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Understanding behavioural intention to use information technology: Insights from humanitarian practitioners

Abstract

The contemporary research in the area of technology adoption mainly focuses on commercial supply chains. However, limited research focuses on the context of humanitarian supply chains. This calls to develop structural models that can scrutinize the technology adoption behaviour in the humanitarian context. Therefore, this study is an attempt to empirically examine the technology adoption behaviour of humanitarian organizations. It extends the unified theory of the acceptance and use of technology (UTAUT) model by integrating personal innovativeness and trust in technology with the behavioural intention to adopt technology. Data from 192 humanitarian practitioners, who have experienced a large number of disasters, is utilized to empirically validate the conceptual model. The structural equation modelling results show that - out of four constructs namely performance expectancy, effort expectancy, social influence and facilitating conditions under UTAUT - performance expectancy and effort expectancy significantly affect the IT adoption. Contrary to expectations, trust and personal innovation do not affect the behavioural intention. Also, personal innovation does not moderate the relationship between performance expectancy and effort expectancy. This underlines the need to foster a learning culture within these organizations. The efforts made by involved humanitarian organizations may be directed towards improving the level of education, skills and facilitating them with other resources such as appropriate IT and data mining training, so that the technology adoption becomes an integral part of their daily activities. Finally, detailed implications for humanitarian organizations are discussed.

Keywords: Information Technology; Humanitarian Logistics; Supply Chain Management; Technology Adoption; Unified Theory of Acceptance and Use of Technology.

1. Introduction

Over the last few years, humanitarian organizations have received significant attention due to an increase in the occurrence of manmade and natural disasters (Burkart et al., 2017; Sandwell, 2011). Consequently, humanitarian organizations are often involved in all phases of disaster management i.e. mitigation, prevention, response and reconstruction. Particularly during their response time, several humanitarian organizations work in coordination with other organizations such as the military, the host government and local charity organizations. (Kovács and Spens, 2007). This forms the humanitarian supply chain (HSC) and involved organizations often work together to respond to large-scaled disasters effectively (Akhtar et al., 2012). They aim to reduce the suffering of affected people. In particular, India and other linked countries are highly susceptible to natural disasters and are one of the most disaster prone areas in the world due to the unique geo-climatic condition and locations.

The existing preparedness measures are less than satisfactory and particularly, in emerging economies like India, such preparedness requires high priority. Consequently, the utilization of information technology (IT) in humanitarian supply chain management (HSCM) is probably one of the most prominent steps available to offer a better response to the affected people (Delmonteil and Rancourt, 2017). Despite the fact that India is a well-known as an IT hub, the utilization of IT inherent within commercial supply chains (CSC) has not been observed in HSCM and is still a major concern.

The research focusing on the adoption of technologies has been widely studied in the context of CSC e.g. enterprise resource planning (ERP) software training in business schools (Chauhan and Jaiswal, 2016); virtual academic communities of practice (Nistor et al., 2014); multi-generational tablet adoption practices (Magsamen-Conrad et al., 2015); adoption of mHealth (Hoque and Sorwar, 2017), the Internet of Things, dynamic data and information processing capabilities for operational agility. However, research on this topic in the context of HSC is limited despite the fact that practitioners are continuously searching to enhance the utilization of IT. Moreover, the nature of HSC is different from that of CSC. For example, emergency operations management systems work in an extremely stressful environment where end users have to work on dynamic information. The role end user has to play after the occurrence of disaster is entirely different from any regular day-to-day operations (Prasanna and Huggins, 2016). Dynamic data and information processing capabilities are also key factors that can significantly enhance the operational agility of humanitarian operations. However, this field itself is just emerging due to new technologies such as big data acquisition and its analytics linked with daily operations and evidence-based decision making (Akhtar et al., 2017). Humanitarian organizations are far behind to build such capabilities. It is thus important to develop such capabilities for humanitarian organizations, so they can also reap the benefit of modern technologies. In this regard, relevant researchers, universities, government funding organizations and humanitarian facilitators may work together to address the relevant issues and extant research gap.

The increase in occurrence of disastrous events such as the December 2005 Tsunami, Hurricane Katrina and the 2015 Nepal earthquake explain the growing interest of researchers and practitioners' need to develop better solutions for disaster responses and management

systems. The contemporary literature in the area of HSCM mainly focuses on improving the coordination and collaboration (Akhtar et al., 2012; Balcik et al., 2010; Comfort, 2007; Dolinskaya et al., 2011; Kabra et al., 2015; Tchouakeu et al., 2011), developing optimization models for inventory management (Ben-Tal et al., 2011; Caunhye et al., 2012; Döyen et al., 2012; Falasca and Zobel, 2012; Fiedrich et al., 2000) and analysing the issues of low utilization of IT (Chan et al., 2004; Corporation, 2011; Kabra and Ramesh, 2015; Maiers et al., 2005; Tchouakeu et al., 2011). This study enhances the third category of research, aiming to examine the perception of middle level managers for humanitarian organizations toward the adoption of IT.

The literature in the area of technology acceptance is extensively drawn from psychological factors (Davis et al., 1989; Venkatesh et al., 2003) and failure of information systems in gaining the trust of end users (May et al., 2014). This study focuses on personal innovativeness in the domain of technology and the trust in technology together with psychological factors that explain the intentions of middle level managers. Given the context of the current issue under investigation, it is necessary to emphasize that the advent of technology, especially information systems in the emergency management domain, has heralded a huge change in the management of disaster relief operations. The examples of innovativeness in such content include IMASH – an information system used during hurricane disaster (Iakovou and Douligeris, 2001); PeopleFinder (Murphy and Jennex, 2006); emergency response system supporting fire-fighters (Kankanamge and Prasanna, 2010), to name but a few.

The prevalence of IT in the area of HSCM has been widely acknowledged. However, the current stream of research focuses on the role and importance of IT in relief operations (Corporation, 2011; Jefferson, 2006a; Jefferson, 2006b; Maiers et al., 2005) and identification of barriers to the utilization of IT from the organizational point of view (Kabra and Ramesh, 2015; Maiers et al., 2005). To the best of our knowledge, there is a scarcity of studies focusing on end users' beliefs and attitudes that influence the process of IT adoption in the context of humanitarian organizations. Therefore, this study is a unique attempt to investigate the perception of middle level managers for humanitarian organizations toward the adoption of IT. The outcomes of this study may also help policy makers and managers in developing more effective and efficient strategies to strengthen the user's intention toward the adoption of IT.

