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Research article

Between Technology and “Humans”: The Idee of an Anthropological Signature in Human- Machine Interactions

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Abstract

The problem of today's technology is no longer just the result of an apocalyptic fear, alienation or Promethean shame, but rather that today technology is ‘humanized’ and therefore adapted to human beings. Mobile devices flatter us. They ensnare our bodies, our minds and our egos. The various attempts to describe technology – for instance, as applied natural science, as a means of preparing resources for economic ends, as a neutral system of means or as an expression of the human spirit – no longer impact our approach to technology. For despite the often depicted doomsday scenarios and an empathic pessimism about technology, concrete technology, in both our working lives and our everyday life, is no longer a problem. My paper will examine this asymmetry more closely from an epistemological and a historical standpoint. It will indulge neither in euphoric nor in dystopic descriptions of humans as cybernetic machines or as the victims of technology, but rather as the yardstick and goal of all technology. I will therefore focus on particular (techno-)anthropological positions (Gilbert Simondon, Arnold Gehlen, Hermann Schmidt). Therefore I want to work out how knowledge of the human (anthropological knowledge) and knowledge of technology (technological knowledge) cross-fertilized, complemented and transformed one another. It thus becomes all the more interesting why this confrontation between “human” and “machine” is still described in the classical anthropological terms that were used by Gehlen and Schmidt. The human-machine interface is very different today but it is still discussed in the familiar categories. This is the success of the anthropological signature. The discourse about modern technology and the anthropological foundation of modernity does not call for post-, trans-, or anti-humanistic images, but rather well-known humanistic-anthropological ones.

Keywords: Anthropology of technology; Human-machine interaction; History and philosophy of technology; Arnold Gehlen; Humanization; Ontology; Adaption

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Научная статья

Между технологиями и “людьми”: Идея антропологической подписи в человеко-машинных взаимодействиях

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Аннотация

Проблема современных технологий – это уже не просто результат апокалиптического страха, отчуждения или прометеевского стыда, а скорее то, что современные технологии “очеловечены” и, следовательно, приспособлены к людям. Мобильные устройства нам льстят. Они заманивают в ловушку наши тела, наши умы и наше эго. Различные попытки описать технологию – например, как прикладное естествознание, как средство подготовки ресурсов для экономических целей, как нейтральную систему средств или как выражение человеческого духа – больше не влияют на наш подход к технике. Ибо, несмотря на часто изображаемые сценарии конца света и эмпатический пессимизм в отношении технологий, конкретные технологии, как в нашей работе, так и в нашей повседневной жизни, больше не являются проблемой. В моей статье эта асимметрия будет рассмотрена более подробно с эпистемологической и исторической точек зрения. Он не будет предаваться ни эйфорическим, ни антиутопическим описаниям людей как кибернетических машин или жертв технологий, а скорее как эталону и цели всех технологий. Поэтому я сосредоточусь на конкретных (техно)антропологических позициях (Гилберта Симондона, Арнольда Гелена, Германа Шмидта). Поэтому я хочу выяснить, как знание о человеке (антропологическое знание) и знание о технике (технологическое знание) взаимно оплодотворяются, дополняются и трансформируются друг в друга. Таким образом, становится тем интереснее, почему это противостояние “человека” и “машины” до сих пор описывается в классических антропологических терминах, которыми пользовались Гелен и Шмидт. Человеко-машинный интерфейс сегодня совсем другой, но он по-прежнему обсуждается в знакомых категориях. Это успех антропологической подписи. Дискурс о современных технологиях и антропологических основаниях современности требует не пост-, транс- или антигуманистических образов, а общеизвестных гуманистически-антропологических.

Ключевые слова: Антропология техники; Человеко-машинное взаимодействие; История и философия техники; Арнольд Гелен; Гуманизация; Онтология; Адаптация

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INTRODUCTION. CONCEPTUALIZING THE EXCEPTIONAL POSITION OF THE “HUMAN”

Be obedient / Broom, be hiding / And subsiding!

