>Benefits of firm becoming customer-centric</b>	<ol style="list-style-type: none"> <li>1. What are the primary motivations/goal driving the decision to customer centrality?</li> <li>2. What are the secondary motivations/goal driving the decision to customer centrality?</li> <li>3. Does cultural diversity influence the transition towards customer centrality? If yes, how? <ul style="list-style-type: none"> <li>• Influence on organisational culture</li> <li>• Influence on organisational structure</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Better solutions to customers</li> <li>2. Sustainable competitive advantage</li> <li>3. Greater innovation opportunities</li> </ol>
<b>Strategy development towards becoming customer-centric</b>	<ol style="list-style-type: none"> <li>1. In order to become more customer-centric, do you require to change organisational culture? If yes, <ul style="list-style-type: none"> <li>• How do you do it?</li> </ul> </li> <li>2. In order to become more customer-centric, do you require to change organisational structure? If yes, <ul style="list-style-type: none"> <li>• How do you do it?</li> </ul> </li> <li>3. Do you think changing organisational culture and structure influence strategy development?</li> <li>4. What are your current strategies towards customer centrality?</li> <li>5. Do you focus on the interaction with the customers? If yes, how?</li> <li>6. Who are your major customers? What is your customer segmentation?</li> </ol>	<ol style="list-style-type: none"> <li>1. Customer based</li> <li>2. Interaction-orientation strategy</li> <li>3. Customer-focused organisational culture</li> <li>4. Customer-centric organisational structure</li> </ol>

<b>Using social media in becoming more customer-centric towards value co-creation</b>	<ol style="list-style-type: none"> <li>1. Through what social media platforms do you use in the transition towards customer centricity?</li> <li>2. What are the benefits of using social media platforms for the desired goal?</li> <li>3. Is the transition different when using social media platforms as an enabling tool in achieving value co-creation? <ul style="list-style-type: none"> <li>• Traditional transition VS E-transition</li> </ul> </li> <li>4. How effective is customer insight gaining on social media?</li> </ol>	<ol style="list-style-type: none"> <li>1. Customer engagement</li> <li>2. Value co-creation</li> <li>3. Greater firm performance</li> </ol>
<b>Value co-creation with customers</b>	<ol style="list-style-type: none"> <li>1. How do you engage customers into value co-creation process?</li> <li>2. How do you motivate such customer engagement?</li> <li>3. How customer engagement help in generating firm value?</li> <li>4. How is value co-creation process managed?</li> </ol>	<ol style="list-style-type: none"> <li>1. Engagement activities</li> <li>2. CRM</li> <li>3. Market value</li> <li>4. Liquidation value</li> </ol>
<b>Performance assessment</b>	<ol style="list-style-type: none"> <li>1. How do you measure the effectiveness of: <ul style="list-style-type: none"> <li>• The use of social media to aid the transition towards customer centricity?</li> <li>• The involvement of customers in value co-creation processes?</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Customer satisfaction</li> <li>2. Customer retention</li> </ol>
<b>Challenges</b>	<ol style="list-style-type: none"> <li>1. What are the key challenges associated with: <ul style="list-style-type: none"> <li>• Converting customer insights into useful ideas for future value co-creation?</li> <li>• Involving customers into value co-creation processes?</li> </ul> </li> <li>2. What are the key challenges associated with the success of an e-transition towards value co-creation?</li> <li>3. Can these challenges be ranked in terms of key issues: <ul style="list-style-type: none"> <li>• Knowledge capabilities</li> <li>• Relational capabilities</li> <li>• Marketing capabilities</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Organisational capabilities</li> <li>2. E-marketing capabilities</li> </ol>

## Interview guide for employees

Theme	Questions	Prompts
<b>Product centricity VS Customer centricity</b>	<ol style="list-style-type: none"> <li>What are the benefits of customer centricity compared to product centricity? <ul style="list-style-type: none"> <li>Consider both actual and perceived benefits of customer centricity from the perspective of SMEs</li> </ul> </li> <li>Why should SMEs become more customer-centric?</li> <li>Do you think this firm is customer-centric?</li> </ol>	<ol style="list-style-type: none"> <li>Understanding customers' true needs and wants</li> <li>Greater customer satisfaction and experience</li> </ol>
<b>Benefits of firm becoming customer-centric</b>	<ol style="list-style-type: none"> <li>What are the primary motivations/goal driving the decision to customer centricity?</li> <li>What are the secondary motivations/goal driving the decision to customer centricity?</li> <li>Does cultural diversity influence the transition towards customer centricity? If yes, how? <ul style="list-style-type: none"> <li>Influence on organisational culture</li> <li>Influence on organisational structure</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>Better solutions to customers</li> <li>Sustainable competitive advantage</li> <li>Greater innovation opportunities</li> </ol>
<b>Using social media in becoming more customer-centric towards value co-creation</b>	<ol style="list-style-type: none"> <li>Through what social media platforms do you use in the transition towards customer centricity?</li> <li>What are the benefits of using social media platforms for the desired goal?</li> <li>Is the transition different when using social media platforms as an enabling tool in achieving value co-creation? <ul style="list-style-type: none"> <li>Traditional transition VS E-transition</li> </ul> </li> <li>How effective is customer insight gaining on social media?</li> </ol>	<ol style="list-style-type: none"> <li>Customer engagement</li> <li>Value co-creation</li> <li>Greater firm performance</li> </ol>
<b>Value co-creation with customers</b>	<ol style="list-style-type: none"> <li>How do you engage customers into value co-creation process?</li> <li>How do you motivate such customer engagement?</li> <li>How customer engagement help in generating firm value?</li> <li>How is value co-creation process managed?</li> </ol>	<ol style="list-style-type: none"> <li>Engagement activities</li> <li>CRM</li> <li>Market value</li> <li>Liquidation value</li> </ol>
<b>Challenges</b>	<ol style="list-style-type: none"> <li>What are the key challenges associated with: <ul style="list-style-type: none"> <li>Converting customer insights into useful ideas for future value co-creation?</li> <li>Involving customers into value co-creation processes?</li> </ul> </li> <li>What are the key challenges associated with the success of an e-transition towards value co-creation?</li> </ol>	<ol style="list-style-type: none"> <li>Organisational capabilities</li> <li>E-marketing capabilities</li> </ol>

	3. Can these challenges be ranked in terms of key issues: <ul style="list-style-type: none"> <li>• Knowledge capabilities</li> <li>• Relational capabilities</li> <li>• Marketing capabilities</li> </ul>	
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### Interview guide for customers

Theme	Questions	Prompts
<b>The use of social media</b>	1. What social media platforms do you often use? 2. How often do you use those social media platforms? For what purposes? 3. Do you use those social media platforms to interact and connect with firms? How often?	1. Facebook, Instagram, Twitter, Line, etc. 2. Entertainment 3. Information gaining 4. Value co-creation
<b>Social media as an engagement tool in value co-creation process</b>	1. Through what social media platforms does firm use to engage you in various activities? 2. What are the benefits of using those social media platforms, in the perspective of customers? 3. Do you think different social media platforms provide different benefits to you?	1. Facebook, Instagram, Twitter, etc. 2. Convenience 3. Communication 4. Value co-creation
<b>Value co-creation with firms</b>	1. How do firms engage you into their value co-creation process? <ul style="list-style-type: none"> <li>• What are their engagement activities?</li> </ul> 2. Are you interested and engaged in such activities? If yes, how often do you engage?	1. Customer satisfaction 2. Customer loyalty
<b>Customer value</b>	1. What do you mean by value? 2. What value do you receive when purchasing products from the firm? 3. What value will you receive when engaging in value co-creation processes?	1. Value in use 2. Value in experience
<b>Challenges</b>	1. What are the key challenges associated with: <ul style="list-style-type: none"> <li>• The use of social media as a tool to connect with the firm?</li> <li>• The involvement in value co-creation process?</li> </ul> 2. Do these challenges require actions to be taken by firm?	1. Organisational capabilities 2. E-marketing capabilities

