The Philosophy of Technology at a crossroads: Heidegger and the limits of the empirical turn

A Filosofia da Tecnologia em uma encruzilhada: Heidegger e os limites da virada empírica

Abstract

The philosophy of technology, as a relevant theoretical field in contemporary philosophy, has a history that dates back to the classic philosophers of technology, as well as to the subsequent movement known as the empirical turn. However, as discussed in the field's specialized literature, several impasses currently challenge the objectives of the empirical turn. These impasses are particularly evident when considering technological phenomena from a planetary perspective, making it difficult nowadays to conceive a philosophical inquiry exclusively focused on analyzing technical objects and their local usage contexts. Therefore, this work aims to explore this historical-philosophical trajectory, beginning with thinkers such as Martin Heidegger and culminating in the present day, pointing out perspectives about the limits of the empirical turn.

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Resumo

A filosofia da tecnologia, enquanto campo teórico da filosofia contemporânea, possui uma história que remonta aos filósofos clássicos da tecnologia, bem como ao subsequente movimento conhecido como virada empírica. No entanto, conforme discutido na literatura especializada, atualmente existem diversos impasses que desafiam os objetivos da virada empírica. Esses impasses são especialmente evidentes quando consideramos fenômenos relacionados à tecnologia em uma perspectiva planetária, tornando atualmente difícil conceber uma abordagem filosófica exclusivamente centrada na análise de objetos técnicos e seus contextos de uso locais. O objetivo deste trabalho é explorar esse percurso histórico-filosófico, que tem início com pensadores como Martin Heidegger e culmina nos dias atuais, investigando os limites da virada empírica.

Palavras-chave: Filosofia da Tecnologia, Virada Empírica. Martin Heidegger

Introduction

It is not surprising that it was during the Industrial Revolution that we saw the first use of the term philosophy of technology (*Philosophie der Technik*), namely by Ernst Kapp in 1877[1], as well as the first investigation into how machines relate to the way societies are organized, distribute their wealth and establish power structures, as analyzed by Karl Marx in the late 19th-century[2]. Nevertheless, the reflection on technology from a philosophical perspective would only become more intense precisely in a generation impacted by extreme experiences due to the dramatic events of the first half of the twentieth century, such as the nazi concentration camps enabled by industrial processes of extermination, the atomic bombs on Hiroshima and Nagasaki, and all the new military technologies involved in the two great wars. Primarily influenced by

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1 Vallor, S. Introducing the Philosophy of Technology In: _____. (ed.) *The Oxford Handbook of Philosophy of Technology*, p. 5.

2 Idem.

those phenomena, authors such as Lewis Mumford (1895-1990), José Ortega y Gasset (1883-1955), Karl Jaspers (1883-1969), Jacques Ellul (1912-1994), and Martin Heidegger (1889-1976) produced essential texts for the reflection on technology in a more critical way. By inciting discussions that brought the questioning of Technology with a capital "T", as Don Ihde points out[3], the so-called classical authors of the philosophy of technology still foster many discussions and re-readings until today, motivated both by critical objections and their inevitable presence and actuality in contemporary thought.

After this period of dramatic events and questions about the technicization of the lifeworld, reflections on technology through a philosophical approach have flourished in many directions. A contemporary "taxonomy of the field" can be done (but not limited to) by clustering common influences and research programs that treat technology from particular critical perspectives, such as postphenomenology, critical theory of technology, science and technology studies (STS), authors who emphasize philosophical anthropology[4], and reflections on technology with feminist and decolonial perspectives[5].

Besides all these approaches that could be explored, we aim to describe and problematize some current debates in the philosophy of technology through the movement known as the *empirical turn*. But why precisely? As stated by Verbeek[6], the empirical turn is a movement that occurred within the philosophy of technology as an opposition to the so-called classical philosophers of technology and can be taken nowadays as a highly influential theoretical background. This characterization is important because it is evident nowadays how much of what is labeled as "philosophy of technology" is influenced by the empirical turn regarding methodologies, intellectual production, and concepts[7].

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3 Verbeek, P. Don Ihde, The technological Lifeworld In: Achterhuis, H. American Philosophy of Technology, p. 120.

4 A brief introduction about all those perspectives (postphenomenology, critical theory of technology, STS and authors who emphasize philosophical anthropology) can be found in Lemmens, P, and Hui, Y. Landscapes of technological thoughts: a dialogue between Pieter Lemmens and Yuk Hui. *Philosophy Today* 65.2 (2021): 375-389.

5 Harding, S. Postcolonial and feminist philosophies of science and technology: Convergences and dissonances. *Postcolonial Studies*, 2009, vol. 12, no 4, p. 401-421.

6 Verbeek, P-P. *The Empirical Turn* In: Vallor, S. (ed.), *The Oxford Handbook of Philosophy of Technology*, p. 35 - 54.

7 Brey, P. Philosophy of technology after the empirical turn. *Techné: Research in philosophy and technology*, 2010, vol. 14, no 1, p. 36-48.

Nevertheless, the empirical turn as a *status quo* only exists with tensions and debates that eventually lead to questioning its foundations. The philosophy of technology is at a crossroads nowadays, especially if we take the conflict between, on the one hand, the characterization of technology as a transcendental phenomenon and its relationship with the concept of world (as done by Heidegger, for instance) and on the other hand, trying to give some centrality to the technical objects themselves and how they mediate our daily experience (as frequently addressed by the philosophers influenced by the empirical turn).

We will start by examining the role of technology in Heidegger's work, as he is often referenced by theorists associated with the empirical turn as a prime example of the "classic philosophy of technology." Next, we will reconstruct the basic concepts of the empirical turn and take their objections towards Heidegger, to later highlight the recent debate about the limits of the empirical turn and indicate possible frontiers in the philosophy of technology[8].

Technology with capital "T"

Moving to the question of technology in Heidegger's work, this topic is probably one of the main discussions in the philosophy of technology, which has a wide range of consequences for contemporary thinking. To avoid getting lost in this labyrinth of Heideggerian philosophy, we will briefly delineate the central tenets of the conceptualization of technology in his work by addressing four points.

