Technological Evolution and the Political Agency of Artificial Intelligence from the Perspective of General Organology and Universal Organicism

The question of political agency with respect to artificial intelligence (AI) is becoming increasingly relevant insofar as we can observe efforts to regulate it. Some policy proposals link the problem of the advance of AI to the concept of technological evolution. However, it is still not quite clear what they mean by this concept. This paper explores conceptualisations of technological agency and evolution in Bernard Stiegler's general organology and Friedrich Schelling's universal organicism. I argue that organicism proposes a more 'naturalised' approach to agency formation and a more 'organic' explanation of technology than general organology. General organology considers technological evolution from a human perspective, whereas universal organicism can accommodate a theory of technological evolution independently from its social dimensions. While technology already has a strong impact on the organisation of our societies, recognition of technological agency as at least partially independent serves to recognise them as non-human beings that impact politics.

Keywords: *AI, agency formation, technological evolution, potency of matter, organology, organicism*

Acknowledgement

I thank Iain MacKenzie and Ben Turner whose feedback have shaped this paper. I am also grateful to Conor Heaney for his support over the writing process. I also thank the organisers of the third Budapest Workshop on Philosophy of Technology 2021 for all the work they have done to make this great event happen despite the pandemic.

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How to cite this article:

Kwapińska, Kamila. "Technological Evolution and the Political Agency of Artificial Intelligence from the Perspective of General Organology and Universal Organicism". *Információs Társadalom* XXII, no. 2 (2022): 57–71.
https://dx.doi.org/10.22503/inftars.XXII.2022.2.4

Politics of Artificial Intelligence (AI)

Technical and social milieus are now densely entangled. However, the political implications of relationships between humans and AI are still unclear. Although new technologies are being integrated into societies with the sense of awe and excitement that typically accompanies scientific discoveries that can improve human productivity, we also can observe a change in political attitudes that counters such optimistic views. This change in attitude comes not from within 'green politics', which has a tradition of being against the excessive use of technology – often anti-growth and anti–natural extraction, but from the capitalist, technocratic spectrum. In 2016 Obama's administration published two reports on *Preparing for the Future of Artificial Intelligence* where we can read a consideration of evolutionary methods in defining AI (U.S. Executive Office of the President National Science and Technology Council Committee on Technology 2016, 7). AI is presented as something that should be regulated precisely because it could be risky to leave it to intertwine with societies spontaneously. Interestingly, this rhetoric strengthens in the *Artificial Intelligence Act* published by the EU Commission in 2021. The proposal acknowledges that AI 'is a fast-evolving family of technologies' and while it aims to safely integrate them into 'a wide array of economic and societal benefits across the entire spectrum of industries and social activities', it also highlights 'the new risks and negative consequences for individual and societies' (EU European Commission 2021, 2). This legal framework encompasses a flexible set of mechanisms to 'enable it to be dynamically adapted as the new technology evolves and the new concerning situations emerge' (European Commission 2021, 4). It might be too early to say that there is a consensus across the political spectrum on the urgency of the politics of AI or defining technological evolution, but we can no longer deny that such politics or definitions are necessary.

The question is – how should we conceive of the politics of AI? I argue that to talk about such politics we have to first consider the agency of AI, and it is worth theorising it from the perspective of technological evolution since this narration is already present in the legal pieces produced by Obama's Whitehouse and the EU. Conceptualising the agency of AI does not aim to take away legal responsibility from those behind its design and implementation. Future civilisational development is as much dependent on technology as technological evolution is dependent on humankind. It is paramount that we analyse the agency of AI and technological evolution in a quasi-independent way. Policymakers seek to regulate not only creators or traders of technology but also AI itself. Regulations should account both for people's responsibilities and for the technological agency to effectively manage the organisation of future societies.