## **Appendix 7: Participation Information Sheet (Study 1)**

### **Research project title**

From Product-Centric to Customer-Centric: An E-transition Capabilities Model for SMEs

### **Invitation paragraph**

You are invited to take part in a research study which I am conducting as part of my PhD in Marketing at the University of Kent. The study seeks to understand how an e-transition towards value co-creation is enabled by distinctive capabilities in SMEs and its related issues or concerns. As part of the research, you will be required to answer a set of open-ended questions based on your experience. In order to conduct this, I need to recruit adult participants (over 18 years old) who are participated in technology-enabled value co-creation activities in SMEs.

### **Research purposes**

This research explores the transition of SMEs from product-centric to customer-centric business models enabled by a social media platform and the internal capabilities needed to support such e-transition towards value co-creation. The study focuses, in particular, on SMEs in Thailand as they tend to face intense competition which acts as a barrier to transition themselves toward innovation. The development of distinctive capabilities to support an e-transition toward value co-creation enables SMEs in Thailand to gain access to customer information, insights and knowledge in order to engage customers in value co-creation processes. Moreover, a development of an e-transition capability framework helps to extend knowledge on technology-enabled value co-creation and provide a practical model for SMEs to better gain access to customer information, insights and knowledge in order to engage customers in value co-creation processes towards innovation.

### **Participation involvement**

The participants will be required to answer a set of open-ended questions conducted by me during the interview, which will last approximately for an hour. During the interview, you will be recorded the whole time. However, if you feel there is a moment where you feel uncomfortable and wish to stop the recording, please feel free to let me know.

### **Voluntary nature of participation and confidentiality**

#### ***Do I have to take part?***

No, you do not have to take part if you do not wish to. Participation is completely voluntary. If you wish to withdraw, you can contact me via email. No issues will arise should you withdraw from the study.



***What will happen to me if I take part?***

You will be asked a set of open-ended questions concerning an e-transition towards value co-creation (using social media platforms) in order to achieve value co-creation. The interview will last for approximately 1 hour.

***Will my taking part in this study be kept confidential?***

Yes, I will be the only person to have access to raw data and, if necessary, the University of Kent supervisors. If you wish to withdraw from the study, you will only be identified by the participant code. This participant code will not be entered into a computer during the analysis and interpretation of the data. The data will be destroyed after the research study has been graded.

**Participation risks**

This study does not involve any kinds of risks, such as material risks, side effects, distress or discomforts to the participants. If you are harmed by taking parts in this project, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action, but you may have to pay for it.

**Participation benefits**

There is no intended benefit to individuals, but to SMEs as a whole, in terms of an e-transition towards value co-creation. A well development of an e-transition capabilities model will allow SMEs to better engage customers in their value co-creation processes and to better become customer-centric, in order to gain sustainable competitive advantage.

**Research organiser**

This research study is conducted under the study of PhD Marketing at University of Kent.

**Research review**

The study has been approved by a member of the staff from the University of Kent, Faculty in Social Sciences.

**Data protection/confidentiality/privacy**

This is the University-level statement on the GDPR and our lawful basis for the processing of personal information for the purposes of research.

<https://research.kent.ac.uk/researchservices/wp-content/uploads/sites/51/2018/07/General-Data-Protection-Regulation-guidance-for-researchers.pdf>

The data collected will remain anonymised in order to protect the participants' identities and will only be accessed by me. It will be stored up to 12 months after the end of the study. After that, the data will be destroyed from all devices.

### **Research results**

The results will be written up and further used to structure questionnaire for quantitative data collection. The results will not be published, and confidentiality will be maintained at all times. If you wish to be provided with information about the findings, you can contact me on [an356@kent.ac.uk](mailto:an356@kent.ac.uk) and I will send you a copy of the findings.

### **Contact for further information and complaints**

Should you wish to contact me for further information on this particular research study, feel free to email me, Ariya Nithikulsak, at the following address: [an356@kent.ac.uk](mailto:an356@kent.ac.uk). In addition, the participants will be provided a copy of the information sheet and a signed consent form to keep.

Thank you for taking the time to read this sheet. I hope that you are able to take part in the study. If you are happy to do so, please complete the consent form.

## Appendix 8: Consent Form (Study 1)

**Title of project:** From Product-Centric to Customer-Centric: An E-transition Capabilities Model for SMEs

**Name of investigator:** Miss Ariya Nithikulsak

**Participant Identification Number for this project:**

1. I confirm I have read and understand the information sheet dated... (version...) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. *(Insert contact number here of lead researcher/member of research team, as appropriate).*

☐

3. I understand that my responses will be anonymised before analysis. I give permission for members of the research team to have access to my anonymised responses. *(Also add here a statement about publication of anonymised direct quotes, if this will be done).*

☐

4. I agree to take part in the above research project.

☐

5. I agree to have my interview recorded.

☐

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Name of participant

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Date

---

Signature

---

Name of person taking consent

---

Date

---

Signature

*(if different from lead researcher)*

*To be signed and dated in presence of the participant*

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Lead researche

---

Date

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Signature

## Appendix 9: Remedies for validity and reliability at multiple phases of the qualitative study

Test	Qualitative phases	Theoretical explanation	Remedies
Construct validity	Conceptualisation phase	To ensure correct measures are used to reflect the concepts being studied	<ul style="list-style-type: none"> <li>• Multiple case studies</li> <li>• Interviews with different internal and external respondents</li> <li>• Purposeful sampling guide</li> </ul>
Internal validity	Experimental phase	To establish a causal relationship	<ul style="list-style-type: none"> <li>• Collection of rich data</li> <li>• Comparison of data within and across cases</li> <li>• Reflexivity</li> </ul>
External validity	Inferential phase	To demonstrate that the findings of the case studies can be generalised	<ul style="list-style-type: none"> <li>• Standardised interview protocol with clear procedures for data collection and analysis</li> <li>• Collection of rich data</li> </ul>
Reliability	Conceptualisation, Experimental and Inferential phases	To demonstrate that the findings of the case studies can be replicated	<ul style="list-style-type: none"> <li>• Development of a standardised interview guide from previous studies</li> <li>• Use of concepts from the literature</li> <li>• Sharing of data and cross-checking with external observers</li> <li>• Creation of field notes</li> </ul>

## Appendix 10: The meanings of keywords used during the creation of framework marix (Study 1)

### Keywords representing social media affordances

- **Post content** – the act of sharing and posting verbal, audio-visual and/or visual content to encourage customers to participate by reading, liking or commenting.
- **Liking** – the use of like buttons by users to interact and show they approve of and are satisfied with what has been shared on social media.
- **Commenting** – when firms or customers express their thoughts and opinions in the form of texts on the content shared on social media.
- **Live streaming** – the use of live features for interaction and conversation with customers, in which firms and customers can share comments, likes and respond in real-time.
- **Blogging** – the act of writing online articles to express one's own experiences of particular situations to persuade others to participate.
- **Hashtagging** – the use of a word or keyword phrase preceded by a hash (#) to allow users who are interested in the topic to be able to find it when they search for the particular keyword.
- **Friend tagging** – the act of mentioning someone on a post by using the @ symbol to create a link between the content and a person.
- **Notification** – the use of alerts or reminders when an activity is linked to users' profiles to encourage them to participate.
- **Location finding** – the use of location features on social media to segment customers and to send alerts when something happens in a specific location.
- **Complaining** – the act of sharing negative experiences in the form of comments or personal messages, to show dissatisfaction and demand solutions to solve problems.
- **Customised messaging** – the act of personalising messages or content to suit the needs of different groups of customers or users.
- **Recommending** – the act of expressing one's own opinions or suggestions regarding a topic in order to generate better outcomes.