For the purpose of achieving successful utilization of IT in the workplace, a positive attitude of the individual (end user) is a prerequisite. However, the intention toward usage or adoption of IT varies among users (Dabholkar and Bagozzi, 2002; Kim and Kankanhalli, 2009). Hence, personal innovativeness (PI) i.e. willingness to use new information technologies, is an important factor for examining the acceptance of IT. Therefore, this study seeks to integrate personal innovativeness specific to the IT domain with existing technology acceptance models i.e. unified theory of acceptance and use of a technology (UTAUT) model, to investigate the perception of users toward the adoption of IT. In summary, this current study contributes to the HSCM literature in the following ways:

- Establishing the vital psychological factors that influence the intention of users toward the adoption of IT
- Investigating the role of personal innovativeness specific to the IT domain in influencing that intention, with a special emphasis as a moderating variable

The rest of the paper is organized as follows: Section 2 discusses the theoretical framework; Section 3 explains the research method used for the study; Section 4 discusses the results obtained from structural equation modelling and the final Section 5 discusses the findings and implications of the study along with the limitations and scope for future work.

2. Conceptual model and hypothesis development

The hypotheses developed in the current study are based on a rich foundation that is derived from the contemporary literature. To attain the objectives of this study, a UTAUT model has been extended by integrating personal innovativeness and trust toward the behavioural intention to adopt technology, as shown in Figure 1. Specifically, this study examines the relationships between seven constructs, i.e. performance expectancy (PE), effort expectance (EE), social influence (SI), facilitating conditions (FC), personal innovativeness (PI) specific to IT domain, trust in technology and behavioural intention to adopt IT.

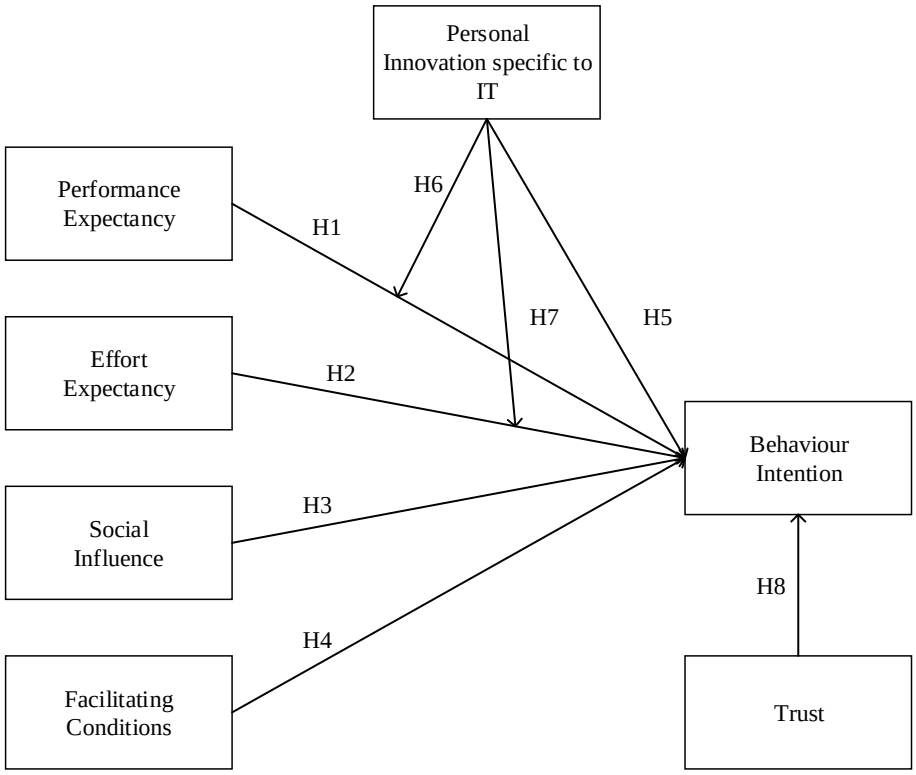

Figure 1: Conceptual model and interrelationships

2.1.1 Performance expectancy (PE)

Performance expectancy (PE) is defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447). In this study, PE relates to the belief of the field workers employed in humanitarian organizations that the use of IT will contribute to their performance to manage

disaster responses. In line with Kovacs and Spens (2007), humanitarian organizations responding to a chaotic situation resulting in from a disaster face numerous challenges that must be managed in order to reduce the adverse effect on the environment and society. Many studies in the context of HSCM highlight the role of IT in responding to these challenges, thereby improving the performance of relief operations (Delmonteil and Rancourt, 2017; Hu and Kapucu, 2014; Schniederjans et al., 2016). This argument is based on the premise that the use of IT improves the coordination among the organizations, and in turn, it improves the performance of relief operations. To this extent, IT plays a crucial role in disaster management and tackling relevant affects. Thus, the positive outlook of field workers toward the use of IT in improving performance can motivate them to adopt it. Consequently, the following hypothesis is proposed:

H1: The performance expectancy of users positively affects the behavioural intention to use IT.

2.1.2 Effort expectancy (EE)

The level of ease or efforts associated in utilizing IT is often the most important element that affects the behavioural intention to use IT. EE is defined as "the degree of ease associated with IT usage in the supply chain" (Venkatesh et al., 2003). In this study, EE is represented by the belief about the ease of using IT by middle level managers employed in humanitarian organizations. Previous research found connections between EE and behavioural intention to adopt technology. Theoretically, middle level managers' intention is also influenced by a perception of the complexity of the system while using and the skills needed to use IT. That is, the convenience in using the technology and the compatibility of system with the local emergency managers' experience and skill influences their intent to use the technology (Prasanna and Huggins, 2016). Relevant skills and competencies play an important role as they make them feel comfortable in completing their tasks promptly and efficiently. Such competencies may ultimately contribute to individuals' job performance linked with operational sustainability. Consequently, they put less efforts to complete their tasks and it makes them believe that the system is easy to use (Akhtar et al., 2017; Jennings et al., 2015). In the context of developing countries, we assume that higher the perception of effort expectancy (the belief that the technology is easy to use, compatible, and convenient), the more likely that local emergency management officials will intend to use that IT system. Thus, we posit the following hypothesis:

H2: The effort expectancy of users positively affects the behavioural intention to use IT.