-Goethe, *The Sorcerer's Apprentice*

Most of the history of Western reflections on technology describe it as a superior and uncontrollable force. This idea can be found at the threshold of the 19th century in Johann Wolfgang Goethe's “The Sorcerer's Apprentice,” in Marxist accounts of industrialisation and capitalisation, in Karel Čapek's play „RUR – Rossumovi Univerzální Roboti“ from the 1920s (in which the term “robot” was first used) right up to the atom bomb (1945), space travel (the 1960s) and genetic engineering (the 1980s). Accounts of technology as an uncontrollable “demon”, as a problem of the dialectic of the enlightenment, or as a symptom of “Promethean shame” are often pessimistic (McNeil, 1990; Landes 1969; Hauskeller 2014; Dijk 2000). The German philosopher of technology, Günther Anders came up with the following pointed formulation. “Technology has now become the subject of history, with which we are only 'co-historical’” (Anders, 1956/1980b, p. 108). For Anders – and in view of the grave changes brought about by nuclear power in the 1950s we can only agree with him – technology is no longer a means but a “preliminary decision” (Anders, 1956/1980a, p. 2). Technology has become a force that shapes human beings rather than the inverse (Malafouris, 2013; Chakrabarty, 2019). But besides these critical assessments of technology that saw the western “human being”¹ as the victim of an unstoppable automatization, there were other voices in the philosophical discourse that understood technology, following the tradition of Ernst Kapp, Ernst Cassirer or Marshall McLuhan, as human culture and thus as human objectivity (Kapp, 2018; Hoel & Folkvord, 2012; McLuhan, 1964). If we understand human culture, with Hegel, as „Objective Spirit“, then technology always starts from and returns to the human (Clark & Chalmers, 1998; Clark, 2003; Boldyrev & Herrmann-Pillath, 2013).

This means the dystopian idea of a radical separation between the human and technology loses its hold for two reasons. On the one hand, technology cannot be “inhuman” or “anti-humanistic” because it is always connected to some kind of an “anthropology” (which means a study and an idea of “human being”).² On the other hand, it shows the perspective how technology can be reintegrated into the human realm and thus controlled. In the anthropocentric view, the difference between technologies and

¹ This assumption is problematic, as historical, sociological and philosophical research has repeatedly pointed out (Oldenziel, 1999). Unfortunately, however, this assumption is still efficient and in use. The present study is therefore more concerned with the influence and concrete relevance of an anthropophilic model. The research paper is funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – Project number 492533313. My research is about the co-construction of learning and technology. I focus here on the transformation of the subject of learning in historical and philosophical ways.

² I use „anthropological“ in this paper throughout as short-hand for considerations of “philosophical anthropology. See for this notion of historical and philosophical anthropology Tanner, 2020; Plessner, 2019. I thank the reviewers for their very productive comments and corrections.



other physical objects, or in other words, the metaphysical status of technologies, is reducible to the human mind (designers, policy makers, users, etc.). Accordingly, researchers such as John Searle (2007) and Amie Thomasson (2007) understand technologies in terms of the intentions of designers and users. The human “master” brings his technological “servant” back under control (Krajewski, 2018) or, as Goethe poetically expresses it. “Be obedient / Broom, be hiding / And subsiding! / None should ever / But the master, when expedient, / Call you as a ghostly lever!” (Goethe, 1798/1999, p. 276-279). In this narrative, where technology is integrated into culture, the human being not only has good prospects but, more significantly still, has the ability to act in the face of an apparently overwhelming technology. In 1947, the French philosopher of science, George Canguilhem, pointed out that it is “the rationalization of techniques that makes us forget the irrational origin of machines. The machine is a cultural fact” (Canguilhem, 1992; Fiant, 2018; Schmidgen, 2014). Canguilhem's student, George Simondon, took up this idea, but went beyond it. In his book “On the Mode of Existence of Technical Objects” (Simondon, 1958/2017), Simondon advocated understanding technology rather than seeing it in terms of Marxist alienation. When examining technical artifacts, the human operator should try to understand technology as a cultural fact (De Vries, 2008; Hui, 2016). Simondon did not outline a classical, that is, anthropocentric, philosophical anthropology, but instead devotes his efforts to the problem of different biological and technical forms of existence. The human being, while classified as part of the realm of the living, has no priority over other forms of existence (animals, machines) (see for this Quasi-Other as a Subject Ullmann, 2022). But even though Simondon is not solely concerned with investigating the human, he does distinguish between life and technology. This brings the hermeneutic notion of “understanding” into play (Binzberger, 2009; Coeckelbergh, 2014). Technical objects cannot themselves understand and interpret the information they produce (Floridi, 2019; Romele et al, 2020). Humans understand meaning, machines do not. Humans discover meanings. Meaning is the sense that an event acquires in relation to existing forms; meaning is what causes an event to have informational value.