Firstly, what Heidegger initially offers in his famous discussion of technology[9] (*Technik*) could be called a "negative definition" since he tries to delimitate what he *will not* address as technology. Heidegger explicitly states that he does not deal with technology from an instrumental or anthropological point of view. The first perspective involves conceptualizing technology as a set of instruments, tools, or machines, or recurring to the objects we

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8 We understand that this debate is fostered by many discussions about the theme, such as the one presented by Lemmens (Lemmens, P. Thinking technology big again. Reconsidering the question of the transcendental and technology with a capital "T" In the light of the Anthropocene. *Foundations of Science*, 2021, p. 1-17), with its respective comments and replies. Another text that discusses the limits of the empirical turn is: Bosschaert, M. T., Blok, V. The 'empirical' in the empirical turn: A critical analysis. *Foundations of Science*, 2023, vol. 28, no 2, p. 783-804.

9 This strategy is used, for example, in: Heidegger, M. *The question concerning technology and other essays*, p. 3-6.

think about when we describe technologies in our daily activities, as a way of getting things done and solving problems. The second form of characterizing technology that Heidegger distances himself from is an anthropological view, defining technology as a human activity, among others. It is essential to highlight that these two previous modes of understanding technology are complementary to Heidegger. The problem with these definitions is not that they are incorrect. They describe an adequate correspondence (*Übereinstimmung*)[10] between those concepts and our immediate reality. However, the mere correctness (*Richtigkeit*) would not reveal something more profound and insightful about this planetary phenomenon that conditions our societies.

Secondly, what Heidegger searches for when he embarks on philosophically *questioning* technology is an understanding of its *essence*, or phrased in another way, considering it *ontologically* as a phenomenon intertwined with the history of Western metaphysics and, consequently, with our most profound possibilities of *making sense of our world as such*. It is also important to stress that the concept of *essence* for Heidegger[11] is not identified with its classical notions, such as an immaterial or ideal counterpart common to all technical objects (e.g., the platonic concept of idea as *eidos*) or a common property or substance that different kinds of technical tools would have (e.g., the Aristotelian notion of essence as *ousia*). Recurring to the etymology of the German language, Heidegger connects the idea of essence (*Wesen*) to a verb that could be translated as to endure (*währen*). Then, questioning the essence of technology implies that Heidegger is searching for the mode in which technological development unfolds and makes possible a world for us in its temporal lasting. By questioning how the essence or rather the 'essence-ing' (*Wesung*) of technology organizes and reveals beings, Heidegger searches for a onto-*logical* description of technology as truth (referring to *aletheia*, not to *orthotes*)[12], understood in the pre-classical Greek mode, as the unconcealment (*Unverborgenheit*) of beings. Then, technology would have a deep relation with comprehending the epochal moment that we are immersed in or the mode of understanding available to us regarding the history of Being (*Seinsgeschichte*).

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10 All the references to the original german terms were made consulting Warthal, M. *The Cambridge Heidegger Lexicon*, 2021.

11 Of course, due to the complexity of such a term inside Heidegger's work, we are attaining ourselves to the notion of *essence* which is discussed in *The Question Concerning Technology* present in Heidegger, M. *The Question Concerning Technology and Other Essays*.

12 As is widely explored in *Plato's Doctrine of Truth* in Heidegger, M. *Pathmarks*, p. 155 - 182.

This mode is precisely how the essence of technology as enframing (*Ge-stell*) turns all beings, including humans, into a standing reserve (*Bestand*), i.e., as mere parts of a stock to be used as resources[13]. This mode frames modern technology due to revealing reality in terms of challenging (*herausfordern*) beings. Everything is seen as part of an infinite process of transformation, optimization, and control of a society in which the efficiency of this process is a value in itself, indeed the highest value[14]. As stated by Heidegger, "Technology in its essence is something that man does not master by his own power."[15]. This development will question the supposed modern freedom to deal with technology instrumentally as rational choice-making and free determination towards technical objects and their possible (un)desirable outcomes[16].

Thirdly, as is fully explored in the secondary literature[17] Heidegger's position on the question of action regarding technology is highly paradoxical and circular. It is clear that Heidegger is trying to understand our world in which technology plays a significant role. However, he also discusses concepts such as "freedom" and "danger," which inevitably triggers questions in his readers like: What can we do about it? What path can we follow if technology is a power beyond our control? Should we abandon ourselves to nihilism since our destiny is not in our hands anymore?

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13 Heidegger, M. *Bremen and Freiburg Lectures,* p. 29.

14 Although, as we may know, Heidegger does not mention the word "value" in his analysis, as it may lead to moral considerations rather than ontological ones.

15 Sheehan, T. (ed.) *Only a God Can Save Us* in *Heidegger: The Man and the Thinker*, p. 45 - 67.

16 It is important to stress that, as we have already mentioned, Heidegger's characterization of technology is highly influenced by the historical milieu of Europe's early 20th century. It could always be dangerous to determine the thought of a philosopher by its socio-historical context, but the other way around also does not seem wise (trying to completely ignore the relationship between thinking, world, and *oeuvre*). For instance, as openly explored by the secondary literature about Heidegger's work, the contact with Ernst Jünger's book *Der Arbeiter* was fundamental to the concept of enframing. Regarding the relationship between Heidegger and Jünger, one can consult Blok, *V. Ernst Jünger's Philosophy of Technology - Heidegger and the Poetics of the Anthropocene*, p. 53 - 108. Also, the first wide-open effects of the incorporation of telecommunication technologies of his epoch in citizen's lives, such as the radio and television, were always present in Heidegger's metaphors and examples, which does not imply that we cannot find new examples and metaphors in our age to inquire ourselves about his analysis. About this confrontation of Heidegger's formulations on contemporary phenomena, the following paper can be consulted: Lyra, E., *A atualidade da Gestell heideggeriana ou a alegoria do armazém* in *Heidegger: a questão da verdade do ser e sua incidência no conjunto do seu pensamento*.

17 Dreyfus, H. Heidegger on Gaining a Free Relation to Technology In: Dreyfus, H., Wrathall, M. *Heidegger reexamined*, p. 163-193.