2.1.3 Social influence (SI)

Social influence (SI) is defined asthe degree to which an individual perceives the importance of others' belief of using the new system (Venkatesh et al., 2003). In this study, SI is demonstrated by the belief of a middle level manager employed in humanitarian organizations about how other important people believe in their IT usage. Comfort (2005) argues that managers have to work in a stressful situation (disaster response) and they are also pressured by "experienced disaster managers who not only respect and trust one another

but who also complement and correct one another's action in practice" (p. 345). Thus, they have to work in coordination to offer a better response to affected people. This suggests that the field workers' intention to utilize IT also depends on the belief of other individuals who are working with them during the disaster response phase. Several studies suggest that an individual would incline toward the use of IT if an important person (e.g. family and friends) shows the approval of his/her usage of IT (Chaouali, 2016). Furthermore, the intention also depends on the support and commitment from top management as well as the peer group within the organization. This belief depends on the subjective norm, image and social factors. In this connection, the following hypothesis is suggested:

H3: The social influence regarding the use of IT positively affects the behavioural intention to use IT.

2.1.4 Facilitating conditions (FC)

Facilitating conditions (FC) is defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003, p. 453). Indeed, the use of IT requires specific skills, resources, infrastructure, among others. Therefore, end users could be more motivated to adopt IT if they have access to and availability of technical expertise, training and a higher level of organizational support toward the utilization of IT. Theoretically, the role of FC has been supported by some studies (e.g., Akhtar et al., 2012; Alalwan et al., 2016). In this study, the FC are determined by the belief of those middle level managers employed in humanitarian organizations about the existence of all the support that is necessary to use IT for humanitarian operations. Consequently, the following hypothesis is suggested:

H4: The facilitating conditions positively affect the behavioural intention to use IT.

2.1.5 Personnel innovativeness (PI)

Innovativeness has received significant attention in examining the user's intention to use a new product (Afzali and Ahmed, 2016; Li et al., 2015). However, many authors have proposed two levels of innovativeness i.e. general and domain specific (regarding an area or a behaviour). Joseph and Vyas, (1984) consider the general tendency to innovate from a cognitive perspective, integrating the perceptual, intellectual and attitudinal traits of an individual personality. Conversely, Gatignon and Robertson (1985) argue that PI is a domain-specific characteristic not a general trait of an individual's personality. This argument has been supported by several researchers in their respective studies (Agarwal and Prasad, 1998).

The literature in the context of technology acceptance considers PI as a domain specific variable. Therefore, PI is defined as "the willingness of an individual to try out any new information technology" (Agarwal and Prasad, 1998). Following this, many authors have supported the influence of PI in the context of technology acceptance. PI is one of the variables that examine the attitude of individuals towards innovations. Roger (1995) found that any individual with a high degree of innovativeness can perform better in any uncertain situations. Additionally, individuals who are more innovative are likely to embrace more

challenges and are more inclined in developing trust toward technology. Hence, it is reasonable to assume that an individual with more PI tends to develop a more positive attitude and greater belief toward the adoption of IT.

Rogers (1995) argues that an individual's PI influences their cognitive and decision-making processes. Agrawal and Prasad (1998) noted that PI could moderate the individual's perception of IT on their behavioural intention and they inferred that, given the same level of information, individuals who are higher on PI tend to use more IT facilities as they are less influenced by the opinions of others. Consequently, there is a stronger i relation between perceptions of the technology characteristics in terms of PE and EE and behaviour intention to adopt IT. Thus, in accordance with the Theory of Diffusion of Innovations (Roger, 1995), the following hypotheses are posited:

H5. The user's innovativeness in the domain of information technology positively influences the behavioural intention to use IT.

H6. The user's innovativeness in the domain of information technology moderates the relation between performance expectancy and behavioural intention to use IT.

H7. The user's innovativeness in the domain of information technology moderates the relation between effort expectancy and behavioural intention to use IT.

2.1.5 Trust

Trust among individuals is proven to be a crucial factor in any successful disaster relief operations. Trust is essential for developing coordination during the chaotic environment arising from a disaster. The need for a "shared common operating picture and situational awareness" is a prerequisite for any relief operations (Jefferson, 2006a). Benamati et al. (2010) also stated that trust is of foremost importance in uncertain situations. In particular, the chaotic situation created due to a disaster is highly uncertain in terms of the demand on several products. Similarly, trust in using technology, believing that it will perform as intended, is supposed to play a vital role in the adoption (Pavlou, 2003). Koufaris and Hampton-Sosa (2004) argued that trust in technology plays a vital role that affects the behavioural intention to adopt IT. End users feel uncomfortable due to a characteristic of IT, i.e. inability to see the background process. This may heighten the risk and uncertainty associated with the use of IT. Trust can play an essential role in reducing this uncertainty and risk associated with the use of IT (Lin, 2011). Trust in technology may encourage the user to adopt IT, leading to circumstances whereby end users can learn and understand the use of IT in HSCM. Thus, we posit the following hypothesis:

H8. Trust in technology positively affects the behavioural intention to use IT.

3. Research method and data

The Partial Least Squares (PLS) based Structural Equation Modeling (SEM) technique is employed to examine the aforementioned relationships given in Figure 1. PLS is a "regression-based path modeling technique that estimates path coefficients and partials out

variance for the model" (Hall et al., 2012). This technique is suitable for exploratory testing and predictive applications. Our study is an initial attempt to empirically examine the behavioural intention to adopt IT, consequently PLS is suitable to test the inter-relationship we developed based on the literature review (Lowry and Gaskin, 2014; Willaby et al., 2015).

3.1 Instrument development

The conceptual model developed in this study includes seven constructs. Each construct is measured using multiple items (see Appendix A.1), developed using the procedure suggested by Churchill (1979). A five-point Likert scale ranging from 1 = "strongly disagree" to 5 "strongly agree" is used to measure the items. The reliability of the questionnaire and its items is ensured by the exhaustive review of the literature, incorporating the experts' opinions and observing Cronbach's Alpha values (presented in Table 2). Additionally, the questionnaire has been pilot tested on 15 respondents to avoid any ambiguity if present.

3.2 Data collection

A purposive snowball sampling method was used for the purpose of data collection. The target population for this study are practitioners who have experienced a large number of disasters relief operations and employed in the humanitarian organizations. A total of 192 complete responses were retained for this study - from the total of 286 targeted respondents, 229 responses were received and 37 responses were further eliminated due to missing entries. This yielded a 80% response rate and an acceptable figure for such surveys (Churchill, 1979). The data has been collected from a group of respondents involved in past disaster relief operations that occurred in India. The questionnaire was sent to the middle level managers of organizations. The questionnaire was also personally presented to the middle level managers of organizations. For the purpose of enhancing the response rate, the respondents were monitored from time to time using several methods. These methods included telephonic reminders, personally contacted them and visiting them after fixing appointments with them. Table 1 demonstrate the demographic profile of the respondents. The respondents were taken from 21 to 35 years due to the fact, as our initial observations show, that they are the main personnel who are using social media and other modern IT in their daily activities. Secondly, there is high attrition rate in humanitarian organizations due to highly stressful environments. Thus, the average age of employees in our sample is 21-35 years. Table 1 demonstrate the demographic profile of the respondents.

