Heidegger, Technology and Sustainability
Between Intentionality, Accountability and Empowerment

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Abstract: Transition is the adequate term for characterising contemporary societies. Norms and values are in transit, led by a technological revolution, which is, in itself, the tip of the iceberg of millenary social and cultural changes. Heidegger, one of the leading philosophers of the twentieth century, captured this tension between social change and innovative technology and showed that the Western civilisation was captive of ontological instances whose role was already pin-pointed by Greek Antiquity philosophy but which went underground with Modernity. The product of Heidegger's work was a revolution in Western thought, which found echoes across all areas of society. Taking Husserl's call for "back to the things themselves", Heidegger's impact has empowered the calls for more sustainable and resilient societies. Sustainability models, with its three pillars of environmental, economic and social sustainability, are directly dependent upon the role of technology and of information science in shaping current patterns of production and consumption in contemporary societies. Industrial, academic and political discourses already voice such taken for granted assumptions. Nevertheless, it is crucial to clarify and to highlight the links between economic evolution and progress, social change and the catalysing role of technology, taken as an enabler of human action.

1 INTRODUCTION

The richness and diversity of interpretations of technology – of what technology is, means or represents - is an open challenge for academia. Such challenge has impacts for practitioners in industry and in policy-making.

Not only the signification of technology needs to be clarified but also the clarification process itself, the double-loop learning that it uses, must be spelt out (Argyris, 2002, Stamper, et al, 2000). Crystal clear distinctions and oppositions between contrasting perspectives on technology should be connected to the consequential arguments regarding other spheres of human action.

This is the case, in particular, of how specific interpretations on technology will guide and circumscribe specific worldviews. Consequently, the assumption is that what is said about technology will have structuring effects upon other aspects of reality.

The issue is how such interpretations on technology condition epistemic, anthropological and ideological perspectives about society. Epistemic shifts do emerge and offer alternative positions regarding the meaning of reality and how it may be accessed; different and contrasting perspectives of human reality co-exist and are often at the basis of warlike action; the doctrines, postulates and principles that guide political action are themselves determined by taken for granted value systems.

In short, technology is key. Consequently, it is relevant to assume this hypothesis regarding the fundamental social role of technology in formatting societies and in reflecting their core modes of operation and of functioning, i.e. their patterns and practices of language use and of participation in social action. Meaning making is intrinsically a

social process, which can be studied at organisational and institutional levels (Rego et al, 2010).

Taking an exploratory view and drawing on the interdisciplinary production of diverse collective post-doctoral projects, it is relevant to present a synthetic reflection that adequately mirrors ethnographic, practice-based, action-research regarding the social power of technology.

The envelop of such exploratory task is the social tradition stance of sustainability models, taking evolutionary, pragmatism, interactionist and institutionalist perspectives on economics relations (e.g., Goldkuhl, 2007, Bateira, et al, 2002, Brugman, et al, 2007, Almeida, et al, 2014).

Three sections will be developed below, articulating the links between practical philosophy and the sustainable development paradigm (e.g., Penha-Lopes, 2010, Grimble, 2002) namely, through the instances of intentionality, accountability and empowerment.

2 INTENTIONALITY

Heidegger's work on technology has had a long-lasting effect in current research across different fields of study (e.g., Filipe, et al, 2004, Borges-Duarte, 2005, Baranauskas, et al, 2016).

Intentionality is a strong instance in Husserl's work. As father of modern day phenomenology, Husserl deeply analysed the emergent science of his time – psychology, one hundred years ago - in order to reinvent science itself. Intentionality represented the impetus for creation present in reality, in every day phenomena. This implied a non-anthropocentric perspective and a mind-set open to questioning all taken for granted assumptions regarding Western thought.

Heidegger, the close disciple of Husserl, moved his focus to dasein, to being-in-the-world. This rejection of Husserl's intentionality created a schism and an unsolved tension, which is still present today.

Dasein forces the note of that, which is prior to intentionality, that which is intrinsic to all reality, its ontic manifestation and expression in the concrete real. In other words, it argues that humans acknowledge and become aware of the power of their tools – language or a hammer – through a process that is prior to such recognition, i.e. it is a given, it is already present, already there, "ready at hand" (Heidegger's terminology, used extensively; e.g., Dotov, et al, 2010).

Language is already being used, mastered and interiorised, as it gradually becomes an intentional voice in a community. Children spontaneously play with stones. The hammer represents the evolution of humankind until the perfect hammer is created.

This process is unavoidably regional, local and geographically circumscribed, as each culture would develop its perfect image of a perfect hammer. This concrete real is, then, intrinsically evolutionary and historical.

The emergence of historicity in the twentieth century and the raise of the importance of the history and of the philosophy of science is a crucial by-product of Heidegger's work. Abstraction, theorisation and analytical generalisations, present in science, are extended in order to capture the complexity of techno-science and of human sciences.

Contemporary societies are immersed in a techno-scientific territory and landscape. Public affairs' decision-making processes are captive of closed-loop vicious circles, which hinder progress. Hypermodernity reflects the unstable nature of post-industrial societies (e.g., Brandon, 2015, Armitage, 2001).

The revolution that Heidegger's work inaugurated has moved the focus of attention from the conscious and autonomous individual, which was the subject to Modernity, to the community based sharing of common understandings, practices and values.

Present day technology, designing an information system or imagining the perfect hammer, may be catalysed and inspired by Heidegger's work. Collectively, that is the role of models such as the sustainable development goal (e.g., Seyfang, 2007).