### Keywords representing social media capabilities

- **Content sharing** – the ability to share different messages and content, including information, knowledge and feedback on particular topics.
- **Experience sharing** – the ability to share one's own experiences in the form of photos, videos or texts to others.
- **Conversation creating** – the ability to quickly approach and respond to customers to create conversations.
- **Virtual activity creating** – the ability to organise and manage online activities with customers (e.g. focus groups and discussion sessions) to gain in-depth insights into particular topics.
- **Community building** – the ability to gather together customers with the same or similar interests and share a sense of community with each other.
- **Relationship building** – the ability to connect and build relationships with customers.

# Appendix 11: Social media affordances enabling the development of social media capabilities

Utilisation of social media affordances to develop social media capabilities	Case ID
Meta-voicing → Sharing capability	ID1, ID2, ID3, ID4, ID5, ID6, ID7, ID8, ID9, ID10, ID11, ID12, ID13, ID14, ID15, ID16, ID18, ID19, ID21, ID22, ID23, ID24, ID25, ID27
Meta-voicing → Community capability	ID1, ID3, ID6, ID13, ID14, ID20, ID22, ID23, ID25, ID26, ID27, ID28
Triggered attending → Sharing capability	ID8, ID9, ID13, ID15, ID17
Triggered attending → Community capability	ID10, ID17, ID19
Triggered attending → Conversation capability	ID6, ID8, ID11, ID15, ID21, ID25, ID28
Network-informed associating → Sharing capability	ID3, ID4, ID5, ID11, ID12, ID13, ID20, ID22
Network-informed associating → Community capability	ID1, ID4, ID5, ID11, ID12, ID14, ID22, ID23, ID25
Network-informed associating → Relationship capability	ID5, ID9, ID12, ID18, ID22, ID25, ID26
Generative role-taking → Sharing capability	ID2, ID4, ID6, ID7, ID9, ID10, ID11, ID14, ID18, ID21, ID22, ID24, ID27
Generative role-taking → Conversation capability	ID4, ID7, ID8, ID9, ID15, ID16, ID21, ID25
Generative role-taking → Relationship capability	ID6, ID11, ID12, ID15, ID16, ID18, ID19

## Appendix 12: Statistical approaches to CMB

	Do the approaches detect CMB?	Do the approaches require knowledge of the potential source of CMB?	Do the approaches measure CMB and eliminate its effects?
Harman's single factor test	Yes	No	No
Correlation matrix	Yes	No	No
CFA analysis	Yes	No	Yes

*Source: Rodríguez-Ardura and Meseguer-Artola (2020)*

## Appendix 13: Total number of SMEs in Thailand by size category (in thousand units)

Year	Micro firms	Small firms	Medium firms	Total SMEs
2020	2,696	410	44	3,150
2019	2,645	416	44	3,105
2018	2,638	391	42	3,071
2017	2,634	366	41	3,041
2016	2,613	351	38	3,002
2015	2,402	326	34	2,762
2014	2,300	324	37	2,661
2013	2,290	314	35	2,639
2012	2,271	287	32	2,590
2011	2,251	291	30	2,572

*Source: (OSMEP, 2020)*

## Appendix 14: Studies Examining Value Co-Creation for Innovation

Authors	Dependent and independent variables	Relationship with DV	Measurement	Country	Method, No. of responses and response rate	Unit of analysis
Chen et al. (2015)	DV = Product innovation performance IV = Business venturing IV = New product development IV = Self-renewal IV = Competitive intensity (moderator)  DV = Corporate entrepreneurship IV = IT infrastructure flexibility IV = IT integration IV = IT business alignment IV = IT management IV = Competitive intensity (moderator)	+ + +  Not supported	5 items on 5-point Likert scale 4 items on 5-point Likert scale 5 items on 5-point Likert scale 4 items on 5-point Likert scale 3 items on 5-point Likert scale  13 items on 5-point Likert scale 4 items on 5-point Likert scale 3 items on 5-point Likert scale 6 items on 5-point Likert scale 6 items on 5-point Likert scale 3 items on 5-point Likert scale	China	Onsite survey 138 responses RR 65.1%	Firm characteristics
Cheng and Ja-Shen Chen (2013)	DV = Breakthrough innovation IV = Dynamic innovation capability IV = Open innovation activities (moderator)	+ +	6 items on 7-point Likert scale 5 items on 7-point Likert scale 5 items on 7-point Likert scale	Taiwan	Email survey 218 responses RR 22.9%	Firm characteristics
Choi, Ko and Kim (2016)	DV = Purchase intention IV = Social/Conspicuous IV = Aesthetic/ Self-expression IV = Experiential / hedonic IV = Quality value IV = Brand loyalty IV = Brand recognition  DV = Brand value IV = Social/Conspicuous IV = Aesthetic/ Self-expression IV = Experiential / hedonic IV = Quality value IV = Cognitive attributes IV = Emotional attributes  DV = Customer value IV = Cognitive attributes IV = Emotional attributes	+ + + + + + +  + + + +  Not supported Not supported  + +	4 items on 7-point Likert scale 3 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 2 items on 7-point Likert scale 3 items on 7-point Likert scale  4 items on 7-point Likert scale 3 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 3 items on 7-point Likert scale 4 items on 7-point Likert scale  15 items on 7-point Likert scale 3 items on 7-point Likert scale 4 items on 7-point Likert scale	Korea	Online and offline survey 418 responses	Customer characteristics



Authors	Dependent and independent variables	Relationship with DV	Measurement	Country	Method, No. of responses and response rate	Unit of analysis
Foltean, Trif and Tuleu (2019)	DV = Firm performance IV = CRM capabilities IV = Social media technologies (SMT) use IV = SMT x CRM capabilities  DV = SMT use IV = Customer coercive pressure IV = Mimetic competitor pressure	+ Not supported Not supported  + +	3 items on 7-point Likert scale 5 items on 7-point Likert scale 4 items on 7-point Likert scale  4 items on 7-point Likert scale 4 items on 7-point Likert scale 5 items on 7-point Likert scale	Romania	Online survey 149 responses RR 14.9%	Firm characteristics
Getnet et al. (2019)	DV = Customer value IV = Product innovativeness IV = Marketing capabilities (moderator)  DV = Product innovativeness IV = Bricolage capability IV = Ties with civil society (moderator) IV = Ties with government (moderator)	+ +  + Not supported Not supported	6 items on 7-point Likert scale 2 items on 7-point Likert scale 9 items on 7-point Likert scale  2 items on 7-point Likert scale 4 items on 7-point Likert scale 6 items on 7-point Likert scale 5 items on 7-point Likert scale	Sub-Saharan Africa	Drop-and-collect survey 450 responses RR 68%	Firm characteristics
Hsu (2016)	DV = NPD performance IV = Co-creating strategy IV = Marketing strategy IV = Design strategy IV = Innovation strategy  DV = Co-creating strategy IV = Marketing strategy IV = Innovation strategy IV = Design strategy  DV = Design strategy IV = Innovation strategy IV = Marketing strategy  DV = Marketing strategy IV = Innovation strategy	Partially supported + + +  + + Partially supported  + +  +	6 items on 5-point Likert scale 4 items on 5-point Likert scale 4 items on 5-point Likert scale 4 items on 5-point Likert scale 3 items on 5-point Likert scale  4 items on 5-point Likert scale 4 items on 5-point Likert scale 3 items on 5-point Likert scale 4 items on 5-point Likert scale  4 items on 5-point Likert scale 3 items on 5-point Likert scale 4 items on 5-point Likert scale  4 items on 5-point Likert scale 3 items on 5-point Likert scale	Taiwan	Formal survey 247 responses 24.7%	Firm characteristics