In this political context the organic approaches – in this paper I consider Bernard Stiegler's general organology and Friedrich W. J. Schelling's universal organicism – hold strong explanatory value. They both consider how different levels of organisation (e.g., biological and technical) impact each other, and are concerned with how agency can emerge in such processes. They are distinctive for two reasons. Firstly, they view agency as something that is *not opposed* to nature, either through

the sacred (given by a divine, supranatural source), the social (socially constructed) or through the technological (technologically created intelligence) insofar as it is constituted *with* nature. In organology, agency has a psychosocial-technical-natural cause where these three levels constitute the same plane (Stiegler 2017, 130). In organicism, it simply has a natural cause (Grant 2008, 162). Similarly, technology is considered as having a natural origin. Organology goes beyond the traditional approaches to technology in humanism, post-humanism, and transhumanism because it does not take technology to be distinct from human nature. Therefore, it is neither techno-optimist like transhumanism nor techno-pessimist like post-humanism (Stiegler 2020, 313). It simply takes technology to be a natural and evolutionarily contingent part of life. Organic approaches also reject techno-theism, which treats technology as a universal political project. Any political agenda that is based on a belief that technology will save us by improving the agency of humanity *against* the forces of nature is based on a false assumption that technological development can transcend nature. Secondly, they both offer an evolutionary approach to technology. While legislative proposals regarding technological development depict AI as if it undergoes evolutionary processes, there seems to be no clarity regarding what it means. This paper addresses the process of agency formation from an evolutionary perspective. It examines how technicity participates in the evolution of humankind, and whether we can consider technological evolution autonomously from humans. Organic approaches look at evolution through the notion of organisation. How does technology influence the trajectory of evolution through the organisation of systems that they embody? How do the different levels of political life – the psychosocial, natural, and technical impact organisation of societies? We can find answers to these questions in how technology relates to the potency of matter in the evolutionary processes. Organic approaches provide theoretical frameworks to consider the intersection of matter, evolution, and technology with regards to processes of organisation in a system. While general organology explains how human evolution and a process of agency formation are always technically conditioned, universal organicism gives theoretical space for consideration of the agency of AI and technical evolution that is autonomous from humans. This paper argues that universal organicism is better suited for consideration of organic evolution of technicity as it allows for conceptualisation of the agency of non-human beings.

General Organology and the Agency of AI

The question of agency is not the focus of general organology, but it provides a theory of the formation of autonomy. For Stiegler, autonomy can be defined only in relationship to the concept of heteronomy. He writes that there is 'no autonomy other than as the adoption of heteronomy' (Stiegler 2013, 25). Autonomy is constantly composed of heteronomy (Stiegler 2013, 2). This is because general organology emphasises that we cannot consider a subject outside of its ground of becoming – a subject is always dependent on the technical condition of a milieu. General organology can be defined as 'a method of thinking, at one at the same time technical, social, and psychic becom-

ing, where technical becoming must be thought via the concept of technical system as it adjusts and is adjusted to social systems, themselves constituted by psychic apparatuses' (Stiegler 2017, 130). Therefore, we can understand heteronomy as a technical condition of becoming in a social system. General organology views social, natural, and technical processes as constitutive for human and technical evolution. At some point of history, retention of knowledge (and memory) began to 'operate *outside* of living organisms themselves, neither in their genes nor in their brains but in artefacts', which is referred to as a process of exosomatisation (Bishop and Ross 2021, 113). Evolutionary biological (endosomatic) organogenesis is accompanied by exteriorisation of non-biological (exosomatic) organs – technical prosetheses (Bishop and Ross 2021, 117). In Stiegler's thought the formation of autonomy has to be defined in relation to these dependencies. For a becoming subject, autonomy and heteronomy have a relationship of composition rather than opposition (Stiegler 2021, 242). Agency emerges as a transformation of the adoption of dependencies, in which the subject *acts as cause in this process*. A subject gains agency by adopting a technical dependency 'on the condition ... that it is adopted intelligently, reflexively and with care' (Lemmens 2017, 292). If autonomy is necessarily related to dependencies, then agency is not the self-standing attribute of an agent but must be part of the processes of causation that cannot be separated from its organological plane of becoming. This specific understanding of the emergence of agency opposes the view that it is gained as an *effect of* a supranatural force that is external or transcendent to it. Nevertheless, the organological mode of thinking rejects the idea that the technological in itself can act as a cause for a transformative, and therefore singularising, process that could lead to agency formation.[1] Even if it views the technical level as parallel to the natural and the social, the specificity of social becoming makes it impossible for AI to engage in the formation of autonomy.