The living and the technological thus have different modes of existence. Un light of the distinction between “understanding” and “explaining” indicates technology as a cultural fact belongs to the sphere of the humanities. But since only humans understand meaning and machines do not, the human being is more than a machine – and thus the concept of understanding allows us to rethink and reintegrate machine in human-relations. Thus Simondon contends that the complex 'human-machine' relationship has to be rethought and technology has to be integrated into human history and society. According to Simondon, people are too all too readily angered by the activity of machines, because they believe that the machine is playing the role of humans. It's the classic fear that machines will replace us humans. But since humans misconceive themselves and their situation when they take themselves to be just technological subjects and “bearer of tools” (Simondon, 1958/2017, p. XVI), Simondon instead argues for a “change of roles”, for redefining human beings as machine operators (p. 81). This idea of the human being as an operator and a mediator of the machines is thus based on a completely different conception of the “human.” The latter is no longer, as Günther Anders (1956/1980a) puts



it, a victim or a “garden gnome in his own machine park” (p. 25), but now has the possibility of acting and interacting. In 1958, during the heyday of a cybernetics that analogized the human and the machine (Liggieri & Tamborini, 2022; Pickering, 2010; Rid 2017), Simondon wrote clearly and unambiguously against the technocentric and excessive equation of humans and machines. “man [sic] has for so long played the role of the technical individual that the machine, once it has become a technical individual, still appears like a man occupying the place of another man, when it is, on the contrary, man who in fact provisionally replaced the machine before truly technical individuals could emerge. In all judgments made about the machine, there is an implicit humanization of the machine whose deepest source lies in this change of role; man had learned to be a technical being to the point of believing that the technical being, once it becomes a concrete being, begins illegitimately to usurp the role of man.” (Simondon, 1958/2017, p. 81). The negative “a-synchronicity” of humans in relation to machines which Anders explained in terms of a Promethean shame, becomes a positive asymmetry in Simondon’s philosophy. The implied position of the human is no longer seen as disadvantageous with respect to faster, more powerful and more intelligent machines, but as itself advantageous. The argument here is that the human being, as a psychophysical being (and as an inventor of technology) that cannot be fully quantified, is *more* than the machine.

A (TECHNO-)ANTHROPOLOGICAL INVESTIGATION FROM AN EPISTEMOLOGICAL AND HISTORICAL POINT OF VIEW

My paper will examine this asymmetry more closely from an epistemological and historical point of view. It will indulge neither in euphoric nor in dystopic descriptions of humans as cybernetic machines (Coeckelbergh 2022) or as the victims of technology (Heidegger 1977; Wendland et al. 2018), but rather as the yardstick and goal of all technology. I will therefore focus on particular (techno-)anthropological positions (Heßler, 2018), showing how knowledge of the human (anthropological knowledge) and knowledge of technology (technological knowledge) cross-fertilize, complement and transform one other. It is for this reason that theory and practice, idea and concretion, philosophy and engineering cannot be separated from one other. The present study of anthropological reflections in mid-20th-century discourse will examine the questions of how the protagonists in philosophy and technological science were in dialogue with anthropology in seeking a solution to the problems found in an anxiety-ridden approach to technology. This solution was brought forward both in the philosophical and practical domains.