Authors	Dependent and independent variables	Relationship with DV	Measurement	Country	Method, No. of responses and response rate	Unit of analysis
Kang (2014)	DV = Repurchase loyalty IV = Commitment IV = Value equity  DV = Commitment IV = Value equity  DV = Value equity IV = Usability and information quality IV = Visual appeal and image IV = Interactivity IV = Web innovativeness	+ +  +  + + + +	3 items on 7-point Likert scale 5 items on 7-point Likert scale 6 items on 7-point Likert scale  5 items on 7-point Likert scale 6 items on 7-point Likert scale  6 items on 7-point Likert scale 8 items on 7-point Likert scale 4 items on 7-point Likert scale 2 items on 7-point Likert scale 2 items on 7-point Likert scale	US	Online survey 691 responses RR 10%	Customer characteristics
Killa (2014)	DV = Marketing performance IV = Value co-creation IV = Product innovation  DV = Value co-creation IV = Product innovation  DV = Product innovation IV = Entrepreneurial innovativeness orientation	+ +  +  +	Questionnaire items for the constructs were adopted from previous research	Indonesia	Direct survey 192 responses RR 96%	Firm characteristics
Kim and Ko (2010)	DV = Purchase intention IV = Entertainment IV = Customisation IV = Interaction IV = Word of mouth IV = Trend IV = Intimacy IV = Trust  DV = Customer relationship IV = Entertainment IV = Customisation IV = Interaction IV = Word of mouth IV = Trend	+ Not supported + + Not supported Not supported +  + Partially supported Not supported Not supported Partially supported Partially supported	Items adopted from prior research 4 items on 5-point Likert scale 5 items on 5-point Likert scale 4 items on 5-point Likert scale 3 items on 5-point Likert scale 2 items on 5-point Likert scale Items adopted from prior research Items adopted from prior research  Items adopted from prior research 4 items on 5-point Likert scale 5 items on 5-point Likert scale 4 items on 5-point Likert scale 3 items on 5-point Likert scale 2 items on 5-point Likert scale	Korean	Self-administrated Survey 133 responses RR 88.7%	Customer characteristics

Authors	Dependent and independent variables	Relationship with DV	Measurement	Country	Method, No. of responses and response rate	Unit of analysis
Vega-Vazquez, Revilla-Camacho and Cossio-Silva (2013)	DV = Value co-creation IV = Information seeking IV = Information sharing IV = Responsible behaviour IV = Personal interaction IV = Feedback IV = Advocacy IV = Helping IV = Tolerance	+ + + + + + + +	2 items on 7-point Likert scale 3 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 2 items on 7-point Likert scale 3 items on 7-point Likert scale 4 items on 7-point Likert scale 3 items on 7-point Likert scale	Not specified	Dully-completed survey 547 responses	Customer characteristics
Zhang and Chen (2008)	DV = Customisation capability IV = Service capability IV = Key co-creation activities  DV = Service capability IV = Key co-creation activities	+ +  +	5 items on 5-point Likert scale 4 items on 5-point Likert scale 4 items on 5-point Likert scale  4 items on 5-point Likert scale 4 items on 5-point Likert scale	China	Email survey 174 responses RR 58%	Firm characteristics
Zhang et al. (2011)	DV = Customerisation capability IV = Flexibility IV = Service IV = Delivery  DV = Delivery IV = Flexibility  DV = Service IV = Flexibility	+ + +  +  +	4 items on 5-point Likert scale 3 items on 5-point Likert scale 4 items on 5-point Likert scale 3 items on 5-point Likert scale  3 items on 5-point Likert scale 3 items on 5-point Likert scale  4 items on 5-point Likert scale 4 items on 5-point Likert scale	China	Email survey 75 responses RR 62.7%	Firm characteristics
Zhang et al. (2015)	DV = Brand equity IV = Customer value IV = Innovation capability IV = Marketing capability IV = Network capability  DV = Customer value IV = Value co-creation  DV = Value co-creation IV = Innovation capability IV = Marketing capability IV = Network capability	+ Partially supported + +  +  + + +	9 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 5 items on 7-point Likert scale  4 items on 7-point Likert scale 6 items on 7-point Likert scale  6 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 5 items on 7-point Likert scale	China	On-site survey 212 responses RR 46.2%	Firm characteristics

Authors	Dependent and independent variables	Relationship with DV	Measurement	Country	Method, No. of responses and response rate	Unit of analysis
Zdunczyk and Blenkinsopp (2007)	DV = Organisational strategy IV = Organisational size IV = The nationality of ownership IV = State-ownership history IV = Position in the organisation	+	10 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale	Poland	67 responses RR 100%	Firm characteristics
	DV = Organisational structure IV = Organisational size IV = The nationality of ownership IV = State-ownership history IV = Position in the organisation	+	10 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale			
	DV = Organisational support mechanisms IV = Organisational size IV = The nationality of ownership IV = State-ownership history IV = Position in the organisation	Not supported Not supported Not supported Not supported	10 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale			
	DV = Organisational behaviour IV = Organisational size IV = The nationality of ownership IV = State-ownership history IV = Position in the organisation	+	10 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale 4 items on 7-point Likert scale			
		+				
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		+				

## Appendix 15: Studies Using PLS-SEM

Authors	Research title	Sample frame source	Sample size	Key informants	Country
Chen et al. (2015)	IT capabilities and product innovation performance: The roles of corporate entrepreneurship and competitive intensity	Local government agencies (manufacturing firms)	N = 138 Response rate 65.1%	Senior information system (IS) managers (i.e. chief information officers, IT directors and IT managers) and business leaders (i.e. CEOs) in manufacturing firms	China
Choudhury and Harrigan (2014)	CRM to social CRM: the integration of new technologies into customer relationship management	CorpData (firms that implement CRM)	N = 167 Response rate 16.7%	Marketing practitioners	-
Chuang (2018)	Facilitating the chain of market orientation to value co-creation: The mediating role of e-marketing adoption	Taiwan Tourism Bureau (International tourist hotels)	N = 166 Response rate 38.2%	Marketing managers in international tourist hotels	Taiwan
Firend and Langroudi (2016)	Co-creation and consumers' purchasing intentions, any value in B2B activities?	Self-collection over 22-months period while working and consulting throughout Asia	N = 36 Response rate 14.4%	Middle and top managers involved in the marketing and manufacturing functions in the B2B context	Asia (Malaysia, Singapore, Cambodia, Myanmar, Indonesia, Philippines and Thailand)
Foltean, Trif and Tuleu (2019)	Customer relationship management capabilities and social media technology use: Consequences on firm performance	Commercial marketing agency (Kompass business directory)	N = 149 Response rate 14.9%	Top management (i.e. general, marketing, sales and IT managers) in companies with operations	Romania
Pallas et al. (2013)	Investigating organisational innovativeness: Developing a multidimensional formative measure	Commercial address provider	N = 124 Response rate 20%	Top management (i.e. executive managers and academics)	-
Shahiri, O'Cass and Ngo (2014)	Exploring the roles of marketing and selling capabilities in delivering critical customer centric performance and brand performance outcomes for B2B firms	Commercial list provider (B2B firms)	N = 140 Response rate 15%	Senior managers (i.e. marketing and sales)	-