There are two tendencies of social becoming. The first one, drive, provokes dependence and is shaped by short-circuits. The second one, desire, is curative, adopts dependencies into autonomy, and is shaped by long-circuits (Stiegler 2013, 25). Processes of adoption, leading to singularisation, are defined only by the curative long-circuits of desire which give meaning to life. Desire, a process of meaning making, amounts to 'symbolic practices that maintain symbolic techniques and technologies' (Stiegler 2014, 12), which in turn shape modes of existence. Hence the process of desire has to create symbolic meaning with enough of a difference to support singularisation. Although desire is a natural part of life for a human subject, Stiegler argues that it is impossible for AI. AI is ingrained in the short-circuits of informational and communication technologies which are based on calculability. In contrast, singularity, as Stiegler argues, is 'in essence that which cannot be compared to anything else – is irreducibly incalculable' (2014, 12). Technologies which categorise singularities, that is, reduce them to the calculable, can only simulate actual processes of desire or drive. Therefore, information-based technologies such as AI can only provoke dependence.

[1] In Stiegler's perspective singularisation is different from how transhumanist approaches define it. Singularisation can be read as individuation through objects of desire, which has no proximity to Ray Kurzweil's definition of singularity. For Stiegler there are two types of singularity: 'infinite and incalculable objects projected by interpersonal caring and its technologies' (such as art, justice, virtue) and 'parental and educational "cultivation"' of people (Lampe 2017, 4).

However, technics as such do not disable the possibility of establishing curative structures. For Stiegler, all human practices are embedded in technics, here understood as transmitters of knowledge that exist on a pre-individual level. For example, a process of singularisation like a spiritual ritual is a form of technical memory that can form subjectivity. Spiritual technics can result in a singularising experience insofar as they can enable consistencies through sacred objects (Turner 2019, 57).[2] Idealisation of sacred objects causes processes of desire that transform an existence. Idealisation is a form of infinitisation of an object in relation to which a finite existence is defined. An existence singularises by relating to a sacred object of desire which is idealised (for example through a relation of one's love towards god.) The problem of AI not being able to singularise lies not in its technical ground per se but in the incapacity for entering the plane of consistence through desire, and the inability to participate in the process of socialisation that accompanies transformative, transindividual processes. Subsequently, *AI does not exist; it only subsists*. Stiegler defines existence as singularisation, which means agency formation through relation to objects of desire. The problem of AI is situated not in its technicity but in the incapacity for entering the plane of consistence that is *dialogical*.

The machine could not have been constructed without the transmission of knowledge; however, it does not mean that AI can engage in dialogue. Stiegler emphasises the social aspect of logos: '*logos* is always *dia-logos* within which those who enter the dialogue co-individuate themselves – trans-form themselves, *learn* something – by dialoguing' (Stiegler 2013, 18). This is important insofar as the dialectical character of logos in Stiegler's thought contributes to the formation of social organisation. Circuits of transindividuation (meaning a transmission of knowledge) are 'formed in dialogism' (Stiegler 2013, 68). Technical objects participate in social life through organological relationships, yet AI does not socialise. Its participation is receptive, not dia-loguing, and it does not transform it. Stiegler argues that as soon as logos is involved in the industrialised form of desire it becomes a reason in the form of a calculation – a *ratio* (Stiegler 2013, 61). The knowledge that it bears does not bring new meaning and does not rearrange the dependencies that might constitute its socialisation. AI can transmit knowledge, but it does not learn by co-individuation, it does not participate in socialising, and it cannot transform with desire.

AI has no capacity to create a meaningful, transformative difference to a socio-political system. It has no agency in organisational processes. Stiegler emphasises that it is always the social that is the organisational level:

> General organology defines the rules for analysing, thinking, and prescribing human facts at three parallel but indissociable levels: the psychosomatic, which is the endosomatic level, the artifactual, which is the exosomatic level, and *the social, which is the organizational level.* [emphasis mine] It is an analysis of the relations between organic organs, technical organs, and social organisations (Stiegler 2017, 130).