The underlying problem is that of how human-machine relations and thus also subject-object problems were historically described and constructed. Different antagonisms (master-servant, power-powerlessness, freedom-compulsion, etc.) fed into a discourse that suggested both uneasiness and fear of technology. From the 1950s onwards, it was engineers, physiologists, psychologists and philosophers in particular who presented this unease as an imbalance. The self-image of the human was seen as being in jeopardy, which gave rise to competitiveness, a sense of being threatened and fear in the face of technology.



Yet research hitherto has not examined how philosophical anthropology makes reference to the networks, ideas and dialogues in the technical sciences. This is surprising since German anthropology, in particular, understood itself as being fundamentally empirical (Gehlen, Plessner) and in dialogue with the empirical sciences (Gruevska 2022). And although anthropological thinkers like Arnold Gehlen investigated technology, the central importance of anthropological knowledge for engineering and its conceptions of human-machine interactions in the mid-20th century has not been extensively researched. And while it was precisely the combination of theory and practice that could bring forth an entirely new image of the “human,” philosophical research has for the most part been limited to the study of abstract ideas about technology. Accordingly it is a major research desideratum to investigate how anthropology provided new models for interpreting the human and technology that were then taken up and used in a technological context. Another desideratum is examining how the reflections and conceptual formulations that we find in these philosophical theories were themselves influenced by practical research.

This article will examine this interaction in detail. Therefore I will focus on the philosopher Arnold Gehlen and the control engineer Hermann Schmidt. Both tried to address this perceived imbalance (between humans and technology) in the mid-20th-century by using anthropological models that ascribe a special position to the human.

In the following, I will discuss different theories that are provided with anthropological arguments. These anthropological arguments are divided into those that are more theoretical (Arnold Gehlen) and then those that are more concrete (Hermann Schmidt). Both of these approaches do, of course, interact and intersect with each other. The respective arguments, the images of the human, and the concepts of technology connect with and complement each other. The conclusion will briefly consider the question of how the anthropological signature of the technical sciences has strongly affected modern human-machine interactions. The development of this argument is carried out with the help of previously unpublished archival material.

THEORETICAL AND PRACTICAL APPROACHES

In 1957, the first German nuclear reactor, the Munich reactor in Garching, became operational. In that same year, Arnold Gehlen's bestseller “Die Seele im technischen Zeitalter” (translated as “Man in the Age of Technology”) was published in the famous book series “Rowohlt’s German Encyclopaedia“ (Gehlen, 1980; see further Grigenti, 2016; Schacht, 2015; Fischer, 2009). This encyclopaedia was a canonical and influential work in the emerging Federal Republic of Germany. Gehlen diagnosed Germany as being “uneasy with technology,” an unease fed by the rapid emergence of new technologies (including nuclear power), a feeling of powerlessness in the face of technology, and an existential fear that humans beings were going to be replaced by machines. Gehlen's text represented a dialogue between philosophy and engineering. it was an extension of a series of lectures he had given at the VDI (Association of German Engineers) special conference entitled “The Transformation of the Human through Technology” (1953) (Gehlen, 1953, pp. 149-153). Not just Gehlen, but also psychologists, physiologists and



technicians from the ranks of the VDI felt themselves compelled to react to the *topos* of “technology as a demon” (Floridi, 2016).

As the most influential anthropologist of the 1950s, Gehlen takes as his point of reference the concrete conceptions of technology. He describes them as “the ability and means [...] by which humans make nature serve themselves by recognizing, exploiting and playing off its properties and laws against one another” (Gehlen, 1957/2004, p. 141). Technology thus belongs of necessity to the essence of the human (pp. 7, 141, 147-148, 151-153). In this respect, Gehlen defines the human and technology in essentialist terms, seeing technology as the “big man” who is “witty and tricky, life-promoting and life-destroying like them [humans, K.L.], with the same broken relationship to primeval nature” (pp. 7-8.)