"Table 1"

4. Data Analysis and Results

The data and relevant items are first assessed for reliability and validity. The reliability are evaluated by examining the composite reliability (CR) and Cronbach's alpha values for all constructs. The values of CR and Cronbach's alpha for all constructs are found to be more than 0.70 (see Table 2), which is used as a guideline for reliability measures. This demonstrates the reliability of each construct (Hair et al., 2009). The validity includes content validity, convergent validity (CV) and discriminant validity (DV). The content validity has been ensured by the exhaustive review of current literature. CV is established by

the higher factor loadings (range from 0.652 to 0.928) of our measurement items on their latent constructs, with a significant p-value. -Additionally, DV is also established by the larger value of the square root of AVE for each construct along the diagonals as compared to the correlation value with other constructs (Chin and Newsted, 1999; Fornell and Larcker, 1981) (see Table 3).

"Table 2"

"Table 3"

Finally, structural model is analyzed, representing the relationships between the hypothesized constructs in the conceptual model. Unlike Covariance-based SEM, SEM-PLS analysis does not generate overall goodness of fit indices (Rahman et al., 2016). In the PLS analysis, coefficient of determination R^2 is used for evaluating the model (Chin, 1998). Falk et al. (1992) mentioned that the value of R^2 should be greater than 0.1. For the present conceptual model, the values of R^2 are greater than 0.1, demonstrating the model fit.

The results of our hypothesis testing including the path coefficient are shown in Table 4. Out of eight, only two hypotheses, i.e. H1 and H2 are supported. The result shows that (hypotheses 1 and 2) Effort Expectancy and Performance Expectancy both positively and significantly affect Behavioural Intention. Social influence (hypothesis 3_ does not affects Behaviour Intention, as it shows even a negative relationship but it is not significant. Facilitating conditions (hypothesis 4) and Personal Innovativeness (hypothesis 5) do not show a significant effect on Behavioural Intention. However, they are positively linked with Behavioural Intention. Hypotheses 6 and 7 stated that the user's innovativeness in the domain of information technology moderates the relation between Performance Expectancy and Behavioural Intention as well the relation between Effort Expectancy and Behavioural Intention to use IT. These two hypotheses were not supported significantly. The final hypothesis, the link between Trust and Behavioural Intention (H8), is also not significant - thought it shows a positive link.

"Table 4"

5. Discussion and implications

The present study investigates the impact of effort expectancy, facilitating conditions, social influence, performance expectancy and trust in technology on behavioural intention, with personal innovativeness as a moderator in the context of HSCM. Although tsome results have contradict findings to the previous research (Venkatesh et al., 2003), they are well supported by literature (Casey and Wilson-Evered, 2012; Gruzd et al., 2012). One possible reason may be the non-awareness about the benefits of IT in the context of HSCM. In the present era of social media, managers are aware that IT usage in their supply chains may positively influence HSC performance. Therefore, PE has a significant relationship on behavioural intention to use IT. On the other hand, the results suggest the resistive behaviour of managers towards IT utilization. This indicates that they are aware of the benefits and

advantages of IT but have not put this into practice. This is due to lack of training and IT facilities within the organizations. Managers believe that the utilization of IT can improve their productivity and working efficiency. However, some managers' perceptions toward IT indicate their anxiety over its use. Since they have not experienced the benefits and advantages of IT during training, it is difficult for them to adapt. This finding is in agreement with earlier studies suggesting that organizations do not strategically plan the use of IT and train their employees accordingly.

The results indicate the significant relationship between EE and behavioural intention to adopt IT. In line with other studies, such as Chauhan and Jaiswal (2016), it implies that user friendliness is an important characteristic for IT systems implemented in humanitarian organizations. The perceived complexity of the IT system may lead to resistive behaviour and develop anxiety toward the adoption of IT. Moreover, in order to convince the user to adopt IT, easy to use interfaces should be provided with effective support and training facilities. This can then help to reduce resistance and improve the rate of acceptance of IT.

The results indicate the non-significant relationship between social influence and behavioural intention to adopt IT. This is contrary to the findings of Nistor et al. (2014). One possible explanation is that top management does not consider the utilization of IT as one of the main critical success factors in improving the performance of HSCM. Therefore, larger commercial firms have to encourage the small organizations involved in HSCM to adopt the utilization of IT. This may not only benefit the large organizations but also the smaller organizations involved in HSCM. The profit motivated organizations are updating their IT systems in order to gain a competitive advantage. However, the same adoption of IT has not been noticed in organizations involved in humanitarian supply chains. One possible reason is that there is a low level of commitment from the top management, as they may believe it is an unnecessary overhead cost. This suggests the need for a change in organizational policy. The organizations may need to provide a stimulating platform for their employees to adopt IT in their business practices. This is based on the premise that the more the person uses IT, the more the person is willing to adopt and experiment with IT - benefiting individuals as well the organization they are working for. This emphasized the value of having experienced and expert professionals from the commercial sectors, as they can play an important role in nurturing the organizations to achieve success by adopting the IT in their operating environment.

The findings do not support the positive relationship between FC and behaviour intention to adopt IT in the context of humanitarian organizations. One possible reason for this is that the workers of humanitarian organizations in India extensively follow traditional practices for relief operations. This suggests that they are unaware about the importance of technical and infrastructural resources, and this impacts on the adoption of IT. However, this finding is well supported in literature, that if PE and EE constructs are significant then FC become non-significant in affecting the intention to adopt IT (Venkatesh et al., 2003). Baptista and Oliveira (2015) also supported the view that FC influences actual usage rather than behavioural intention.

The application of model shows that trust in technology and personal innovation does not play an important role in influencing the behavioural intention to use IT. The results are in line with other studies (Casey and Wilson-Evered, 2012). This reflects the lack of confidence and skills to adopt IT. The main reason is the inefficient training in humanitarian organizations, training generally focuses on first aid and general knowledge in disaster management - paying little attention to the skills and knowledge essential for the utilization of information technology (Humphries, 2013). This strengthens the need to attain a required level of knowledge or skill by the employees working in humanitarian operations. The objective of training is not only to advance skills and knowledge but also enables organizations to change their resistive behaviour in a controlled way towards the adoption of new methods. This will further motivate them to learn new skills required for modern technologies that have significant implications in humanitarian operations for better operational visibility (Akhtar et al., 2017). Efforts of the humanitarian organizations should be directed towards improving the level of education and providing other resources so that the technology becomes an integral part of their daily activities. For example, demonstrating about the security features of the IT systems to users and quick accessing important information such as list of donors and seamless information sharing with other organizations can enable more transparency in financial supply chains and other operational aspects. Humanitarian organizations should promote and facilitate free exchange of ideas, encouraging employees to share or communicate with others. This can develop leaning culture in order to realize the benefits of IT.