Today one may argue that the split between intentionality and dasein, taken as a still active and fertile tension, may be integrated and solved in the holistic view of ecological models. Indeed, there is the need for the impetus and the energy for change, as well as the acknowledgement and empowerment of local communities, the core of informed and effective action.

3 ACCOUNTABILITY

Accountability is a crucial concept in current times. It concentrates, in a single package, the relationship between seller and buyer, or producer and consumer.

According to Alain Tourraine (1971), writing in the seventies, programmed societies represent the cultural and symbolic domination of all spheres of economic activity. This imperialist and colonialist power of signs and of signification processes, as it is witnessed by the raising importance of semiotics in order to make sense of present day societies, is

intrinsically a technological enabled process (e.g., Stamper, 2001). That is, it is technology the enabler of social change. The turbulence and paradoxical nature of the common interpretations of present times reflects the ambiguous power of technology. Standard uses of information technology, from the personal computer to mobile technology, are the means through which social revolutions are shaped.

As a manifestation of such changes, there is a wide range of examples, including cyberpolitics (e.g., Dader, 2009) and the growth of massive open online courses (MOOCs)(e.g., Jermann, et al, 2014, Dillenbourg, et al, 2009). These social changes represent shifts in power and submission patterns, which have a lasting effect at institutional level, including organisations, industries, markets and policy-making international bodies.

One way of capturing these emergent changes is through the clash between two different schools of thought regarding the reality of the fourth industrial revolution, the so-called Industry 4.0 (I 4.0)(e.g., Lee, et al, 2014). Taking steam engine, electricity and digital as the first three revolutions of modern times, connectivity represents the current phenomenon of empowering populations in institutional contexts in order to make the optimal use of their available competencies and resources.

There is a clash between certain North American academic perspectives on this concept, I 4.0, and some of the German scholars' interpretation, probably as the result of the lessons learnt post German integration (e.g., Gorecky, 2014, Heng, 2014). Indeed, such contrast is present in terms both of economic models and in terms of competition and regulatory law (e.g., Mendes, 1997), i.e., theory and practice, and both economics and law.

This clash of perspectives has created a century old tradition of opposing views regarding the meaning of abuse of dominant position and of market power. Whereas in the other side of the Atlantic, competition takes a linear, cause-effect, reductive stance, taken as a zero-sum game, "if you win, I loose", the Continental school of thought has gradually promoted and developed the vision of collaborative and participative competition, taken as a win-win game. The need to open circles of sharing and creating knowledge and to help produce inclusive, resilient and diversified modes of production and of consumption has become an urgent agenda for social change.

4 EMPOWERMENT

To empower something or someone implies to enable its maximum potential to be developed and made concrete. Making a difference in someone's life is an example of an impact of something or someone that was empowered to act in such positive way.

This terminology has been connoted to the desire to promote more just societies and, consequently, as a critique to the hegemonic vision of capitalism. However, it is possible to argue that there are diverse forms of capitalism, taken as a plural and diversified reality. Market operations may be directed towards creating more sustainable outcomes at a global level.

What is indeed remarkable to notice is the fact that there is a common discourse, which rapidly moves from the periphery to the centre and vice-versa, concerning ideas related to common good and to ways to achieve it, i.e. normative and positive economic analyses of reality. There is evidence that consumer behaviour intrinsically and unavoidably incorporates the value system that is represented by a dynamic and diversified whole (e.g., Miller, et al, 2005, Porfirio, 2010). In other words, it is not a black and white opposition, between a set of values for those who claim for more market freedom *versus* those who claim for more empowering and effective public policies.

The idea of a society that is safer and inclusive, freer and socially responsible, market oriented but deeply committed to sustainable development, is becoming evidently possible and, indeed, visible. Multinational corporations compete with public international institutions as the defenders of the most elaborate and sophisticated values, norms and procedures.

In synthesis, there is a common and collective race, not of different schools of thought but of how to help create the most effective and powerful vision for the future. The fight for common good is as much part of the ideological discourse of an election campaign as it is the goal of a garage band, which then becomes a high-tech born-global start-up.

5 CONCLUSIONS

Computing science has been one of the most fertile areas for the integration, articulation and alignment of a wide spectrum of disciplinary inputs, from the humanities to the hard sciences. This capacity to elaborate synthesis and synergies is recognisable in the variety of topics that characterise the scope of

academic conferences, curricula, research and public policy-making. However, it is in practice, in formatting procedures and in creating inquiring cultures, that information technology's impact has been paramount. The links between technology and practical philosophy, including the links between philosophy and so-called public affairs, represent an accumulated set of knowledge, which needs to be disseminated and shared in order to explore its full potential. The role of academic research encompasses the analysis of different schools of thought and the promotion of public debate over the need to guarantee sustainable development across all areas of contemporary societies.

Heidegger's work had a decisive impact in denouncing the reductive and fatally self-destroying nature of Western thought, diagnosing Modernity and its relationship with technology as an alienation from what it means to be human. That is, an anthropological position that cherishes human's creativity and communal power to design and organise itself in an autopoietic way, manifesting humanity's potential to contribute to common good.

The present paper has taken an exploratory stance. It has highlighted the items that are at stake when discussing the role of technology in empowering present day societies to, indeed, achieve their optimal and sustainable developmental pattern. Consequently, it voices a call for action, namely through the people, the practitioners and the academicians, involved in current problem solving and decision-making for public affairs.

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