## Appendix 16: Measures and Items (Study 2)

Constructs	Definition	Items	Scales
Market adaptive capability (Akgün, Keskin and Byrne, 2012)	A firm's ability to reconfigure organisational resources to quickly meet the requirements of the customers and markets (Akgün, Keskin and Byrne, 2012).	Our organisation has the capability to: 1. regularly monitor changes in our markets 2. frequently adopt new marketing techniques 3. continuously monitor competitors' actions 4. allocate a substantial part of our resources to marketing practices 5. give close attention to after-sales services	7-point Likert scales
Technology adaptive capability (Akgün, Keskin and Byrne, 2012)	The firm's ability to reconfigure organisational resources to monitor technological changes and access desired technologies towards innovation (Akgün, Keskin and Byrne, 2012).	Our organisation has the ability to: 1. capture technical capabilities 2. monitor technical changes 3. get access to desired technologies 4. achieve technical complementarity 5. avert potential risks	7-point Likert scales
Management system adaptive capability (Akgün, Keskin and Byrne, 2012)	The firm's ability to set systems to encourage employees to challenge traditional practices and evolve rapidly in response to external changes (Akgün, Keskin and Byrne, 2012).	The management systems in the organisation: 1. encourage employees to challenge outmoded traditions/practices/sacred cows 2. are flexible enough to allow us to respond quickly to changes in our markets 3. evolve rapidly in response to shifts in our business priorities	7-point Likert scales
Organisational structure capability (Brockman and Morgan, 2003)	A firm's ability to redesign the systems and procedures that are more decentralised to allow better coordination across the organisation (Wee and Chua, 2013).	In general, the management philosophy in my organisation favors: 1. Open channels of communication 2. Important information flowing quite freely throughout the business unit 3. Managers' operating styles allowed to range freely from the very formal to the very informal	7-point Likert scales

		<p>4. A strong tendency to let the expert in a given situation have the most say in decision making even if this means temporary bypassing of formal line authority</p> <p>5. A strong emphasis on adapting freely to changing circumstances without too much concern for past practice</p> <p>6. A strong emphasis on getting things done even if it means disregarding formal procedures</p> <p>7. Loose, informal control; heavy dependence on informal relationships and norms of cooperation for getting work done</p> <p>8. A strong tendency to let the requirements of the situation and the individual's personality define proper on-job behaviour</p>	
Information generation (Trainor et al., 2014)	A firm's ability to generate information from customers using social media technologies (Trainor et al., 2014).	<p>Our organisation uses social media to:</p> <ol style="list-style-type: none"> <li>1. conduct market research</li> <li>2. detect changes in our customers' product and service preferences</li> <li>3. detect fundamental shifts in our industry (e.g. competition)</li> </ol>	7-point Likert scales
Information dissemination (Trainor et al., 2014)	A firm's ability to distribute external knowledge from customers across the organisation using social media technologies (Trainor et al., 2014)	<ol style="list-style-type: none"> <li>1. Our organisation has frequent interdepartmental meetings to discuss market trends identified via social media.</li> <li>2. Marketing personnel spend time discussing customers' future needs identified on social media with other departments.</li> <li>3. Data collected using social media on customer satisfaction are disseminated at all levels on a regular basis.</li> <li>4. When one department finds out something important about competitors using social media, it is quick to alert other departments.</li> </ol>	7-point Likert scales
Responsiveness (Trainor et al., 2014)	A firm's ability to respond to customer information and other market factors using	<ol style="list-style-type: none"> <li>1. Our organisation uses social media to respond to our competitor's price changes.</li> </ol>	7-point Likert scales

	social media technologies (Trainor et al., 2014)	<p>2. Our organisation pays attention to changes in our customers' products or service needs using social media.</p> <p>3. If a major competitor launched an intensive campaign targeting our customers, we would respond immediately using social media.</p> <p>4. The social media activities of the different departments are well coordinated.</p> <p>5. Customer complaints can be filed and tracked using social media in our organisation.</p> <p>6. When our customers want us to modify a product or service, we announce that change using social media.</p>	
Value co-creation (Ngo and O'Cass, 2009)	The process of integrating customers in business processes to jointly create innovation initiatives that benefit both firms and customers (Ramaswamy, 2009).	<p>1. Our organisation is interacting with customers to serve them better.</p> <p>2. Our organisation is working together with customers to produce offerings that mobilise them.</p> <p>3. Our organisation is interacting with customers to design offerings that meet their needs.</p> <p>4. Our organisation is providing services for and in conjunction with customers.</p> <p>5. Our organisation is co-opting customer involvement in providing services for them.</p> <p>6. Our organisation is providing customers with supporting systems to help them get more value.</p>	7-point Likert scales
Organisational innovativeness Jiao, Alon and Cui (2011)	A firm's overall capability to introduce new products and services into the market or set up new markets via the introduction of strategies oriented towards the firm's overall innovation	<p>1. Our organisation actively introduce improvements and innovations in our organisation.</p> <p>2. Our organisation is creative in its methods of operation.</p> <p>3. Our organisation seeks our new ways to do things.</p>	7-point Likert scales



	mission (Wang and Ahmed, 2004).		
Control variable – Firm size	Total number of employees (Moohammad, Nor’ Aini and Kamal, 2014).	1. Less than 10 employees (start-ups) 2. 10-49 employees (small enterprises) 3. 50-200 employees (medium enterprises)	Dummy variables
Control variable – Firm industry	The type of industry a firm is operating in (Pallas <i>et al.</i> , 2013).	1. Manufacturing 2. Service	Dummy variables
Control variable – Firm age	No. of years the firm has been in virtual business operation (Cheng and Shiu, 2019).	1. Less than or equal to 5 years 2. More than 5 years	Dummy variables

## **Appendix 17: Online Questionnaire (Study 2)**

### **ONLINE SURVEY**

#### **An e-transition model towards value co-creation for innovation in SMEs:**

##### **A capability-based perspective**

Dear Sir/Madam,

You are invited to participate in a study looking at the key firm-level capabilities required to support value co-creation processes enabled by social media platforms (i.e. Facebook and Instagram) used by SMEs to co-create innovation initiatives with customers). If you agree to participate in this survey, you will be asked to answer questions regarding the capabilities needed to support value co-creation activities with customers on social media in your company.

The questions only require your perceptual opinion with respect to key value co-creation activities with customers on social media. Please read the questionnaire statements carefully. The research project will not gather personal information. We are only interested in the participants' views and perceptions of firm-level capabilities. Individual responses will be anonymised and kept confidential.

Completing this survey will take you approximately 10-15 minutes. If you wish to be provided with information about the research findings, please contact me on [an356@kent.ac.uk](mailto:an356@kent.ac.uk) and I will send you a copy of the finding summary.