Technology and human are basically both “*nature artificielle*,” artificial nature. According to Gehlen (1957/2004), “witty” and “tricky” technology becomes the “mirror image of the essence of the human” (p. 165). Technology as a cultural fact is a “reflection of the human being” (p. 169). In Gehlen’s anthropology of technology the human and the machine come together. Gehlen thus refers to a concrete technological phenomenon, that of *automatism*. In a shrewd move Gehlen makes automatism – the fear of the 1950s – into a human characteristic. Technology therefore becomes human rather than the human becoming technological. The simultaneous fear and “fascination of the automatism of a machine,” according to Gehlen, are rooted in the “resonance” between the human and the machine (Gehlen, 2004, p. 15). The “fascination of the automatism” exercised by a machine is not an intellectual stimulus, but lies “far deeper” in the “phenomenon of resonance” (p. 15-16). Gehlen uses this concept of the “phenomenon of resonance” to refer to the fact that human beings are also characterized by automatisms (movement, rhythm, etc.) and following this analogy human processes are only transposed onto the machine. Gehlen structurally connects his anthropology with technology through the phenomenon of resonance.

Understood in this way, the machine “objectifies” the inner qualities of the human being. The phenomenon of resonance indicates a self-image of the human through a technical mediator. Thus, only through technology do humans understand themselves, that is, as mediated by the outside. For Gehlen (1953), the human is an “automatism in very central areas of his nature,” in physiological, rhythmic processes (p. 151).

In spite of this circular-relational approach between the human and technology as regards physiological automatism and the phenomenon of resonance, from the perspective of Gehlen's (1965a) anthropology the human remains a “special design of nature,” i.e. “a quite unique, otherwise untried overall design of nature” (p. 15). As distinct from cybernetics and in partial likeness to Simondon’s understanding, the anthropologist Arnold Gehlen recognizes “that [the] technical control loop has the same form of causal relationship as the human action loop and numerous internal bodily regulations” (Gehlen, 1957/2004, p. 22). But he also notes in an anthropocentric manner that “the elements that enter into this form are fundamentally different. Human and regulation automation are fundamentally different in their *essence*” (Gehlen, 1957/2004, p. 22).



It is in the context of a discussion of the looping-relational cognitive process that takes place between the human and technology (i.e. the phenomenon of resonance) that Gehlen directly refers to the former chairman of the VDI Technical Committee for Control Engineering, the physicist Hermann Schmidt (Bissel 2011; Fasol 2002). Schmidt was not only a defining presence in Gehlen's philosophy of technology, but even more so in the VDI in the 1950s and 1960s. Schmidt had planned public and programmatic VDI conferences (such as the aforementioned special conference “The Transformation of the Human through Technology”) and discussed topics (especially in the VDI group “Humanity and Technology”). Schmidt thus provided a major impetus for anthropological-holistic thinking in the VDI as well as for the then contemporary German anthropological discourse. Schmidt and Gehlen had already been in contact for Schmidt had invited Gehlen to the VDI conference in 1953. Schmidt thus stands at the intersection of philosophy (anthropology) and technology. He is the link between the disciplines. Anthropological and technical knowledge could circulate and be transformed through his networks, conferences and public relation work.

Just as Gehlen was not only interested in philosophical questions, the engineer Schmidt is not only interested in technical questions. He also asks anthropological questions in an era of new and complex human-machine relations. “How do we find our way back to our undivided existence as a physical and spiritual unity in the midst of the technological world? ” (Schmidt, 1954/1965b, pp. 50, 55) Schmidt's emancipatory answer is that we must make “human history” out of technological events (pp. 50, 55). We must transfer the “*ordo naturae* of technological events into the *ordo humanus*” (pp. 50, 55). For Schmidt, overcoming unease and powerlessness in the face of technology can only occur through the human being's circular-relational self-empowerment. The sovereign human being must once again treat technology as a part of itself. Schmidt's view of the human being is decidedly holistic-anthropological. Accordingly, Schmidt (1953a), like Gehlen and Anders, recognizes the fear, the “unease,” and the Promethean shame in the face of technology but sees therein, as he put it in 1953, the historical sign that “humanity has not yet found the right relationship to the technological world.” This is a “fateful problem” to which neither engineers, anthropologists, nor physiologists have contributed any meaningful solutions (Schmidt, 1953a).