This paradoxical situation that results from the concept of *enframing* can be summarized as: how can we control the effects of technology if our will to control everything is part of the problem? Heidegger's answer seems to be that what we can 'do' about it is profoundly *think* [18] and open ourselves toward its *aletheic* essence(-ing) as it reigns over us, which might also open us toward other forms of approaching reality beyond the eternal search for *technofixes*. In other words, having a free relationship with technology would not pass through the realm of action (in the sense of *agency*) but towards opening ourselves to the essence of technology by radically putting it in question. Regarding this approach, Heidegger states that:

> *We shall be questioning concerning technology, and in so doing we should like to prepare a free relationship to it. The relationship will be free if it opens our human existence to the essence of technology.[19]*

This path would lead us to (re)discover another kind of thinking, what he later calls meditative thinking (*be-sinnendes Denken*)[20], which does not engage us in the modern attempt to frame, exploit and control reality. Heidegger's approach to modern thinking is central to enframing since he deals with an epochal shift that delimits our possible horizon of concepts. Objectivity[21] and calculative thinking[22] are some terms employed in an attempt to interpret the progressive forgetting of Being that reaches in modernity a definitive phase where beings are constantly revealed as measurable and manipulable entities. A kind of "response" to modern thinking and the will to control that are present in the essence of technology would be a possibility of letting things be, as he develops with the concept of releasement (*Gelassenheit*)[23].

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18 We will not delve into his discussion here; however, we can mention that Heidegger extensively questions what kind of thinking is not oriented toward beings and actions but toward Being itself in its unfolding.

19 Heidegger, M. *The Question Concerning Technology* In: *The Question Concerning Technology and Other Essays*, p. 3.

20 As discussed in: Heidegger, M. Memorial Address In *Discourse on Thinking*, p. 45-58.

21 As is discussed in Heidegger, M. *The Age of the World Picture* in *The Question Concerning Technology and Other Essays*, p. 115-154.

22 As discussed in: Heidegger, M. *Discourse on Thinking*, p. 45-58.

23 We will not delve into the concept of releasement here. Still, one can find a rich debate about it in: Dreyfus, H. Heidegger on Gaining a Free Relation to Technology In: Dreyfus, H., Wrathall, M. *Hei-*

Fourthly, we can address what we can call the *transcendentalist nature of Heidegger thinking of technology*. This characterization implies that technology *per se* is related to how the totality of beings can appear to us as something intelligible or how an epochal configuration makes sense for a collective historically delimited. Nevertheless, what would be "behind" this totality of meaning? Heidegger's transcendentalist perspective is rooted in the presupposition that every ground of understanding, not only about the world but about ourselves, is guided by the *development of metaphysics*. The history of Western metaphysics not only reflects *how Dasein can open itself to Being* in a certain epoch, but also *how this interpretation of the conditions of possibility of an epochal configuration is given from Being to Dasein*. Throughout this history, the essence of technology would be the current mode by which this relationship between *Dasein* and Being is rendered possible. In this sense, the characterization of technology done by Heidegger can be considered transcendentalist.

However, it is important to stress that Heidegger frequently highlights that as long as the task of philosophy is necessarily to face technology in the sense of radically thinking about it (and not demonizing it), the history of Western metaphysics, which starts with the poem of Parmenides and reach the Nietzschean will to power (that finds in enframing a *retraction of Being*) is not simply a history of ontical or moral decadence[24]. This interpretation seems important as it distances us from confusing a transcendentalist approach with a kind of romantic nostalgia for a world that has not yet been "corrupted" by technological development.

With this brief characterization of technology in Heidegger's work, we can discuss the empirical turn main tenets and some of the objections it makes towards Heidegger (which somehow are regarded as valid for the whole set of classical philosophers of technology). [25]

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degger Reexamined, p. 163-193. It is also important that *releasement* is deeply related to several issues that Heidegger will approach in his later thinking, or several attempts to keep thinking enframing by other perspectives, such as what it could really mean to think in our age (e.g., Heidegger, M. *What is Called Thinking*), the relation between language and Being (e.g., Heidegger, M. Language in *Poetry, Language, Thought*), art (Heidegger, M. *The Origin of the Work of Art* in *Poetry, Language, Thought*), dialogues with scientists who are worried about the problematic character of their own scientific practices (e.g., Heidegger, M. *Zollikon Seminars*), the future and present of philosophy in the age of technology (e.g., Heidegger, M. *The End of Philosophy and the Task of Thinking in On Time and Being*) and the question of dwelling (e.g., Heidegger, M. *Building, Dwelling, Thinking in Poetry, Language, Thought*).

24 Wisser, R. Entretien du Professeur Richard Wisser avec Martin Heidegger In: Haar, M. (ed.) *L'Herne - Martin Heidegger*, 1983, p. 94.

25 This argument is, of course, a great simplification made by the representatives of the empirical turn. This is clear when Verbeek analyzes in a very similar way Heidegger and Jaspers in Verbeek,

The empirical turn

The empirical turn represents a significant shift in the philosophy of technology, briefly characterized by Don Ihde as a change from monolithic, high--altitude, and transcendental perspectives on "Technology" to an empirical approach oriented towards "technologies" in their contextual and relational aspects[26]. The landmark book where this shift is first claimed was edited by the Dutch philosopher Hans Achterhuis in 1997 with the original title "From steam engine to cyborg: Thinking about technology in the new world" (*Van stoommachine tot cyborg: Denken over techniek in de nieuwe wereld*). It was translated into English in 1999 as *American Philosophy of Technology: The Empirical Turn*. The book consists of a compilation of six texts written by Dutch philosophers about the work of six well-known North American authors, with an introduction written by Achterhuis himself, who claims that:

> *[...] it is precisely the task of an empirically oriented philosophy of technology to understand the co-evolution of technology and society in modern culture, rather than to evaluate it on the basis of a priori criteria.*[27].

It is interesting to stress that there are two main influences on these American authors, which were taken as inspiration by the promoters of the empirical turn. The first one has its roots in a reading of Heidegger influenced by American pragmatism, which results in a very particular philosophical interpretation of German phenomenology in the case of Don Ihde. Such a reception made possible discussions that took phenomenology to discuss particular technological phenomena, such as artificial intelligence, focal practices, and technological mediations. Especially in the case of Ihde, this pragmatic interpretation disconnects the question of technology in Heidegger's work from the history of metaphysics itself. This disconnection is highly present in the non-foundationalist approach adopted by other important authors influenced by the empirical turn, such as Verbeek and Feenberg.

P-P. *What Things Do*, p. 15-95.