Employees feels less motivated due to the absence of recruitment policy and thereby there is a high turnover of employee in humanitarian organizations (Korff et al., 2015). Humanitarian organizations need to make the user understand that trying new practices in organizations can improve humanitarian operations such as faster deliveries to affected people and achieving more visibility in their supply chains. This will work as a stimulus to overcome the resistive behaviour and improve their motivation to adopt IT. A greater emphasize is needed to develop a strong recruitment policy, covering several aspects such as training, incentives, promotions, long-term job security and career planning that can motivate employees. The results underline the need to develop an innovative and technological culture in humanitarian organizations. This indicate the need for more effective technology, information and data driven leadership to improve the required skills and knowledge to overcome the resistive behaviour in adopting IT (Srivastava and Dhar, 2016; Akhtar, et al., 2017).

5.1. Implications and contributions

With the increasing awareness about the importance of IT in HSCM, there has been a significant effort to improve technology acceptance among humanitarian organizations. However, there is a paucity of studies on examining the factors affecting the adoption of IT, especially in the context of HSCM. Thus, theoretically, this study contributes to the limited literature on IT adoption in HSCM. Firstly, academic inquiries on the factors affecting the technology adoption is largely neglected in past research conducted on HSCM. Additionally, no study has investigated the moderating role of personal innovativeness on behavioural intention to adopt IT. Secondly, past studies on technology acceptance and HSCM have been

geographically concentrated in developed countries, such as the USA (Jennings et al., 2015). Although several studies have reported the importance of technology in HSCM and India is considered as an IT hub, there were limited studies to understand the technology adoption among the end users. This study makes an initial attempt to address this call by examining the conceptual model within the setting of a developing nation's HSCM context.

The findings of the current study offer new insights into the perception of practitioners towards IT adoption. The current study adapted the UTAUT model in the context of HSCM. The findings conclude that the UTAUT model is applicable in the context of HSCM. Additionally, this model includes trust as an antecedent of predicting the behavioural intention to adopt IT. The findings of the current study have several implications for the humanitarian organizations. Identifying the relationships among the psychological factors and personal innovativeness as a moderator is useful in formulating the strategies to positively affect the intention to adopt IT in routine operations. In this way, humanitarian organizations can realize the benefits of IT and thereby improving the performance of HSCM. It is vital to create awareness about the usefulness that IT offers in HSCM. Thus, the top management of humanitarian organizations needs to introduce additional support and training programmes (delivering up-to-date training contents and social learning strategies (e.g., role-plays, demonstrations, data acquisition and analytics) emphasising the development of skills toward the utilization of IT. Moreover, in order to persuade and convince the user toward the adoption of IT, humanitarian organizations need to make greater efforts to communicate the value of IT to potential users in terms of saving the lives of affected people. Similarly, other initiatives such as methods of communication, word of mouth, seminars and workshops may encourage potential users to adopt IT. This would improve the PE, EE and SI of users toward the adoption of IT.

Surprisingly, the findings do not support the influence of personal innovation on behavioural intention toward the adoption of IT. This indicate that they have no prior experience of using IT in workplace. However, the results support the findings of Van Wassenhove (2006) and premise of Nurmala et al. (2017) that humanitarian organizations are 20 years behind the commercial organizations. This underlines the need to foster a learning culture within these organizations. By developing a relaxed and flexible work environment, encouraging sharing of ideas and enabling to explore initiatives without fear of retribution allied with effective retention policy may significantly improve the innovativeness behaviour of employees working in humanitarian organizations. Technology integration often incurs a huge cost to the humanitarian organizations but this improves the facilating conditions and resistance to adopt IT. Providing prominent reassurances to users and developing new user friendly IT tools and systems in consultation with them during pretesting phase can be vital in improving the trust in technology. Thus, the outcome of the current study has profound implications at both theoretical and practical levels. These findings enable humanitarian organizations to improve the utilization of IT in their daily operations for better supply chain visibility, contributing to their overall performance.

5.2. Limitation and scope of future work

To the best of our knowledge, this study is a pioneering attempt to understand the factors affecting the information technology adoption in HSCM. Despite our significant contributions, as in other research, this study also suffers from a number of limitations such as limited sample size, specific content and time constraints. However, these limitations do not affect the findings of the study, which can be applied in other similar circumstances. Firstly, the study is limited to the Indian context. Thus, extending the study to other countries would offer better generalizability. Secondly, the current study does not consider the cultural differences among the organizations. Thus, future work may consider these factors as well. Similarly, future research can consider a longitudinal design to offer deeper insights into the process of IT adoption. Technology rapidly advances and modern humanitarian operations may be intensively inundated with data and analytics and contemporary applications such big data analytics, image processing and the Internet of Things are throwing many challenges for humanitarian managers and executives to continuously up-date their technical skills, so they can improve supply chain visibility and make evidence-based decisions for better performance. Researching these topics and their links with the effectiveness of humanitarian operations may provide valuable insights.

References

Afzali, M., Ahmed, E.M., 2016. Exploring consumer doubt towards local new products innovation and purchase intention. World J. Entrep. Manag. Sustain. Dev. 12, 2–17. doi:10.1108/WJEMSD-05-2015-0022

Agarwal, R., Prasad, J., 1998. A conceptual and operational definition of personal innovativeness in the domain of information technology. Inf. Syst. Res. 9, 204–215.

Akhtar, P., Marr, N.E., Garnevska, E.V., 2012. Coordination in humanitarian relief chains: chain coordinators. J. Humanit. Logist. Supply Chain Manag. 2, 85–103. doi:10.1108/20426741211226019

Akhtar, P., Khan, Z., Frynasc, J., Tse, Y., Rao-Nicholson, R., 2017. Essential micro-foundations for contemporary business operations: Top management tangible competencies, relationship-based business networks and environmental sustainability. Br. J. Manag. doi:https://doi.org/10.1111/1467-8551.12233

Armida, E.E., 2008. Adoption process for VOIP: The influence of trust in the UTAUT model. Dr. Diss. Purdue Univ.