On his diagnosis, the prevalent approaches have simply headed in the wrong direction. “In today's anthropology,” Schmidt declares, “technology is severely undervalued, and it is because of the disregard of technology or its only summary treatment that the essence of the human is not clearly seen” (Schmidt, 1956). Schmidt is not, however, concerned with forging a coalition of engineers that positions itself against critical humanities scholars such as Heidegger, Adorno, Horkheimer and Anders. He is instead concerned with the insight that the problem permeates both sides. Modern technology reveals something new about the relationship between the human and nature.

In Schmidt's idea of a relation, the human can only return to itself, others, or nature through a technological detour. Technology becomes a mediator between all three elements. But the human must not become alienated in this mediation and despite of Schmidt's (cybernetic) terminology of technical control and objectivity (automatism, resonance phenomenon), we would miss the mark if we saw the external (scientific-



technical) thinking as simply related to the inside of the human being, since this would degrade the human being to the level of a “thing” (Schmidt, 1953a). The human who occupies a special position is important, Schmidt claims, precisely because “as the self-knowledge of the real” it transcends what is empirically quantifiable in its being (Schmidt, 1966).

The fact that human beings can be in a state of change at all is related with Schmidt's idea of humanity. Schmidt, who had already been preoccupied with biological and anthropology in 1940 when he was active in the Technical Committee for Control Engineering, that is, at the time when Gehlen's „Der Mensch“ (Gehlen, 1987) was first published, refers in a Nietzschean fashion to the fact that the human being is an unfinished animal that has to create an environment for itself “by mechanizing and recognizing” in a “circle” (Schmid, 1964, p. 749). In the demarcation from nature, the human must become its own (cultural) work and thus “perfect” itself. Thus, although the human is biologically determined in its incompleteness as a defective creature, it can emancipate itself creatively through a “historical deed” (Schmidt, 1965a, p. 10-11).

For Schmidt, anthropology thus demands that people become “historical” (ibid.). Despite this emancipation, Schmidt claimed that holistic individuation was no longer possible because of scientific specialization. Humanity itself has become “problematic,” because it “no longer [knows] what it is,” as Schmidt says in allusion to the anthropologist Max Scheler (Schmidt, 1953/1965b, p. 36; Scheler, 2009). In 1954, Schmidt was pessimistic about the course the “West” had taken during the last half century, seeing it as characterized by the loss of an “internal and external security,” whereby humans lost their position in the world in the face of modern technological developments (Schmidt 1954/1965b, p. 48). Schmidt's philosophical and technical idea of a control loop comes into play here. The implicit philosophical principle at work here is also evident in Gehlen's phenomenon of resonance.

The control loop constitutes itself as a “causal ring”. as such it represents more than a “causal chain of control” but as a “unifying element” also forms a “whole.” It is “the universal structure of technology” as well as the “organisational form of the living body” (Schmidt, 1953b, p. 181). The control loop is thus the objectification of a basic relation. Schmidt sees this as providing the possibility of human self-contemplation through the technical object. For Schmidt, self-contemplation is reflection on the real situation in which one finds oneself (Schmidt, n.d.b, p. 19). Understood in this way, technology and humanity are not in an antagonistic relationship, because it is technology that makes self-knowledge through reflection possible. Only the technical figure of the feedback or control loop makes self-knowledge through reflection possible, because we have adopt a technical stance towards ourselves at the latest since the middle of the 20th century, this is a common denominator of humanity and technology. Knowledge of the object (f. e. human body, human brain) becomes self-knowledge, because self-knowledge is knowledge of an object in its real situation. Technical knowledge is combined with anthropological knowledge.