Ethical approval was granted by the Kent Business School Ethics Committee. Should you need any further information, or request an ethical approval information, please do not hesitate to contact me at the above email.

Thank you for your cooperation

Ariya Nithikulsak

PhD in Marketing candidate, University of Kent

## Questionnaire questions

### I) Organisational-related questions

1. Which industry is your organisation currently operating in?
  - a) Manufacturing, please specify \_\_\_\_\_
  - b) Service, please specify \_\_\_\_\_
  
2. How long has your organisation been operating in this particular industry?
  - a) Less than 2 year
  - b) 2-5 years
  - c) 5-10 years
  - d) More than 10 years
  
3. How many employees are there in your organisation?
  - a) Less than 10 employees (start-ups)
  - b) 10-49 employees (small enterprises)
  - c) 50-200 employees (medium enterprises)
  - d) Above 200 employees (large enterprises)
  
4. What is your role in the organisation?
  - a) Owner/founder
  - b) Manager
  - c) Senior employee (2-5 years experiences in your field)
  - d) Junior employee (0-2 years experiences in your field)
  - e) Other, please specify \_\_\_\_\_
  
5. How long have you been working in the above role?
  - a) Less than 2 years
  - b) 2-5 years
  - c) 5-10 years
  - d) Above 10 years

## II) Social media-related questions

6. What social media platforms do you use in your organisation to connect with customers? Please rank your top three.

(\*\*Multiple options can be selected, if appropriates)

- a) Facebook
- b) Instagram
- c) Twitter
- d) YouTube
- e) Other social media platforms, please specify \_\_\_\_\_

7. To what extend do you agree with the following statement.

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
Your organisation uses social media to organise value co-creation activities with customers  (e.g. asking for customers feedback and accrodingly improve or develop the products and services to better satisfy customer needs)	1	2	3	4	5	6	7

8. To what extent do you agree that your organisation uses social media platforms (mentioned in the previous question) to support different activities with customers:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
Our organisation uses social media to:							
a) Share content with customers	1	2	3	4	5	6	7
b) Create conversations with customers	1	2	3	4	5	6	7

c) Create social relationships with customers	1	2	3	4	5	6	7
d) Manage online communities with customers	1	2	3	4	5	6	7

### III) Capability-related questions

#### 9. Marketing adaptive capability

To what extent do you agree that your organisation has the ability to:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Regularly monitor changes in our markets (e.g. market trends, customer demand, competitors, etc.)	1	2	3	4	5	6	7
b) Frequently adopt new marketing techniques (e.g. social media marketing, customer engagement marketing, etc.)	1	2	3	4	5	6	7
c) Continuously monitor competitors' actions (e.g. changes in their campaigns, activities, marketing strategies, etc.)	1	2	3	4	5	6	7
d) Allocate a substantial part of our resources (e.g. financial, personnel and intellectual resources) to marketing practices.	1	2	3	4	5	6	7
e) Give close attention to after-sales services (e.g. follow-up contact, dealing with customer complaints, etc.)	1	2	3	4	5	6	7

## 10. Technology adaptive capability

To what extent do you agree that your organisation has the ability to:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Capture technical capabilities (e.g. firm-customer interaction, customer relationship management, IT innovation, etc.)	1	2	3	4	5	6	7
b) Monitor technical changes (e.g. changes in social media features and policies)	1	2	3	4	5	6	7
c) Get access to desired technologies. (i.e. technologies your organisation wish to adopt/use).	1	2	3	4	5	6	7
d) Achieve technical complementarity (e.g. social media helps to solve current problems faced by the organisation)	1	2	3	4	5	6	7
e) Avert potential risks (e.g. social media helps to solve current problems faced by the organisation)	1	2	3	4	5	6	7

## 11. Management system adaptive capability

To what extent do you agree that your organisation's management systems:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Encourage employees to challenge outmoded traditions/practices/sacred cows (e.g. risk-taking, think outside the box, etc.)	1	2	3	4	5	6	7

b) Are flexible enough to allow employees to respond quickly to changes in the markets.	1	2	3	4	5	6	7
c) Evolve rapidly in response to shifts in our business priorities.	1	2	3	4	5	6	7

## 12. Customer orientation capability

To what extent do you agree that your organisation focus on customers?

<b>Questions</b>	<b>1 Strongly disagree</b>	<b>2 Disagree</b>	<b>3 Slightly disagree</b>	<b>4 Neutral</b>	<b>5 Slightly agree</b>	<b>6 Agree</b>	<b>7 Strongly agree</b>
a) Our organisation focuses on customer needs while designing business processes.	1	2	3	4	5	6	7
b) Employees receive incentives based on customer satisfaction measures.	1	2	3	4	5	6	7
c) A key criterion used to evaluate our employees are the quality of their customer relationships.	1	2	3	4	5	6	7
d) Our organisation is organised around customer-based groups rather than product or function-based groups.	1	2	3	4	5	6	7
e) Various functional areas coordinate their activities to enhance the quality of customer experience.	1	2	3	4	5	6	7

### 13. Information generation

To what extent do you agree that your organisation uses social media to support the following activities:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Conduct market research (e.g. survey, focus groups, etc.).	1	2	3	4	5	6	7
b) Detect changes in our customers' product and service preferences.	1	2	3	4	5	6	7
c) Detect fundamental shifts in our industry (e.g. competition).	1	2	3	4	5	6	7

### 16. Information dissemination

To what extent do you agree that your organisation uses social media to support the following activities:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Our organisation has interdepartmental meetings to discuss market trends identified via social media.	1	2	3	4	5	6	7
b) Marketing personnel spend time discussing customers' future needs identified on social media with other departments.	1	2	3	4	5	6	7
c) Data collected using social media on customer satisfaction are disseminated at all levels on a regular basis.	1	2	3	4	5	6	7



d) When one department finds out something important about competitors using social media, it is quick to alert other departments.	1	2	3	4	5	6	7
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## 15. Responsiveness

To what extent do you agree that your organisation uses social media to support the following activities:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Our organisation uses social media to respond to our competitor's price changes.	1	2	3	4	5	6	7
b) Our organisation pays attention to changes in our customers' products or service needs using social media.	1	2	3	4	5	6	7
c) If a major competitor launched an intensive campaign targeting our customers, our organisation would respond immediately using social media.	1	2	3	4	5	6	7
d) The social media activities of the different departments are well coordinated.	1	2	3	4	5	6	7
e) Customer complaints can be filed and tracked using social media in our organisation.	1	2	3	4	5	6	7
f) When our customers want us to modify a product or service, we announce that change using social media.	1	2	3	4	5	6	7

## 16. Organisational structure capability

To what extent do you agree that the management philosophy in our organisation favours:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Open channels of communication.	1	2	3	4	5	6	7
b) Important information flowing quite freely throughout the business unit.	1	2	3	4	5	6	7
c) Managers' operating styles allowed to range freely from the very formal to the very informal.	1	2	3	4	5	6	7
d) Experts in a given situation to make decisions even if temporary bypassing of formal line authority.	1	2	3	4	5	6	7
e) An adaption to changing circumstances without too much concern for past practice.	1	2	3	4	5	6	7
f) A strong emphasis on getting things done even if it means disregarding formal procedures.	1	2	3	4	5	6	7
g) Loose, informal control; heavy dependence on informal relationships and norms of cooperation for getting work done.	1	2	3	4	5	6	7
h) A strong tendency to let the requirements of the situation and the individual's personality define proper on-job behaviour.	1	2	3	4	5	6	7