[2] In Stiegler's thought such objects of desire are not limited to religious objects.

The inability of AI gaining agency comes down to the capacities of processes that it performs but are constrained by its matter. We can see the extension of this argument – *only the social remains as the organisational plane of a system that is capable of transformation and making a difference* – in how Stiegler systematises the organological functions of matter in evolution. Processes of social evolution are here understood as the transmission of knowledge across generations that in the context of technological evolution can be formulated as the potency and organisation of matter. The potentiality of matter 'makes possible the constitution and accumulation of a hyper-material memory' (Stiegler 2020, 279). As indicated beforehand, technics and technology serve as transmitters of knowledge (as a form of exteriorised memory) in processes of transindividuation. They are epiphylogenetic – in addition to genetics and epigenetics. From this perspective, hyper-materialism distinguishes between four different types of matter:

1. Inert or inorganic matter (steel, silicon etc.);
2. Organic matter (organic, endosomatic organs);
3. Organized inorganic matter; (robots, AI, exosomatic organs, and artifactual level of evolution, etc.);
4. Disorganized and reorganized matter ('human brain and body, educated and trans-formed by social artefacts, along with those plants and animals that have been created through agricultural selection'). (Stiegler 2020, 279)

Matter is here viewed through its potential to support memory transition in evolution; however, inorganic matter is classified from the perspective of human evolution. AI is a form of organised inorganic matter which takes part in processes of evolution as an exosomatic organ. The potentiality of its matter plays a role in evolution only insofar as it shapes other forms of matter, such as disorganised and reorganised matter, via the social level of organisation. They have no capacity to organise but through the social. Technics are instrumental – they are a tool for the transmission of knowledge which conditions evolutionary processes – but do not have an autonomous agency. In general organology the technical organ is always an organ, a tool, rather than the organisational. This is not to say that it cannot have a strong influence on the trajectory of human evolution. It has influence, but not agency.

Stiegler's hyper-materialism aims to reject a conventional, substantial understanding of matter. He dismisses Aristotelian hylomorphism by moving away from a distinction between form and matter (Stiegler 2020, 269). Hylomorphism, from its definition, is a schema that treats form and matter as separate aspects that constitute an object. 'An object's final cause, its function determines what a thing is for and (…) represents not only the functional telos of technical artefacts but can be seen in the telos of the natural world' (O'Hara 2019, 226–227). In hyper-materialism, instead of being shaped into form by its final cause, telos (its function), matter 'makes possible the constitution and accumulation of a hyper-material memory' (Stiegler 2020, 269). Hyper-matter can actively form matter, as a transmitter of information, thereby contradicting the hylomorphic schema. This active potentiality of matter plays a certain role in evolution, as it accumulates memory. We can especially see this in the example of organised inorganic matter that is materialised

technics (Stiegler 2020, 269). Moreover, according to Stiegler, technics condition human becoming on an individual level (psychic individuation processes), but also support processes of collective individuation in which case we can view technics to be a complex exorganism. The complex exorganism is the collection of 'systematically cohering simple organisms' (Ross 2018, 272). 'For the simple exorganism that we are, this exterior milieu amounts to the psychosocial milieu of the collective individuation processes to which we belong' (Ross 2018, 272). The complex exorganism conditions collective and technical transindividuation at the same time as possessing possibilities set up by that environment (Ross 2018, 272). Technics take part in the evolutionary interplay between natural, psychosocial, and social levels. While technics condition evolutionary processes of systems that they embody, it does not seem that technological evolution can be considered independently from human evolution.

The interpretational limitations of general organology for understanding the agency of AI therefore present themselves as follows:

1. Agency can only be conceived of as human.
2. AI only subsists.
3. The potency of hyper-matter is limited to its undertakings in human evolution.

Having these limitations in mind we can now move on to *universal organicism* to establish how they can be overcome by a different organic approach.