Balcik, B., Beamon, B.M., Krejci, C.C., Muramatsu, K.M., Ramirez, M., 2010. Coordination in humanitarian relief chains: Practices, challenges and opportunities. Int. J. Prod. Econ. 126, 22–34. doi:10.1016/j.ijpe.2009.09.008

Baptista, G., Oliveira, T., 2015. Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. Comput. Human Behav. 50, 418–430. doi:10.1016/j.chb.2015.04.024

Ben-Tal, A., Chung, B. Do, Mandala, S.R., Yao, T., 2011. Robust optimization for emergency logistics planning: Risk mitigation in humanitarian relief supply chains. Transp. Res. Part B Methodol., Supply chain disruption and risk management 45, 1177–1189. doi:10.1016/j.trb.2010.09.002

Benamati, J.“, Fuller, M.A., Serva, M.A., Baroudi, J., 2010. Clarifying the Integration of Trust and TAM in E-Commerce Environments: Implications for Systems Design and Management. IEEE Trans. Eng. Manag. 57, 380–393. doi:10.1109/TEM.2009.2023111

Burkart, C., Besiou, M., Wakolbinger, T., 2017. The funding—Humanitarian supply chain interface. Surv. Oper. Res. Manag. Sci. doi:10.1016/j.sorms.2016.10.003

Casey, T., Wilson-Evered, E., 2012. Predicting uptake of technology innovations in online family dispute resolution services: An application and extension of the UTAUT. Comput. Human Behav. 28, 2034–2045. doi:10.1016/j.chb.2012.05.022

Caunhye, A.M., Nie, X., Pokharel, S., 2012. Optimization models in emergency logistics: A literature review. Socioecon. Plann. Sci., Special {Issue}: {Disaster} {Planning} and {Logistics}: {Part} 1 46, 4–13. doi:10.1016/j.seps.2011.04.004

Chan, T.C., Killeen, J., Griswold, W., Lenert, L., 2004. Information technology and emergency medical care during disasters. Acad. Emerg. Med. 11, 1229–36. doi:10.1197/j.aem.2004.08.018

Chaouali, W., 2016. Once a user, always a user: Enablers and inhibitors of continuance intention of mobile social networking sites. Telemat. Informatics 33, 1022–1033. doi:10.1016/j.tele.2016.03.006

Chauhan, S., Jaiswal, M., 2016. Determinants of acceptance of ERP software training in business schools: Empirical investigation using UTAUT model. Int. J. Manag. Educ. 14, 248–262. doi:10.1016/j.ijme.2016.05.005

Chin, W.W., 1998. The partial least squares approach to structural equation modeling. Mod. Methods Bus. Res. 295, 295–336.

Chin, W.W., Newsted, P.R., 1999. Structural equation modeling analysis with small samples using partial least squares., in: Marcoulides, G.A. (Ed.), Modern Methods for Business Research. Lawrence Erlbaum Associates, London, pp. 295–336.

Churchill JR, G.A., 1979. A paradigm for developing better measures of marketing constructs. J. Mark. Res. 116, 64–73.

Comfort, L.K., 2007. Crisis Management in Hindsight: Cognition, Communication, Coordination, and Control. Public Adm. Rev. 67, 189–197. doi:10.1111/j.1540-6210.2007.00827.x

Corporation, I., 2011. Information Technology that Saves Lives Natural Disaster Management Presentation Summary & Q & A ' s Lunch & Technology Showcase.

Dabholkar, P.A., Bagozzi, R.P., 2002. An attitudinal model of technology-based self-service: Moderating effects of consumer traits and situational factors. J. Acad. Mark. Sci. 30, 184. doi:10.1177/0092070302303001

Davis, F.D., Bagozzi, R.P., Warshaw, P.R., 1989. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. Manage. Sci. 35, 982–1003. doi:10.1287/mnsc.35.8.982

Delmonteil, F.-X., Rancourt, M.-È., 2017. The role of satellite technologies in relief logistics. J. Humanit. Logist. Supply Chain Manag.

Dolinskaya, I.S., Shi, Z.E., Smilowitz, K.R., 2011. Decentralized Approaches to Logistics Coordination in Humanitarian Relief. Proc. 2011 Ind. Eng. Res. Conf.

Döyen, A., Aras, N., Barbarosoğlu, G., 2012. A two-echelon stochastic facility location model for humanitarian relief logistics. Optim. Lett. 6, 1123–1145. doi:10.1007/s11590-

011-0421-0

Emad, A.-S., 2014. Antecedents of trust in e-government services: an empirical test in Jordan. Transform. Gov. People, Process Policy 8, 480–499. doi:10.1108/TG-08-2013-0027

Falasca, M., Zobel, C., 2012. An optimization model for volunteer assignments in humanitarian organizations. Socioecon. Plann. Sci., Special Issue: Disaster Planning and Logistics: Part 2 46, 250–260. doi:10.1016/j.seps.2012.07.003

Falk, R.F., Miller, N.B., Frank, R., Miller, N.B., 1992. A primer for soft modeling. University of Akron Press, Akron, OH, US.

Fiedrich, F., Gehbauer, F., Rickers, U., 2000. Optimized resource allocation for emergency response after earthquake disasters. Saf. Sci. 35, 41–57. doi:10.1016/S0925-7535(00)00021-7

Fornell, C., Larcker, D.F., 1981. Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. J. Mark. Res. 18, 382–388. doi:10.2307/3150980

Gao, L., Bai, X., 2014. A unified perspective on the factors influencing consumer acceptance of internet of things technology. Asia Pacific J. Mark. Logist. 26, 211–231. doi:10.1108/APJML-06-2013-0061

Gao, S., Krogstie, J., Siau, K., 2011. Developing an instrument to measure the adoption of mobile services. Mob. Inf. Syst. 7, 45–67. doi:10.3233/MIS-2011-0110

Gatignon, H., Robertson, T.S., 1985. A Propositional Inventory for New Diffusion Research. J. Consum. Res. 11, 849–867. doi:10.1086/209021

Gruzd, A., Staves, K., Wilk, A., 2012. Connected scholars: Examining the role of social media in research practices of faculty using the UTAUT model. Comput. Human Behav. 28, 2340–2350. doi:10.1016/j.chb.2012.07.004

Hair, Black, Babin, Anderson, Tatham, 2009. Multivariate Data Analysis. Pearson Education India.

Hall, D.J., Skipper, J.B., Hazen, B.T., Hanna, J.B., 2012. Inter- organizational IT use, cooperative attitude, and inter- organizational collaboration as antecedents to contingency planning effectiveness. Int. J. Logist. Manag. 23, 50–76. doi:10.1108/09574091211226920

Hoque, R., Sorwar, G., 2017. Understanding factors influencing the adoption of mHealth by the elderly: An extension of the UTAUT model. Int. J. Med. Inform. 101, 75–84. doi:10.1016/j.ijmedinf.2017.02.002

Humphries, V. 2013. Improving Humanitarian Coordination: Common Challenges and Lessons Learned from the Cluster Approach. The Journal of Humanitarian Assistance.