26 Achterhuis, H. (ed.). *American Philosophy of Technology: The Empirical Turn*, p. VIII

27 Ibidem, p. 7.

The second significant influence that could be highlighted is made by the philosophy of science developed in the second half of the 20th century in this empirically oriented philosophy of technology since

> *[...] just as the earlier, Kuhn-inspired philosophers of science refused to treat science as monolithic, but found that it needed to be broken up into many different sciences each of which need to be independently analyzed, so the new philosophers of technology found the same had to be done with technology.*[28]

One of the main consequences of Kuhn theory of scientific knowledge was that as sciences are developed within the establishment of paradigms and revolutions, there would be no meaning in dealing with science as a unified phenomenon[29] since each science can be analyzed in its own set of structural changes. In the same way, the founding fathers of the empirical turn shifted their attention to how "technologies" can be followed through history if we pay attention to the co-evolution between the artifacts and the social structure that "involves" these technologies. The "black box" of technology was then opened by American authors such as Donna Haraway, Langdon Winner, and Andrew Feenberg[30]. Highlighting the local power structures and social relations that shaped technologies through their history of practices held by designers and users, those three authors were deeply influential in the empirical turn[31].

Moving on to the first objection commonly addressed to Heidegger and the other classical philosophers of technology, it questions the monolithic character technology would have[32], according to them. Claiming that the search for an essence of technology usually forgets how fundamentally different types of technologies exist and how they can shape our reality in

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28 Ibidem, p. 6.

29 Consequently, we would discuss the sciences (in the plural and with small "s") and not Science (in the singular and with capital "S"). As the promoters of the empirical turn are influenced by this change in the philosophy of science, they usually delimitate their approach towards technologies and not Technology.

30 Feenberg is probably the most peculiar case of these six authors, because as being a former disciple of Herbert Marcuse, his work is also very tributary to critical theory and the complex relation between Marcuse and Heidegger.

31 As Achterhuis states, this can be labeled roughly as a constructivist influence on the empirical turn. Achterhuis, H. (ed.). *American Philosophy of Technology: The Empirical Turn*, p. 6.

32 Verbeek, P-P. *What Things Do*, p. 61.

several different ways, the endorsers of the empirical turn argue that not all of them are submitted to the mode of revealing that enframing would impose, for instance, or other possible "macro-interpretations" of technology. Then, approaches related to the empirical turn focus on analyzing how specific technologies can be contrasted and opposed when considering how they build different kinds of relations with the world. One significant implication of this development is a great diversity of technical objects studied by the philosophy of technology nowadays, research projects focused more on practical and industrial challenges[33], and several discussions regarding the different methodologies that could be used in those investigations.

The term substantivism can label the second objection that Feenberg and other authors formulated. According to Verbeek[34], substantivism has its roots in the interpretation that technology can drastically alter societies as the latter is considered autonomous. In this sense, substantivism has two main characteristics. On the one hand, technology develops itself autonomously over history. It has its own inertial tendency, and it implies a force that is beyond human control. On the other hand, substantivism leads to a diagnosis that technology relates itself to human societies just in a one-way direction. For instance, technology as an independent force alters culture, but there is nothing that humans can do to shape or stop technological development. Distancing themselves from these criticisms, the endorsers of the empirical turn emphasize debates around how the notion of human agency is modified by technology. For instance, human experience is understood by postphenomenologists as *mediated* by technological artifacts, and the basic assumptions of substantivism are switched to inquiries about how specific artifacts transform perception and turn possible new forms of action.[35]

This refusal of substantivism has consequences for the ethics of technology, which could be roughly characterized in two ways regarding the empirical turn. The first one is the discussion about the moral significance of technology[36]. This approach arises from the previous debate about agency and how the ethicists of technology "expanded the notion of moral agency in such a

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33 An illustrative example of such a development is ESDIT - www.esdit.nl/

34 Verbeek, P-P. *What Things Do*, p. 136.

35 Verbeek, P-P. *Moralizing Technology*, p. 10-11.

36 Verbeek, P-P. The Empirical Turn In: Vallor, S. (ed.), *The Oxford Handbook of Philosophy of Technology*, p. 43-44.

way that technologies can be part of it or help to shape it"[37]. Moral mediation, for instance, is an approach that empirically tries to understand how technologies modify the way we understand and percept reality, consequently changing how moral decisions are taken[38]. Secondly, the ethics of technology influenced by the empirical turn often emphasizes the role of morality in design[39]. One example of this approach is value-sensitive design, which departs from the perspective of analyzing the stakeholders' values in using the aimed technological artifact in the development process. These design methodologies tend to anticipate and mitigate the non-desirable effects of technological developments on a determined social group or foster particular practices and values understood as desirable.[40]

The third objection made by Ihde[41] and Verbeek[42] regards how classical philosophers of technology somehow perceive modern technology as a form of alienation and massification, threatening human existence and authenticity. This argument is reinforced by the comparison between old technologies as forms of "less-exploitative" technical activities and modern technologies as forms of exploitation (for instance, Ihde's claim on Heidegger's comparison between the old windmills and hydroelectric power plants[43]). This argument suggests a kind of residual *technophobia* that would be present in the classic philosophers of technology as if they were a continuation of the 19th-century romantic position towards the Industrial Revolution. The authors of the empirical turn consequently tend to emphasize how we can anticipate and transform technological development outcomes because we can understand

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37 Ibidem, p. 43.

38 An example of these developments can be found at: Kudina, O. *The technological mediation of morality: value dynamism, and the complex interaction between ethics and technology.*

39 Verbeek, P-P. The Empirical Turn In: Vallor, S. (ed.), *The Oxford Handbook of Philosophy of Technology*, p. 45-46.

40 Davis, J., Nathan, L. P. Value Sensitive Design: Applications, Adaptations, and Critiques. In: van den Hoven, J., Vermaas, P., van de Poel, I. (eds) *Handbook of Ethics, Values, and Technological Design.*

41 Ihde, D. *Postphenomenology and Technoscience*, p. 28.

42 Verbeek, P-P. *What Things Do,* p. 10, 23-26. Although Verbeek explores the theme of alienation confronting more the work of Jaspers rather than Heidegger, he generalizes this thesis to the "classic philosophers of technology" several times.