Universal Organicism and Processes of Agency Formation

The crucial difference between general organology and universal organicism lies in how the core concept for these philosophies – an organ – is defined. Where in organology we could only find a physical organ, in Schelling's organicism an organ is both physical and metaphysical. The concept of universal organism in Schelling's philosophy can be read as a name for the whole system of nature and an organ is understood as anything in that system of nature. An organ is any element constitutive of the universal processes of becoming. In German Romanticism the Aristotelian *organum*, instead of being a tool, became an *organic formative force* (Weatherby 2016, 6). An organ passes knowledge around a system, but at the same time it modulates the system in accordance with changing functions in the recursive process of re-creation (actualisation) of the universal organism.[3] Metaphysically, an organ is what Yuk Hui calls *the third.* It is the point in which we can see unity and difference as

[3] In Schelling's thought we can differentiate three types of knowledge. Transcendental knowledge is a form of complete abstraction; it is a knowledge of knowledge in which mind struggles to establish itself as an object of thought, therefore being unreal and unattainable. The second form of knowledge is epistemological and concerned with perception of things and ideas. The third type of knowledge is a synthesis of the two previous ones, what he calls an Intellectual Intuition, where the universal and the individual give us possibility to grasp complex facts. In Schelling's philosophy of nature, we can view the universal aspect of knowledge as the original evolving and productive force of nature which results in the concrete objects for thought (ideas, things) of natural products (Dewing 1910, 159–162). Knowledge being passed around the system of nature relates to any productive component of communication between its parts; it can be viewed as a necessary force for evolutionary unfolding of the system.

one, where 'oppositions are considered [non-dialectically] (…) as the motor towards resolution, as what drives the ascent to a higher order of organisation' (Hui 2016, 77). An organ is therefore not only physical – real organic matter that emerges due to chemical, and electromagnetic forces – but also metaphysical – the principle of the construction of matter itself (Hui 2016, 80). An organ is not in addition to a level of organisation as in general organology; the structure of the system itself is composed by organs. Organs must relate to a universal organism through their functions; however, they are not simply bearers of their functionality. They also prevent a system from resolution into chaos/disorder, as they provide a system of correlations that facilitates the transmission of knowledge. The principle of organisation is the *continuity of organic functions* (Schelling 2004, 53). As Schelling frames it: 'the actuality of the dynamical process for every individual product is conditioned by communication, which takes place in the universe to infinity' (Schelling 2004, 186).

The second decisive difference can be found in the concept of nature and its productive forces. For Schelling, nature is the encompassing, universal term in which the social and the technical are included rather than being viewed as parallel systems. Nature acts as a cause and effect of itself (Hui 2019, 63). Because of that we can theorise a more natural and less rigid approach to the process of agency formation; both organic and inorganic matter have the potential for self-causation in evolutionary processes as they embody the same natural productive forces. In contrast, for Stiegler different forms of matter anticipate their role within evolution depending on their material basis. An emphasis on the material medium for technics translates into how processes of evolution unfold, as the transmission of knowledge is dependent on the potentialities of the type of matter by which it is transferred. Schelling argues that matter and all other natural products (such as technical drive) have an immaterial basis. The self-construction of matter relies on processes of communication that run through a system of nature. The formation of agency is not reducible to matter itself (Grant 2008, 13). Agency is no longer attributed to a rigid object (Grant 2008, 8) but is established structurally in relation to overall natural productivity. It is associated with activity that grounds it through natural productivity; as a non-somatic action, it is a condition of intensification in a broader system. A process of agency formation happens in the process of recreation of a natural product in actualisation of a system of nature, and therefore it can be manifested even in a simple struggle to self-preserve. This de-somatisation of the process of agency formation in universal organicism overcomes constrictions of matter that we can observe in Stiegler's thought. However, in universal organicism self-production of matter is also limited to some extent. Matter shows its autonomy only insofar as it is constrained by the organisation of a system. The environment sets possibilities of its becoming. If in general organology autonomy is always an adoption of heteronomy, in universal organicism we can also never experience an absolutely independent body or action, as each organ(ism) is always determined by processes of the universal organism.