Iakovou, E., Douligeris, C., 2001. An information management system for the emergency management of hurricane disasters. Int. J. Risk Assess. Manag. 2, 243–262. doi:10.1504/IJRAM.2001.001508

Jefferson, T.L., 2006. Evaluating the role of information technology in crisis and emergency management. Vine 36, 261–264. doi:10.1108/03055720610703542

Jefferson, T.L., 2006. Using the internet to communicate during a crisis. Vine 36, 139–142. doi:10.1108/03055720610682933

Jennings, E., Arlikatti, S., Andrew, S., 2015. Determinants of Emergency Management Decision Support Software Technology: An Empirical Analysis of Social Influence in Technology Adoption. J. Homel. Secur. Emerg. Manag. 12, 603–626. doi:10.1515/jhsem-2014-0079

Joseph, B., Vyas, S.J., 1984. Concurrent validity of a measure of innovative cognitive style. J. Acad. Mark. Sci. 12, 159–175. doi:10.1007/BF02729494

Kabra, G., Ramesh, A., 2015. Analyzing ICT Issues in Humanitarian Supply Chain Management: A SAP-LAP Linkages Framework. Glob. J. Flex. Syst. Manag. 16, 157–171. doi:10.1007/s40171-014-0088-3

Kabra, G., Ramesh, A., Arshinder, K., 2015. Identification and prioritization of coordination barriers in humanitarian supply chain management. Int. J. Disaster Risk Reduct. 13, 128–138. doi:10.1016/j.ijdrr.2015.01.011

Kankanamge, R., Prasanna, R., 2010. Information Systems for Supporting Fire Emergency Response (Thesis). © Rahubadde Kankanamge, Raj Prasanna.

Kim, H.-W., Kankanhalli, A., 2009. Investigating User Resistance to Information Systems Implementation: A Status Quo Bias Perspective. MIS Q. 33, 567–582.

Korff, V.P., Balbo, N., Mills, M., Heyse, L., Wittek, R., 2015. The impact of humanitarian context conditions and individual characteristics on aid worker retention. Disasters 39, 1–32. doi:10.1111/disa.12119

Koufaris, M., Hampton-Sosa, W., 2004. The development of initial trust in an online company by new customers. Inf. Manag. 41, 377–397. doi:10.1016/j.im.2003.08.004

Kovacs, G., Spens, K.M., 2007. Humanitarian logistics in disaster relief operations. Int. J. Phys. Distrib. Logist. Manag. 37, 99–114. doi:10.1108/09600030710734820

Kovács, G., Spens, K.M., 2007. Humanitarian logistics in disaster relief operations. Int. J. Phys. Distrib. Logist. Manag. 37, 99–114. doi:10.1108/09600030710734820

Lallmahomed, M.Z.I., Lallmahomed, N., Lallmahomed, G.M., 2017. Factors influencing the adoption of e-Government Services in Mauritius. Telemat. Informatics 34, 57–72. doi:10.1016/j.tele.2017.01.003

Li, G., Zhang, R., Wang, C., 2015. The Role of Product Originality, Usefulness and Motivated Consumer Innovativeness in New Product Adoption Intentions. J. Prod. Innov. Manag. 32, 214–223. doi:10.1111/jpim.12169

Lowry, P.B., Gaskin, J., 2014. Partial Least Squares (PLS) Structural Equation Modeling (SEM) for Building and Testing Behavioral Causal Theory: When to Choose It and How to Use It. IEEE Trans. Prof. Commun. 57, 123–146. doi:10.1109/TPC.2014.2312452

Magsamen-Conrad, K., Upadhyaya, S., Joa, C.Y., Dowd, J., 2015. Bridging the Divide: Using UTAUT to predict multigenerational tablet adoption practices. Comput. Human Behav. 50, 186–196. doi:10.1016/j.chb.2015.03.032

Maiers, C., Reynolds, M., Haselkorn, M., 2005. Challenges to effective information and communication systems in humanitarian relief organizations. IEEE Proceedings, pp. 82–

91.

May, A., Mitchell, V., Piper, J., 2014. A user centred design evaluation of the potential benefits of advanced wireless sensor networks for fire-in-tunnel emergency response. Fire Saf. J. 63, 79–88. doi:10.1016/j.firesaf.2013.11.007

Murphy, T., Jennex, M.E., 2006. Knowledge Management and Hurricane Katrina Response. Int. J. Knowl. Manag. 2, 52–66. doi:10.4018/jkm.2006100104

Nistor, N., Baltes, B., Dascălu, M., Mihăilă, D., Smeaton, G., Trăuşan-Matu, Ş., 2014. Participation in virtual academic communities of practice under the influence of technology acceptance and community factors. A learning analytics application. Comput. Human Behav. 34, 339–344. doi:10.1016/j.chb.2013.10.051

Nurmala, N., de Leeuw, S. and Dullaert, W. 2017. Humanitarian–business partnerships in managing humanitarian logistics. Supply Chain Management: An International Journal. 22, 82-94.

Pavlou, P.A., 2003. Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. Int. J. Electron. Commer. 7, 101–134.

Prasanna, R., Huggins, T.J., 2016. Factors affecting the acceptance of information systems supporting emergency operations centres. Comput. Human Behav. 57, 168–181.

Rahman, M.S., Ko, M., Warren, J., Carpenter, D., 2016. Healthcare Technology Self-Efficacy (HTSE) and its influence on individual attitude: An empirical study. Comput. Human Behav. 58, 12–24. doi:10.1016/j.chb.2015.12.016

Sandwell, C., 2011. A qualitative study exploring the challenges of humanitarian organisations. J. Humanit. Logist. Supply Chain Manag. 1, 132–150. doi:10.1108/20426741111158430

Schniederjans, D.G., Ozpolat, K., Chen, Y., 2016. Humanitarian supply chain use of cloud computing. Supply Chain Manag. An Int. J. 21, 569–588. doi:10.1108/SCM-01-2016-0024

Srivastava, A.P., Dhar, R.L., 2016. Technology leadership and predicting travel agent performance. TMP 20, 77–86. doi:10.1016/j.tmp.2016.07.009

Tchouakeu, L.-M.N., Maldonado, E., Zhao, K., Robinson, H., Maitland, C., Tapia, A., 2011. Exploring Barriers to Coordination between Humanitarian NGOs: A Comparative Case Study of two NGO's Information Technology Coordination Bodies. Int. J. Inf. Syst. Soc. Chang. 2, 1–25. doi:10.4018/jissc.2011040101

Van Wassenhove, L.N., 2006. Humanitarian aid logistics: supply chain management in high gear†. J. Oper. Res. Soc. 57, 475–489. doi:10.1057/palgrave.jors.2602125

Venkatesh, V., Morris, M.G., Davis, G.B., Davis, F.D., 2003. User acceptance of information technology: Toward a unified view. MIS Q. 27, 425–478.