43 *Deromanticizing Heidegger* in Ihde, D. *Heidegger's Technologies*, p. 76.

how technology changes how we perceive reality and act upon it.[44]

The fourth objection highlighted here[45] could be seen as the reduction of concrete technological artifacts to their conditions of possibility, which is taken as a consequence of the transcendental approach to technology. In the case of Heidegger, enframing as the essence of technology would indeed show the conditions of possibility for reality to appear since it is concerned with *the essence of technology*. However, this diagnostic would reduce all the possible modes of technological mediation to the abstract or transcendental logic of revealing beings as a standing reserve. This objection has a clear relationship with a non-foundationalist view on technology that is common in authors of the empirical turn, like the postphenomenologists[46]. As they depart from a position that there is no way of searching for the essence of technology as a global phenomenon because it would eventually make the analysis too transcendental or abstract, the other way around it is by empirically describing particular modes of technological mediation. In this sense, phenomenology is taken as a tool or a minimum theoretical background with instrumental purposes in a pretty pragmatic fashion[47], sometimes coupled with other similar approaches like the Actor-Network Theory.

Another trait often observed in the empirical turn (that distances it from transcendentalism) is the influence of STS. Rejecting the approach of classical philosophers of technology, STS scholars "look carefully at the inner workings of real technologies and their histories to see what is actually taking place."[48] This approach is usually regarded as empirical due to their fieldwork

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44 It is clear that the historical *milieu* of the classical philosophers of technology was very important regarding their concern with the great catastrophes of the first half of the 20th century (that were made possible by technological development). However, as we will see, one of the main objections to the empirical turn is the political presuppositions and consequences of a theory that was heavily emptied of critical possibilities. It seems problematic to believe that local "descriptions" and "corrections" can face the huge ethical, political, and environmental challenges that we have nowadays regarding technological development.

45 Verbeek, P-P. *What Things Do,* p. 91-95.

46 Ihde, D. *Postphenomenology and Technoscience*, p. 10.

47 A critical discussion about the limits of the phenomenology that is present is postphenomenology can be found in: Zwier, J.; Blok, V.; Lemmens, P. (2016). Phenomenology and the Empirical Turn: a Phenomenological Analysis of Postphenomenology. *Philosophy and Technology*, 29 (4):313-333.

48 Winner, L. (1993). Upon Opening the Black Box and Finding It Empty: Social Constructivism and the Philosophy of Technology. *Science, Technology, & Human Values:* 18(3), p. 364.

(for instance, in research and development laboratories), mixing theoretical background from humanities with qualitative and quantitative methodologies from social sciences[49]. These investigations are directed toward the dynamics of technological change produced by the interactions between artifacts, users, designers, and other stakeholders. In seeking alternatives for the transcendentalism presented in the classic philosophy of technology, the "relativistic" approach is also a usual aspect of STS investigations. As Winner points out:

> What social analysts do in this new focus is to study the interpretive flexibility of technical artifacts and their uses. One begins by noticing that people in different situations interpret the meaning of a particular machine or design of an instrument in different ways. People may use the same kind of artifact for widely different purposes. The meanings attached to a particular artifact and its uses can vary widely as well. In this way of seeing, sociologists and historians must locate the relevant social groups involved in the development of a particular technological device or system or process. They must pay attention to the variety of interpretations of what a particular technological entity in a process of development means and how people act in different ways to achieve their purposes within that process.[50]

Since we have recovered both Heidegger's concept of technology and the main objections of the empirical turn towards it[51], we now have a sketch of this "shift in the center of gravity"[52] in the philosophy of technology. Nevertheless, we still need to analyze the empirical turn in terms of its most recent debates, such as the issues about anthropogenesis, the Anthropocene, and its philosophical-political aspects, which are some of its alleged underdeveloped themes

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49 A discussion about how multifarious the methods applied in STS are and how STS research discusses these methods can be found in: STS as Method In: Felt, U., Fouché, R., Miller, C. A., Smith-Doerr, L. (Eds.). *The Handbook of Science and Technology Studies.* p. 31-58.

50 Winner, L. (1993). Upon Opening the Black Box and Finding It Empty: Social Constructivism and the Philosophy of Technology. *Science, Technology, & Human Values:* 18(3), p. 366.

51 The whole discussion and replies that could be given to the objections made against "Heidegger's philosophy of technology" and the other "classical" philosophers of technology is beyond the scope of the present text, but we can find in the following articles a response to a great range of issues: Thomson, I. *Heidegger on Ontotheology: Technology and the Politics of Education*, p. 44-77; Mitcham, C. What Is Living and What Is Dead in Classic European Philosophy of Technology? In: Vallor, S. (ed.), *The Oxford Handbook of Philosophy of Technology*, p. 19-34.

52 Achterhuis, H. (ed.). *American Philosophy of Technology: The Empirical Turn*, p. vii.

and theoretical gaps. This will also lead us to engage ourselves with a critical reading of the empirical turn considering an onto-historical perspective.

Challenges of taking technology as a philosophical question nowadays

One aspect of the empirical turn that can be highlighted is the need for more consideration of the phenomenon of anthropogenesis, or more broadly, the lack of interaction between evolutionary anthropology and the empirical turn, besides the fruitful synergy that they can have both scientifically and philosophically. This hypothesis is corroborated when we see an underexplored overlapping or dialogue between the findings of the empirical turn and authors from the philosophical anthropology of the 20th century, such as Helmuth Plessner, Max Scheler and Arnold Gehlen, or paleoanthropologists such as André Leroi-Gourhan.[53] Nevertheless, one advance that can be highlighted is the attempt at a dialogue between Material Engagement Theory and postphenomenology[54]. However, this is only a very recent movement that could be seen as a starting point and not as a strong bond or deep relationship between them. For instance, how could we relate the concept of multistability[55] or the modes of human-technology relations with the very particular evolutionary drift present in human biology, marked by phenomena such as the use of hunting tools and progressive bipedalism? Would it be possible to combine mediation theory with studies showing the role of technology in human evolution?

This lack of interaction is also surprising because postphenomenology does not require a foundational philosophical perspective; its interaction with scientific findings and research is more unproblematic than if we depart from phenomenology and hermeneutics, for instance. Another relevant issue is: Would it be possible to philosophically understand and critically engage

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53 Some of the few papers that discuss the mentioned overlapping are: de Mul, J. Digitally Mediated (Dis)embodiment, Information, *Communication & Society*, 6:2, 247-266. Verbeek, P. P. (2014); Plessner and technology: philosophical anthropology meets the posthuman. In J. de Mul (Ed.), *Plessner's philosophical anthropology: perspectives and prospects* (pp. 443-456); Funk, *M. Paleoanthropology and Social Robotics: Old and New Ways in Mediating Alterity Relations* In: Jesper, A. et al, (Ed.) *Postphenomenological Methodologies*.