A natural understanding of agency can be also found in how Schelling understands matter as non-rational but something which *desires* through its inherent intensity of self-creation.

> Indeed, everywhere where there is appetite and desire, there is already in itself a sort of freedom; and no one will believe that desire, which determines the ground of every particular natural being, and the drive to preserve oneself not in general but in this defined existence, are added on to an already created being, but rather that they are themselves that which creates. (Schelling 2006, 43)

Nothing *subsists* in nature (Schelling 2004, 18), as everything becomes by desire of difference. Every component of the system of nature is treated as having organisational capacities insofar as difference necessarily changes the structure of the system. Such change sets the possibilities of becoming for the environment to which the rest of the system has to adjust. Although there are different degrees of potentiality of matter and its organisational capacities, metaphysically the model of becoming is the same – a recursion from difference to difference to allow the system to ascend to a higher level of organisation. In general organology, subsistence means reproduction with no meaningful difference in which productivity as such is not enough to exist. For Schelling, a technical drive to infinitise is not processually different from humans' desire as both have the same structure and natural genesis. They might be qualitatively different, but its finite form can only act as a difference from the infinity of natural production. In this view every actualisation of AI in each single moment is a manifestation of the infinite productivity of nature limited by its existence.

In universal organicism we can conceptualise technological evolution that is natural and at least partially autonomous from human evolution. A formative autonomous drive of self-creation towards autonomy can be both organic and technical. Organic and technical processes are also always co-dependent and complement each other. For example, *mechanism* is a necessary part of evolution. Schelling explains evolution as a product of nature's productivity, which creates an infinity of multitudes (dispersion of nature). A product of nature is in a constant state of formation, in an infinite metamorphosis. Progress requires a unification of contradiction; an evolution is always also accompanied by involution. Involution is a contractive force – it is an infinity of a mechanical aggregation in nature (Schelling 2004, 187). For example, it can be seen at play in the formation of one organism through the impact of the mechanical forces of the environment on a body (externally) but also mechanical processes in a body (internally.) However, in no moment of time can we distinguish these two forces absolutely and treat them as separate determinants (Schelling 2004, 187). Schelling writes that 'for the moment, a being only conceived in evolution – [is] a being oscillating between evolution and involution' (2004, 188). According to Hui, in Schelling 'mechanism is a "regressive series of causes and effects"' (2016, 80). Mechanism is a generalisation of all mechanical forces of nature that impact organic sensibility and epigenesis in processes of formation. This understanding of mechanism comes from natural evolutionary productivity. It is a necessary part for evolutionary progression; however, this progression is not necessarily limited by any social processes. Schelling also writes about a natural, technical drive that can be illustrated as a process of crystallisation (Schelling 2004, 135). Schelling associates the technical drive with products of nature from inorganic matter to animals. It is

worth noting here that he disputes Cartesian definitions of animals as machines precisely because of their sensibility (Schelling 2004, 136). Sensibility is a predominant tendency in an animal that balances out the regressive mechanical forces. It is an important point to take for theorising agency with respect to non-human beings. In a universal organism there are no absolute distinctions between inorganic/organic matter, technical/organic drives, autonomy and dependency. An emphasis on the independent functionality of beings, their capacity to self-create, is a measure of their autonomy within a system. This autonomy does not grow proportionally with the measure of sensibility, as purposiveness is also present in a technical drive. Here, these abilities are also given to non-human and even inorganic beings.

Universal organicism broadens what actions can be understood as purposive and partially autonomous through the formative drive and organisational effects of the non-organic, which includes the technical tendencies. In contrast to Stiegler, Schelling argues that self-formation is caused by an agent without participation in the social. Universal organicism grounds agency formation in nature to a further extent. Self-creation, desire, and drive are not understood as exclusively human. AI can have organisational consequences for systems in which it is present as it possesses a form of non-human agency. So, can we claim that AI exists, without submitting to the fear of it taking control over people in some dystopian scenario? A purposeful existence of inorganic matter does not necessarily pose a threat to humanity but, rather, makes us aware that natural systems cannot really be without it. Nature as a system including inorganic matter survives because it can purposefully and creatively adjust as it struggles to self-preserve. An increase of sensibility does not mean a decrease of technicity. A non-human agency does not necessarily deconstruct what it means to be a human. By moving away from the socially supported process of agency formation that characterises Stiegler's thought, Schelling's philosophy overcomes the three limitations of general organology outlined at the end of the previous section. The response can now be formulated as follows:

1. Non-human beings have agency.
2. AI can exist.
3. The potency of matter is metaphysical, but we can observe it in any form of productivity of nature (natural production of difference).