Willaby, H.W., Costa, D.S.J., Burns, B.D., MacCann, C., Roberts, R.D., 2015. Testing complex models with small sample sizes: A historical overview and empirical demonstration of what Partial Least Squares (PLS) can offer differential psychology. Pers. Individ. Dif., Theory and Measurement in Personality and Individual Differences 84, 73–78. doi:10.1016/j.paid.2014.09.008

Yi, M.Y., Jackson, J.D., Park, J.S., Probst, J.C., 2006. Understanding information technology acceptance by individual professionals: Toward an integrative view. Inf. Manag. 43, 350–363. doi:10.1016/j.im.2005.08.006

Tables:

Table 1: Demographic details of the respondents

Age	No. of respondents
21-25	84
26-30	67
31-35	41
Years of experience	No. of respondents
0-5	108
5-10	48
10-15	36
Gender	No. of respondents
Male	164
Female	38

Table 2: CFA and composite reliability

Constructs	Items	Loadings	Cronbach's Alpha	CR	AVE
Behavioural Intention	BI-1	0.896	0.848	0.899	0.690
	BI-2	0.874			
	BI-3	0.841			
	BI-4	0.826			
Effort Expectancy	EE-1	0.722	0.763	0.849	0.588
	EE-2	0.754			
	EE-3	0.730			
	EE-4	0.904			
Facilating Condition	FC-1	0.790	0.809	0.861	0.610
	FC-2	0.803			
	FC-3	0.843			
	FC-4	0.679			
Performance Expectancy	PE-1	0.826	0.835	0.893	0.676
	PE-2	0.784			
	PE-3	0.832			
	PE-4	0.602			
Personal Innovativeness	PI-1	0.789	0.879	0.917	0.735
	PI-2	0.898			
	PI-3	0.901			
Social Influence	SI-1	0.891	0.927	0.948	0.820
	SI-2	0.917			
	SI-3	0.914			
Trust	T-1	0.673	0.938	0.953	0.801
	T-2	0.772			
	T-3	0.796			
	T-4	0.818			
	T-5	0.656			

Table 3: Correlation between constructs

Constructs	Behavioural Intention	Effort Expectancy	Facilating Condition	Performance Expectancy	Personal Innovativeness	Social Influence	Trust
Behavioural Intention	**0.831**						
Effort Expectancy	0.774	**0.767**					
Facilitating Condition	0.19	0.178	**0.781**				
Performance Expectancy	0.641	0.632	0.262	**0.822**			
Personal Innovativeness	0.383	0.409	0.383	0.459	**0.857**		
Social Influence	0.194	0.218	0.372	0.246	0.318	**0.905**	
Trust	0.458	0.5	0.256	0.54	0.365	0.268	**0.895**

Note: Bolded values on the diagonal are the square root of the AVE. Values on the off-diagonal represent inter-construct correlations

Table 4: Summary of hypothesis results

Relationship (Hypothesis)	Path Coefficient	T Statistics	Significance	Supported?
Performance Expectancy -> Behavioural Intention (H1)	0.293	4.041	p<0.001	Yes
Effort Expectancy -> Behavioural Intention (H2)	0.566	10.428	p<0.001	Yes
Social Influence -> Behavioural Intention (H3)	-0.01	0.366	p>0.10	No
Facilitating Condition -> Behavioural Intention (H4)	0.006	0.405	p>0.10	No
Personal Innovativeness -> Behavioural Intention (H5)	0.012	0.582	p>0.10	No
Performance Expectancy ->Personal Innovation (moderator) -> Behavioural Intention (H6)	0.006	1.028	p>0.10	No
Effort Expectancy ->Personal Innovation (moderator)-> Behavioural Intention (H7)	-0.02	1.026	p>0.10	No
Trust -> Behavioural Intention (H8)	0.017	0.429	p>0.10	No

Appendix

Performance Expectancy (Adapted from Lallmahomed et al. (2017), Venkatesh et al. (2003))
PE-1: Using IT will help me to accomplish tasks more quickly.
PE-2: Using IT will improve my efficiency.
PE-3: Using IT will improve the performance of relief operations.
PE-4: I would find IT useful in daily life.

Effort Expectancy (Adapted from Armida (2008), Venkatesh et al. (2003))
EE-1: My interaction with the IT system would be clear and understandable.
EE-2: It would be easy for me to become skilful using IT.
EE-3: I would find IT systems easy to use.
EE-4: Learning to use IT systems is easy for me.

Social Influence (Adapted from Gao and Bai (2014), Venkatesh et al. (2003))
SE-1: People whose opinions I value would prefer me to use IT systems.
SE-2: People who are important to me think that I should use IT systems.
SE-3: People who influence my behaviour think that I should use IT systems.

Facilitating conditions (Adapted from Armida (2008), Venkatesh et al. (2003))
FC-1: I have the necessary resources to use IT systems.
FC-2: I have the necessary knowledge to use IT systems.
FC-3: I can get help from others when I have difficulties using IT systems.
FC-4: I can consult Government Help Centre if I have difficulty using IT systems.

Personal Innovativeness (Adapted from Agarwal and Prasad (1998), Yi et al. (2006))
PI-1: I like to experiment with IT systems.
PI-2: If I heard about a new IT, I would look for ways to experiment with it
PI-3: Among my peers, I am usually the first to try out new IT

Behavioural intention (Adapted from Gao and Bai (2014), Venkatesh et al. (2003))
BI-1: I intend to use IT systems in the future.
BI-2: I predict I would use IT systems in the future.
BI-3: I plan to use IT systems in the future.
BI-4: I will recommend others to use IT systems.

Trust (Adapted from Armida (2008), Emad (2014), Gao and Bai (2014), Gao et al. (2011))
T-1: I believe it is safe to use IT systems.
T-2: I think IT systems will provide reliable information.
T-3: I believe it is risk free to use IT systems.
T-4: I believe that the utilization of IT systems will meet my expectations.
T-5: I believe that IT systems will keep my best interests in mind.