54 Ihde, D., Malafouris, L. *Homo faber* Revisited: Postphenomenology and Material Engagement Theory. *Philos. Technol.* 32, 195 - 214 (2019).

55 I.e., how the functions and uses of technical artifacts are always dependent upon their use--contexts. Verbeek, P. *What things do*, p. 117-118.

with large-scale processes like human evolution without considering technology from a transcendental perspective?[56] If yes, how can it be done?

Moving on to another challenge to empirical turn, we can approach it in light of the Anthropocene. At the beginning of this century, the Dutch Nobel Laureate atmospheric chemist Paul Crutzen claimed that due to the now well-known process of anthropogenic climate modification, we may witness the rise of a new geological epoch, the so-called Anthropocene[57]. Besides all the scientific quarrels between natural scientists around the legitimacy of such a concept and the specification of a precise historical landmark for the Anthropocene[58], its impact has also reached the realms of the humanities. We live in an epoch in which it is no longer possible to take the Earth as a passive natural background since the ecological catastrophe and the consequent unpredictability of its effects on human (and non-human) life make it more and more felt as time passes. Philosophical discussions about the human condition and what it means to do politics now also require new concepts.

Without compromising ourselves to make a complete description of this broad debate, it is worth stressing that the Anthropocene is a phenomenon with significant impacts on different areas of philosophy, such as ontology, ethics, aesthetics, and philosophy of science, also triggering interesting discussion in philosophy of technology, such as in the debate between transcendental modes of characterizing Technology and the empirical turn. About the latter, as some authors claim[59], the lack of a macro-scale analysis and investigations of technology in its planetary dimensions hinders an adequate framework for considering the intrinsic technological dimension of the Anthropocene, in the sense that the *anthropos* as a geological force is only possible by the huge power of large-scale transformations that technology offers.

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56 It is important to highlight that Stiegler would have a lot to add to this topic, as he creatively combines transcendental thinking and evolutionary thinking, such he pursued with his concepts of epiphylogenesis and a-transcendentalism in *La technique et le temps*.

57 Crutzen, P. J. (2002, November). The "Anthropocene". In *Journal de Physique IV (Proceedings)* (Vol. 12, No. 10, pp. 1-5). EDP sciences.

58 As explored by Bonneuil and Fressoz (2016), it is not simple to answer when the Anthropocene started. This question is complex because one of its aspects is entangling the origin of the Anthropocene with its conceptual definition and interpretation.

59 Lemmens, P. Thinking Technology Big Again. Reconsidering the Question of the Transcendental and 'Technology with a capital "T in the Light of the Anthropocene. *Found Sci* 27, 171 - 187 (2022).

Following this argument, we see how it could be difficult to fully tackle the philosophical question of understanding the ontological status of planetary technologies by taking a strictly empirical and non-foundationalist theoretical framework, such as postphenomenology. Does the Anthropocene claim for a new "transcendentalist revival" or a "terrestrial turn" in the philosophy of technology? Furthermore, if so, how can we do that without leaving behind the consideration of specific technological trajectories and their local contexts, as is frequently claimed by STS scholars?

Another perspective underscored by the empirical turn, which some authors have also stressed, is the lack of a critical philosophical-political perspective in its analysis. The exclusive focus on specific artifacts and tools can blur the power relations and socio-economic conjunctures at the macro-scale level, as it was deeply present in the characterization of technology authors such as Herbert Marcuse. As Mitcham claims,

> *[...] Just as neoliberalism declares, in Margaret Thatcher's famous words, "There is no such thing such as society," empirical turn philosophers of technology seem to imply there is no such thing as Technology with a capital "T". [60]*

Arguing that "the social ontology of neoliberalism finds a natural ally in what might be called a neoliberal philosophy of technology,"[61] we can also go beyond and question the political consequences of the empirical turn strategy of focusing on exclusively local descriptions and ethical solutions, most of the time concerned with responsible innovation policies and design frameworks. The peril of following this agenda strictly seems to be that there is no compromise with structural questioning of our mode of production or will to efficiency, which could be addressed as the roots underlying most of the fundamental problems posed by "technologies". This perspective seems to be especially problematic in the global South countries, where the vulnerability to global effects of technological development is much higher since there is a clear amplification of those effects provoked by factors such as higher economic inequalities and political instabilities.

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60 Mitcham, C. What Is Living and What Is Dead in Classic European Philosophy of Technology? In: Vallor, S. (ed.), *The Oxford Handbook of Philosophy of Technology*, p. 31.

61 Idem.

One "empirical" issue that can exemplify such a claim is the problem of the new labor market of data markers hired to fulfill Artificial Intelligence training databases[62]. Regarding all the case studies of how AI algorithms mediate our experience with the world, apparently, none of them deal with the global economic structure that somehow is part of the "conditions of possibility" of these technologies. How can we understand the possible mediation forms that gadgets like smartphones have on us without considering the pressure for crescent profit rates present in the ICT industry? How can we inquire about how AI is shaping our daily relations with recommendation mechanisms if we do not think about the mechanisms of capturing the users' attention more and more, which are related to a consumerist imperative present in our post-industrial societies[63]? The same analysis can be made for the problem of racial bias in AI algorithms used for recidivism prediction, such as the COMPAS case[64]. Without considering the economic environment and power structure that enables such companies to increase their "market value" by the pressure of more "efficiency" in the criminal courts, it will be hard to analyze the empirical issues of this case since they seem intertwined with macro-scale power relations.

Until now, we have highlighted some theoretical challenges of the empirical turn, mainly regarding three "large-scale" phenomena: its political-philosophical presuppositions and consequences, human evolution, and the Anthropocene. Therefore, these perspectives can trigger some questions related to the *history of the philosophy of technology*: How can we face these challenges? Do we need another kind of "turn" in the philosophy of technology in order to confront them? Would it be left to us to "overcome" the empirical turn, just like it pretended to do with the classical philosophy of technology?

We will then critically engage with this internal movement of linear progression[65] that lies implicit in the empirical turn. Consequently, the confrontation

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62 www.technologyreview.com/2022/04/20/1050392/ai-industry-appen-scale-data-labels/

63 An interesting discussion that can bring a new perspective on those issues to the empirical turn is presented in: Stiegler, B. Organology of Platform Capitalism In: *Nanjing Lectures*, p. 169-268.