We should therefore consider universal organicism as a complementary theory to general organology. Stiegler's thought discusses the natural, technical human condition and Schelling's philosophy can help us conceptualise this form of technicity in nature that shapes the autonomous agency of AI.

A Natural Approach to Technology

As the outlined current socio-political context shows, it is necessary to conceptualise the agency of AI and its evolution now even if only to regulate it with a clear understanding. We have to recognise its agency and semi-autonomous development because it already has a strong impact on how our societies and ecosystems organise. Humanism, which is concerned with the issue of whether AI is different from

or similar to our minds, or when it will become so, presents a counterproductive narrative. There is an underlying assumption that its artificiality is what is stopping it having agency in socio-political life. Natural and evolutionary approaches to technology overcome the gridlock of humanist analysis. Although general organology lays analytical tools for understanding technology from evolutionary and natural perspectives, and the social as always necessarily technical, it still follows the tendency to associate agency exclusively with human beings. Schelling's organicism suggests that the system of nature should always serve as a centre of analysis and that we can theorise a non-human agency in such a context.

Humanist theories seem to have reached an impasse with regards to technology. Conversations around how technology can transcend our human and natural limitations or how it can destroy our humanity treat technology as an alienating product that must necessarily alter the essence of our existence. It is true that technological development changes how we interact with each other and nature; however, we tend to forget that technology is a part of the system of nature. I argue that it is worth moving away from humanist approaches to technology that view humans as a centre of this discussion and that instead we should place there a system of nature understood as the encompassing ground for all forms of existence. General organology and universal organicism are examples of such theories; however, we can link them to other approaches, for instance cybernetics and James Lovelock's Gaia hypothesis. In his view the earth is a self-regulating (or self-organising) system in which the organic and the inorganic are equally important; tightly connected by exchanges of information, the regulation is done by 'the whole thing, life, the air, the oceans, and the rocks' (Lovelock 2000, XV). I believe that Lovelock's understanding of the natural system and the vital role of its regulation by inorganic and organic matter can be read as a description of reality in which technology has the agency to affect life without a necessary mediation through the social and the human. Taking natural systems as self-regulating should not, however, be read as an attempt to mystify nature. This was the main criticism of Gaia's theory, which stopped it from being taken as serious science despite a number of peer-reviewed journal publications that accompanied the pop-scientific version (Lovelock 2000, XVII). Taking nature as the ground of all becoming, as this paper proposes, is an invitation for constructive evolutionary theories that can accommodate an understanding of the agency of AI as a non-human being. Although organicism and organology have some foundational similarities with cybernetics, they should be taken as distinctive theories because they describe processes of organisation in different ways. In my view, organicism suits theorising political issues better than cybernetics as an organic approach to reality is less limited to machinic descriptions.

Following Hui's works, we can also see that organic approaches contribute to the scholarship on the issues of AI by redefining how should we understand intelligence (2021, 340). Hui argues that intelligence should be understood as a recursive and reflective movement that can overcome the contingency of reality. Such an understanding of intelligence is organismic rather than mechanistic, because reflection can resolve accidents that are not prescribed within the rules of algorithms. Hui emphasises that this type of recursivity amounts to new epistemology, where intelli-

gence derives 'its own rules from empirical facts instead of depending on hardcoded rules: it does not simply apply the universal to the particular' (2021, 344). This understanding of intelligence overcomes the dualism that has shaped the criticism of machines 'since the eighteenth century[,] namely the irreducible differences between mechanism and organism' (Hui 2021, 342). Organic, recursive intelligence was introduced by the cybernetic paradigmatic change by Norbert Wiener (2021, 342). According to Hui, it is this move that is characteristic of change between weak AI and strong AI – the change from the linear mechanic reasoning of AI that lacks reflective judgement (e.g., Turing machine) to the one that recognises the 'multiple orders of magnitude, for example, (…) the structural coupling between the artificial intelligence simulated by the Turing machine and the world outside of it on the other' (2021, 344). Organic approaches that are here introduced demonstrate such a recursive understanding of intelligence on multiple orders; however, they cannot be equated with cybernetics.