#### IV) Outcome-related questions

##### 17. Value co-creation with customers

To what extent does your organisation:

Questions	1 Not at all	2 Rarely	3 Some what	4 Neutral	5 Often	6 Mostly	7 All the time
a) Interacts with customers to serve them better.	1	2	3	4	5	6	7
b) Works together with customers to produce offerings that mobilise them.	1	2	3	4	5	6	7
c) Interacts with customers to design offerings that meet their need.	1	2	3	4	5	6	7
d) Provides services for and in conjunction with customers.	1	2	3	4	5	6	7
e) Co-opts customer involvement in providing services for them.	1	2	3	4	5	6	7
f) Provides customers with supporting systems to help them get more value.	1	2	3	4	5	6	7

##### 18. Organisational innovativeness

To what extent do you agree that your organisation:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Actively introduce improvements and innovations.	1	2	3	4	5	6	7
b) Is creative in its methods of operation.	1	2	3	4	5	6	7

c) Seeks our new ways to do things.	1	2	3	4	5	6	7
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## 19. Customer value

To what extent do you agree that your organisation provides superior customer value:

Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neutral	5 Slightly agree	6 Agree	7 Strongly agree
a) Our organisation creates superior value for customers when comparing all the costs versus benefits in the relationship	1	2	3	4	5	6	7
b) Considering the costs of doing business with us, our customers gain a lot in overall relationship with us	1	2	3	4	5	6	7
c) The benefits our customers gain in their relationship with us far outweigh the costs	1	2	3	4	5	6	7
d) Our customers get significant customer value (i.e. monetary and non-monetary benefits) from their relationship with us	1	2	3	4	5	6	7

**Appendix 18: Descriptive statistics**

	Minimum	Maximum	Mean	Std. Deviation Statistic	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
TA1	3	7	6.04	.867	-.910	.170	1.088	.339
TA2	3	7	5.97	.890	-.653	.170	-.009	.339
TA3	4	7	6.10	.821	-.625	.170	-.199	.339
TA4	1	7	5.99	.957	-1.376	.170	3.607	.339
TA5	2	7	5.62	1.055	-.492	.170	-.332	.339
MA1	4	7	6.13	.841	-.607	.170	-.461	.339
MA2	2	7	5.99	.972	-.954	.170	1.000	.339
MA3	2	7	6.00	.980	-1.036	.170	1.504	.339
MA4	1	7	5.69	1.077	-.863	.170	1.141	.339
MA5	2	7	6.16	.990	-1.458	.170	2.685	.339
MSA1	1	7	5.77	1.145	-.930	.170	.937	.339
MSA2	2	7	5.97	1.048	-.892	.170	.348	.339
MSA3	2	7	5.96	.992	-.931	.170	1.053	.339
IG1	2	7	5.60	1.112	-.556	.170	-.210	.339
IG2	2	7	5.89	1.026	-.777	.170	.402	.339
IG3	2	7	5.74	1.007	-.648	.170	.295	.339
ID1	1	7	5.41	1.266	-.873	.170	1.050	.339
ID2	1	7	5.59	1.108	-.883	.170	1.185	.339
ID3	1	7	5.61	1.287	-1.162	.170	1.603	.339
ID4	1	7	5.69	1.228	-1.123	.170	1.573	.339
RP1	2	7	5.48	1.366	-.791	.170	.031	.339
RP2	2	7	5.91	1.099	-1.185	.170	1.407	.339
RP3	1	7	5.22	1.383	-.788	.170	.467	.339
RP4	1	7	5.58	1.203	-1.073	.170	1.651	.339
RP5	1	7	5.91	1.128	-1.384	.170	2.588	.339
RP6	1	7	5.69	1.239	-1.074	.170	1.074	.339
OS1	3	7	6.30	.821	-1.252	.170	1.856	.339
OS2	1	7	5.71	1.244	-1.437	.170	2.499	.339
OS3	1	7	5.91	1.112	-1.484	.170	2.848	.339
OS4	1	7	5.68	1.106	-1.107	.170	1.825	.339
OS5	1	7	5.61	1.237	-1.047	.170	1.120	.339
OS6	1	7	5.50	1.311	-1.039	.170	.934	.339
OS7	1	7	5.40	1.189	-.810	.170	.790	.339
OS8	1	7	5.53	1.229	-1.097	.170	1.440	.339
VCC1	1	7	5.87	1.150	-1.061	.170	.906	.339

VCC2	1	7	5.30	1.484	-1.011	.170	.924	.339
VCC3	1	7	5.48	1.315	-1.047	.170	1.364	.339
VCC4	1	7	5.65	1.217	-1.151	.170	1.930	.339
VCC5	1	7	5.44	1.268	-1.072	.170	1.686	.339
VCC6	1	7	5.51	1.285	-1.005	.170	1.077	.339
OI1	3	7	5.84	.946	-.588	.170	-.019	.339
OI2	3	7	6.05	.922	-.870	.170	.385	.339
OI3	3	7	6.22	.816	-.812	.170	.293	.339
Valid N = 204								

*Notes:* TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness

#### Appendix 19: Item communalities for all constructs

Communalities		
	Initial	Extraction
TA1	.622	.627
TA2	.669	.684
TA3	.661	.630
TA4	.630	.501
TA5	.601	.583
MA1	.639	.600
MA2	.670	.670
MA3	.631	.717
MA4	.585	.501
MA5	.433	.401
MSA1	.642	.518
MSA2	.654	.893
MSA3	.719	.690
IG1	.583	.524
IG2	.677	.852
IG3	.609	.561
ID1	.625	.581
ID2	.693	.638
ID3	.606	.540
ID4	.559	.399
RP1	.543	.402
RP2	.652	.528
RP3	.546	.471
RP4	.633	.508

RP5	.491	.473
RP6	.554	.471
OS1	.509	.420
OS2	.549	.334
OS3	.636	.445
OS4	.621	.537
OS5	.654	.573
OS6	.664	.705
OS7	.631	.608
OS8	.560	.535
VCC1	.451	.412
VCC2	.661	.618
VCC3	.707	.772
VCC4	.690	.650
VCC5	.695	.655
VCC6	.573	.418
OI1	.660	.581
OI2	.673	.754
OI3	.714	.780

Extraction Method: Maximum Likelihood.