64 www.technologyreview.com/2017/06/12/105804/inspecting-algorithms-for-bias/

65 We call it linear progression because the movement engendered by the empirical turn is really akin to that of modern sciences, as the latter is understood as a positive analysis in which the adequate correspondence between theoretical framework and empirical phenomena is a measurement of success.

with the "tradition" and its "destruction"[66] to pave the way for new philosophical perspectives on technology is a central question to us. The metaphysical assumptions of this non-foundationalist perspective lead us to interpret it through the conceptual framework of a philosopher acknowledged by his original and insightful reading of the history of metaphysics, Martin Heidegger[67].

Reading the empirical turn through Heidegger

In order to interpret the empirical turn in a Heideggerian reading, we can refer to some of his appropriations of Nietzschean concepts since Nietzsche is the philosopher acknowledged by Heidegger as the last step in the consummation of metaphysics. While not committing ourselves to an extensive reading of Heidegger's interpretation of Nietzsche, just a few helpful concepts will be pinpointed for our analysis, such as the death of God, nihilism, and the eternal recurrence of the same. Let's proceed by taking the former first. There is an interesting parallel between the question of the death of God in Nietzsche's thinking and the end of philosophy in Heidegger's formulation. When Nietzsche presents the death of God in aphorism 125 of the *Gay Science*, there is a subtle irony that makes part of the interpretation of the assassination of God, an all-powerful being which, of course, cannot be "killed." As it is clear, Nietzsche refers to the loss of significance of God and the Christian religion as a source of the metaphysical foundation of an epoch and its possibility of political authority as truth. Then, he reveals the consequent ambiguity of a still Christianized Western that has "killed" his own foundations by a process of secularization of the culture. The theological foundation of the West, supported by a monotheistic religion, was deeply challenged in the process of modern rationalization of the *cosmos*. As the accurate results of modern science slowly replaced the truth function of divine revelation, Western civilization changed the human's teleological narrative about reality.

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66 We understand *destruction* here as a process related to "the hermeneutical and critical dismantling of philosophical concepts, carried out in order to recover the insights that originally motivated them." Wrathall, M. *The Cambridge Heidegger Lexicon*, p. 223.

67 As it is clear now, we have not directly answered the criticisms of the empirical turn directed to the classic philosophers of technology because this is not our aim here. The debate with the empirical turn is not a matter of building an apology of Heidegger. However, reading the empirical turn *through* Heidegger is an opportunity of highlighting how there is an intrinsic problematic character of how the empirical turn relates itself with the philosophical tradition by a movement of *surpassing*, of leaving something *behind*.

As Alexander Koyré points out[68], we no longer live in a "closed world" of cosmo--theological order but in an "infinite universe" ruled and explained by science.

In the same way, when Heidegger claims that there would be an "end of philosophy," this is not a refusal of the possibility of doing philosophy in an academic meaning but a diagnosis of the consummation of philosophy as the last step in the history of metaphysics, being absorbed into the logic of scientific reasoning as cybernetics. Making our point visible as directly as possible: *philosophy in the age of cybernetics can be just taken as an auxiliary tool for technological reasoning, then reaching its end.* God is not "dead" in the shallow misinterpretation of the Nietzschean reading, and philosophy has not come to an end. However, it is progressively transforming itself into a valuable tool for cybernetic control of human civilization, in the sense of *maneuvering* all side effects of technological and scientific progress, in accord with interpreting the essence of technology as enframing.

Then, the "danger" of leaving out a form of reflection upon technology in a transcendental mode could be the absence of questioning human existence since we are interwoven with technology. As we have previously recovered, it is not only that technology carries a risk of human life extinction on the planet, because that would mean only an ontical interpretation of the term. With this, we assume that questioning technology could be a *reflection* if it has the "courage to make the truth of our own presuppositions and the realm of our own goals into the things that most deserve to be called in question"[69]. This interrogative aim implies that the philosophy of technology could not be carried out only under the concern of "taming" technological devices and building design alternatives for our daily problems of the new technological innovations. It is also important to highlight that this position does not diminish the importance of dealing with empirical questions regarding technology. We are not here to demonize technology[70] or to think that we can abstract ourselves into a reality that we do not need to deal with empirical questions, but its total lack of ontological questioning seems to be precisely what Heidegger addressed as the "end of philosophy." According to Heidegger,

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68 Koyré, A. *From the Closed World to the Infinite Universe.*

69 Heidegger, M. *The question concerning technology and other essays*, p. 116.

70 As Heidegger also states several times, such as in Wisser, R. Entretien du Professeur Richard Wisser avec Martin Heidegger In: Haar, M. (ed.) *L'Herne - Martin Heidegger*, 1983, p. 95.

> *The end of philosophy proves to be the triumph of the manipulable arrangement of a scientific-technological world and of the social order proper to this world. The end of philosophy means: the beginning of the world civilization based upon Western European thinking.[71]*

Therefore, we can interpret that there is a direct relationship between nihilism and the affirmation of philosophy (of technology) as a form of taming technology[72] and all its specializations or "new challenges." Apparently, since there are no possibilities of building grand narratives[73], what lasts for the philosophy of technology is not only to embrace a "social ontology of neoliberalism"[74] but also to leave itself to be a form of cybernetic control and regulation of technological non-desirable outcomes. Moreover, according to Heidegger, the most dramatic aspect of the "end" of philosophy is that it would not be the end but the beginning of world civilization, probably because it is only *through* this process that technology as a mode of revealing can keep itself on its tracks.

Now that we have questioned the problematic aspect of the cybernetic aspect in the empirical turn, we can move to the term "turn," taking one possible interpretation of Heidegger's reading on the eternal recurrence of the same. As stated by Gianni Vattimo[75], one possible interpretation of the eternal recurrence of the same regarding the history of metaphysics is that modernity has as one of its fundamental tenets a recurring attempt to get rid of its past by a critical movement, by inaugurating something new. Metaphysics is then a repetitive movement of setting "new" beginnings because the novelty has a kind of value in itself. It is paradoxically an *instauration of the new as a repetition of the past* since the same procedure is done over and over again. After all, the tradition is continuously appropriated with the same critical claim of being rejected by the process of building a brand-new foundation. Curiously, it is not surprising that Heidegger interprets Nietzsche

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71 Heidegger, M. *On Time and Being*, p. 59.

72 In this sense, if we take Heidegger's account of the persistence of metaphysics nowadays through a scientific worldview, it is possible to interpret that even a "philosophy of technology" can still be deeply metaphysical.