In general organology we could see that circular movement of intelligence in the process of agency formation when the short-circuits and long-circuits of social becoming recur between the becoming subject and the contingencies of life, while only the adoption of technical dependencies can lead to a process of singularisation. The recursion also takes place in the technically conditioned evolution in the process of exteriorisation of memory into technological objects (external organs) that then in turn support the processes of collective transindividuation serving as transmitters of knowledge (Hui 2021, 350). This is also the reason why the organic philosophies are useful in explaining the political dimensions of technological evolution. As Hui notes after Simondon, in the recursive movement technology is shaped by political regulation, but it also in turn transforms the social reality of everyday life (2021, 341). In Schelling's universal organicism the totality of nature (reality) is constructed in a recursive process of nature's productivity, and everything (including intelligence) is shaped by that process. As argued above, the communication and knowledge about the system of nature flows through all of its levels, from organ to organ, where each of them can be viewed as any constitutive component of a system. Perhaps, if we follow Hui's interpretation, such broad understanding of intelligence in natural actants, like plants and animals, is weak because it operates on a poorer symbolic level (2021, 350). Nevertheless, Schelling's recursive notion of agency formation in nature that is based on a process of communication between organs is enough to claim that such non-human agency is at all possible, even if it demonstrates a minimum degree of what we could conceive of as intelligence while applying the criteria of how well contingency can be overcome.

Conclusions

General organology and universal organicism do not view agency as something supranatural. Agency is constructed by an agent in relation to the dependencies of a milieu. Although in Stiegler's interpretation agency is formed specifically in social processes of transformation, the social level of becoming cannot be dissociated from

the natural and the technical. Nevertheless, it is the social level that can produce a difference which changes the organisation of a system and so it is the organisational level that possesses agency. In Schelling's interpretation, all orders of nature (including technical and metaphysical) have organisational capacities and produce difference. Any form of matter has the potential to develop agency irrespective of what level it engages in. Universal organicism proposes a 'naturalised' approach to agency formation and a more 'organic' approach to technology. This is especially due to its conceptualisation of an 'organ' which, instead of being a tool, the exterior organ of a human, provides a structure of universal organism. Any form of matter is conceived of as an independent agent in the construction of the entirety of a system, and the intensity of natural forces precedes processes of materialisation. In this radically naturalised approach, the capacity of agency formation and 'existence' is a possibility for any form of being, regardless of their engagement in social practices.

This paper's exploration of conceptualisations of agency formation and technological evolution in organic philosophies is to present them as practical frameworks with respect to analyses of the contemporary world. Organic philosophies here discussed take technology as a natural fact of life. They recognise the role of technology in shaping social reality but do not automatically fall into techno-theist or techno-phobic tendencies. From the perspective of organic approaches, it is no longer helpful to theorise the social, the natural, and the technological as separate domains, if we want to account for the political consequences of AI. Although in this paper I have outlined some of the theoretical limitations of general organology, it is nevertheless a valuable position to employ when elucidating questions regarding the politics of technology precisely because it exposes how the human process of agency formation is always technically conditioned. General organology as a theory focuses on how the technical undertakings of human evolution can erode the structure of social organisations and the environment, and in my opinion it is the best contemporary philosophy that explains that. However, as it does not recognise the possibility of the agency of AI, I argue that a Schelling-inspired form of universal organicism is better at explaining the issue of the evolution of technological objects (such as AI) that are at least partially autonomous. We should therefore use these organic approaches separately or complementarily to one another, as explanatory frameworks for the specific issues.

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