**Notes:** *TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness*

## Appendix 20: Item communalities after EFA

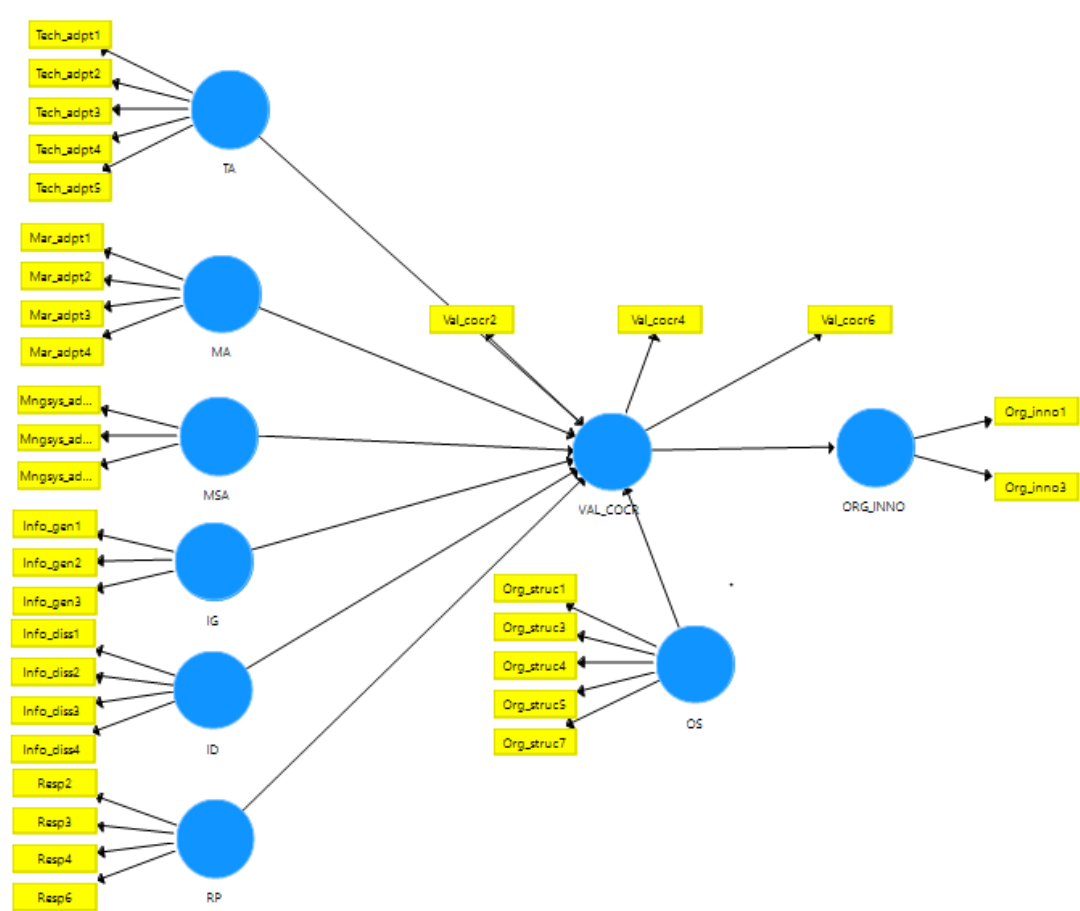
	Communalities	
	Initial	Extraction
TA1	.613	.623
TA2	.655	.684
TA3	.633	.631
TA4	.598	.489
TA5	.585	.589
MA1	.624	.596
MA2	.658	.678
MA3	.616	.701
MA4	.573	.507
MSA1	.628	.518
MSA2	.630	.997
MSA3	.681	.662
IG1	.553	.503
IG2	.655	.943
IG3	.604	.561
ID1	.623	.642
ID2	.682	.698
ID3	.562	.514
ID4	.532	.382
RP1	.503	.387
RP2	.610	.509
RP5	.446	.512
RP6	.537	.507
OS3	.498	.409
OS4	.593	.519
OS5	.638	.604
OS6	.652	.749
OS7	.618	.587
OS8	.546	.515
VCC1	.420	.448
VCC2	.532	.589
VCC4	.509	.519
VCC6	.541	.430
OI1	.639	.565
OI2	.664	.848
OI3	.695	.719

Extraction Method: Maximum Likelihood.

**Notes:** TA = Technology adaptive capability; MA = Market adaptive capability; MSA = Management system adaptive capability; IG = Information generation; ID = Information dissemination; RP = Responsiveness; OS = Organisational structure capability; VCC = Value co-creation; OI = Organisational innovativeness



Appendix 21: Overall measurement model (after eliminating problematic items)



## Appendix 22: HTMT Ratio for Discriminant Validity

	Original Sample (O)	Sample Mean (M)	5.00%	95.00%
INFO_GEN -> INFO_DIS	0.787	0.788	0.705	0.864
MAR_ADPT -> INFO_DIS	0.628	0.626	0.514	0.734
MAR_ADPT -> INFO_GEN	0.708	0.709	0.619	0.796
MNGSYS_ADPT -> INFO_DIS	0.525	0.528	0.401	0.652
MNGSYS_ADPT -> INFO_GEN	0.583	0.587	0.457	0.718
MNGSYS_ADPT -> MAR_ADPT	0.653	0.653	0.522	0.774
ORG_INNO -> INFO_DIS	0.626	0.628	0.493	0.756
ORG_INNO -> INFO_GEN	0.470	0.474	0.330	0.607
ORG_INNO -> MAR_ADPT	0.654	0.657	0.536	0.774
ORG_INNO -> MNGSYS_ADPT	0.696	0.698	0.577	0.810
ORG_STRU -> INFO_DIS	0.449	0.453	0.317	0.583
ORG_STRU -> INFO_GEN	0.491	0.492	0.361	0.618
ORG_STRU -> MAR_ADPT	0.522	0.520	0.386	0.643
ORG_STRU -> MNGSYS_ADPT	0.580	0.579	0.454	0.694
ORG_STRU -> ORG_INNO	0.549	0.550	0.415	0.678
RESP -> INFO_DIS	0.800	0.801	0.708	0.891
RESP -> INFO_GEN	0.736	0.740	0.626	0.845
RESP -> MAR_ADPT	0.682	0.682	0.566	0.787
RESP -> MNGSYS_ADPT	0.465	0.471	0.329	0.608
RESP -> ORG_INNO	0.546	0.551	0.404	0.697
RESP -> ORG_STRU	0.624	0.628	0.519	0.732
TECH_ADPT -> INFO_DIS	0.550	0.551	0.428	0.664
TECH_ADPT -> INFO_GEN	0.583	0.585	0.480	0.686
TECH_ADPT -> MAR_ADPT	0.672	0.672	0.578	0.759
TECH_ADPT -> MNGSYS_ADPT	0.671	0.669	0.572	0.763
TECH_ADPT -> ORG_INNO	0.607	0.608	0.480	0.731
TECH_ADPT -> ORG_STRU	0.555	0.555	0.440	0.662
TECH_ADPT -> RESP	0.511	0.519	0.393	0.641
VAL_COCCR -> INFO_DIS	0.497	0.500	0.366	0.632
VAL_COCCR -> INFO_GEN	0.416	0.419	0.266	0.564
VAL_COCCR -> MAR_ADPT	0.381	0.385	0.237	0.527
VAL_COCCR -> MNGSYS_ADPT	0.494	0.495	0.369	0.618
VAL_COCCR -> ORG_INNO	0.714	0.721	0.584	0.853
VAL_COCCR -> ORG_STRU	0.496	0.499	0.376	0.623
VAL_COCCR -> RESP	0.662	0.666	0.525	0.802
VAL_COCCR -> TECH_ADPT	0.336	0.347	0.226	0.477

**Appendix 23: Summary on VIF as a collinearity statistic**

Items	VIF
MA1	1.924
MA2	2.236
MA3	1.969
MA4	1.641
TA1	2.080
TA2	2.072
TA3	2.092
TA4	1.751
TA5	1.818
MSA1	1.557
MSA2	2.075
MSA3	1.891
IG1	1.602
IG2	2.102
IG3	1.625
ID1	1.713
ID2	2.250
ID3	1.838
ID4	1.465
RP2	1.510
RP3	1.458
RP4	1.639
RP6	1.316
OS1	1.458
OS3	1.565
OS4	1.981
OS5	1.882
OS7	1.515
VCC2	1.443
VCC4	1.587
VCC6	1.280
OI1	1.511
OI3	1.511