73 In some sense, transhumanism also positions itself as a grand narrative since it has a clear teleological perspective on human existence.

74 Mitcham, C. What Is Living and What Is Dead in Classic European Philosophy of Technology? In: Vallor, S. (ed.), *The Oxford Handbook of Philosophy of Technology*, p. 31.

75 Vattimo, G. (1987). Verwindung: Nihilism and the Postmodern in Philosophy. *Substance*, 16, 7.

metaphysics composed of the will to power and the doctrine of the eternal recurrence of the same as an inversion of platonic philosophy, but still being trapped inside the metaphysical tradition of the West as the last episode of the forgetting of Being (*Seinsvergessenheit*)[76].

Then, taking *enframing* as the consummation of metaphysics would imply problematizing the idea of receiving our philosophical tradition to just surpass it, in the sense that we could move beyond modernity as a matter of suddenly getting rid of metaphysics by autonomously choosing to overcome it. As Heidegger claims, "Metaphysics cannot be abolished like an opinion. One can by no means leave it behind as a doctrine no longer believed and represented".[77]

Taking up this question, Vattimo highlights the interpretation of what could be called deflection (*Verwindung*), a word not often used by Heidegger in contrast to overcoming (*Überwindung*). The deflection would have a different possibility of just turning around and leaving behind the past as something defeated or the Hegelian dialectical sublimation (*Aufhebung*). Deflection would mean both an *acceptance* since the past is received in its power of conditioning our present possibilities of thinking and a *distortion*, as we do not evade ourselves from a critical reception of the past. We also shall not identify deflection with the will of finding a new absolute ground (as a repetition of the past) nor with a passive resignation to the destiny of the enframing. In this sense, *Verwindung* carries many similarities to how we interpret the Heideggerian releasement (*Gelassenheit*)[78], a fundamental concept also regarding the question of technology as an existential mood of "letting things be" in opposition to modern calculative thinking. However, what is the relevance of the previous discussion to our narrative about the empirical turn?

As we can see, the philosophers of the empirical turn, by labeling themselves as a kind of "step forward" in the philosophy of technology, fall precisely in what Vattimo claims to be a "repetition of the past by inauguration of the new."[79] Labeling several authors with structural differences – like Heidegger

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76 Heidegger, M. T*he question concerning technology and other essays*, p. 61.

77 Heidegger, M. *The end of philosophy,* p. 85.

78 Heidegger, M. *Discourse on Thinking*, p. 46.

79 Vattimo, G. Verwindung: Nihilism and the Postmodern in Philosophy. "Repetition of the past by inauguration of the new" would mean here a movement of constantly trying to get rid of the past (heavily criticizing a tradition and breaking the bonds with it) as an attempt of inaugurating a new way of thinking more suitable than the previous one. The issue is that modernity began this

and Ellul – as classical, the empirical turn aims to be non-foundationalist by offering a new framework more adequate to the empirical reality of artifacts.

In this sense, the philosophy of technology does not seem to need another "turn," as we could, in a metaphysical attitude, surpass the classical philosophers of technology or the empirical turn, reclaiming that "now" we can be more "adequate" to the current needs or trends, not as a barrier to be overcome. Nevertheless, can we still have such an experience nowadays? Alternatively, as remarked by Jean-Luc Nancy:

> What Heidegger means by the "task of thought" – at least what we can indicate – is this: are we going to stand before the untenable? Or are we going to continue to be satisfied with our poor philosophical autonomy? [80]

Final remarks

We have provided here a descriptive perspective on the philosophy of technology, encompassing both the discipline history and its contemporary central debates, namely, the dominance of the empirical turn approach and its related theoretical impasses. This examination becomes particularly relevant when considering the (re)emergence of a transcendental perspective on Technology with a capital "T", especially having in view some phenomena that challenge our understanding of technology on a planetary scale, such as anthropogenesis, the Anthropocene, and the political challenges of our planetary (co)existence.

But how can we address these phenomena and avoid falling prey precisely to the metaphysical assumptions that lie on the ground of the empirical turn or in an anachronic revival of a strictly transcendentalist perspective *after* the empirical turn[81]? Although the question seems really important to the current investigation, we are not able to fully address it here. Methodologically, the

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tradition, which is then repeated over and over again, creating in some sense an eternal recurrence of the same within the history of metaphysics.

80 Nancy, J-L. *The End of Philosophy and the Task of Thinking.* Published at https://www.philosophy-world-democracy.org/other-beginning/the-end-of-philosophy.

81 A perspective upon this subject was formulated in Ferreira de Barros, M., Pavanini, M.; Lemmens, P. Peter Sloterdijk's Philosophy of Technology: From Anthropogenesis to the Anthropocene. *Technophany, A Journal for Philosophy and Technology,* [S. l.], v. 1, n. 2, 2023.

current work is compromised only to highlight the current tensions and importance of such a debate, as further reflections and developments can be done afterwards. Nevertheless, we still offer two possibilities for further investigations.

The first one is to realize that taking technology as a philosophical question means letting it open in its problematicity and receiving the past as a *possibility of thinking*. Suppose we aim to acknowledge one of the most fruitful lessons from the classical philosophers of technology, such as Heidegger. In that case, it is important to stress that understanding technology in our age means inquiring how reality can appear to us *through* technology. This attitude implies a paradoxical situation in which technology is related to our most difficult civilizational challenges and how we can make sense of a meaningful totality as a process dependent upon technology. In that sense, how could we use technology against technology?[82] Would our increasingly technologically conditioned reality *enable new perspectives* on technology itself?

Nevertheless, we assume that this process of thinking and (re)invention of our world needs to be familiar *and* strange to technology as a mode of unveiling[83]. This duality is crucial because it ensures that the change we aim to achieve is balanced to be accepted and integrated into our current societal framework while also challenging and pushing the boundaries of our conventional understanding. The familiarity aspect is essential to prevent outright rejection; if the proposed changes resonate with existing beliefs, practices, and technologies, they are more likely to gain acceptance and foster gradual adaptation. On the other hand, the strangeness aspect introduces novel perspectives and innovative pathways, providing a clear divergence from the civilizational *status quo*. Therefore, the interplay of familiarity and strangeness in our technological endeavours is not merely coincidental but a necessity for the future of our civilization.

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82 Sloterdijk, P. *Not Saved*, p. 47.

83 Heidegger, M. *The question concerning technology and other essays*, p. 35.

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