It has been claimed that there are similarities between this position and Ernst Kapp's organ projection theory. However, Schmidt's model occupies a decidedly different position. His notion of “objectification” contradicts Kapp's “organ projection” which,



according to Schmidt, refers to the overall state of technology. As a relation between human beings and the world Schmidt's "objectification of the psycho-physical working circle" does not concern the overall state of technology and therefore is "not organ projection, [for] no organs are projected, but it unfolds the basic relation to nature" (Schmidt, n.d.a, p. 2). If human existence is thus understood as entering a relation with nature, human existence without mechanization is impossible. Technology is an inseparable part of human existence. Following this central philosophical and practical insight, however, the study of technology needs to take an anthropological turn. The Socratic demand "Know thyself" (*Gnothi seauton*) can therefore only work, according to Schmidt, via the circular relation that involves the technological objects – and it itself technical. constituting a feedback loop.

In summary, the human position is by no means devalued by the technological 'other' in Schmidt's concrete anthropology. Instead, the human remains the most important subject of knowledge in the control loop. Schmidt alludes to Kant in this context. the human cannot be the "absolute beginning" of a free action, but is rather "purpose," "goal," and "absolute end" of such an action (Schmidt, 1953/1965b, p. 42).

It becomes clear that Schmidt is an important representative of a kind of control engineering that is grounded in holistic-philosophical discourses. In doing so, it assumes a psychophysical wholeness of life that eludes quantification. Schmidt's anthropological concept of a regulatory objectification did not attempt to "remove the human being from the circular-relational context" (Schmidt, 1964, p. 752), but seeks to integrate it into the cognitive process as a living human being (psychophysical entity). Only in this way the collective singular "human" could encounter the technological world in an active and creative way.

CONCLUSION.

THE SUCCESS OF AN ANTHROPOLOGICAL SIGNATURE

Almost 50 years after the founding of Apple and after the first German nuclear reactor became operational, the question "But what is the 'problem' of technology?" takes on a new urgency (Blumenberg, 1963/1996, p. 10). It is clear that the „problem“ is no longer just the result of an apocalyptic fear, alienation, or Promethean shame, but rather that today technology is „humanized,“ adapted to human beings. Mobile devices flatter us. They ensnare our bodies, our minds, and our egos.

The various attempts to describe technology – for instance, as applied natural science, as a means of preparing resources for economic ends, as a neutral system of means, as an expression of the human spirit – no longer impact our approach to technology. For despite the often depicted doomsday scenarios and an empathic pessimism about technology, concrete technology, in both our working livings and our everyday life, is no longer a problem. By becoming in the second half of the 20th century technology epistemologically and practically „humanized“ and embedded in the human world, technology returned to the "universe of the self-evident, to the lifeworld" (Blumenberg, 1963/1996, p. 37; also Campe et al., 2000). Hans Blumenberg



(1963/1996) observed that “the technical as such becomes invisible when it is implanted in the lifeworld” (p. 37).

Technology has been adapted to a special anthropocentric model of the “human being” and the human environment. In addition to the frequently cited problem of how the technologically possible can have a normative impact on humans, the question of how the human condition has normatively impacted technical implementation has to be considered as well. We must examine modern human-machine concepts (industry 4.0, usability, smart homes, etc.). Therefore, we must examine the background of the arguments of an anthropology of technology and the principles of technical design. We must ask the question anew of how and why human-technology interactions are understood and structured following the model of interpersonal interactions as well as anthropological or holistic ideas.

We are also called upon to closely investigate whether the manifold players in the The Fourth Industrial Revolution (Industry 4.0) or Affective Computing try to shape technology in their concrete imagination according to a 'human measure' so as to make it seem less alien and easier to handle (Gould, 1996). There is no doubt that new machines, technical milieus and digital working environments involve a theoretical and practical modification of the image of “human” and “machine.” A 1920s tram driver or a 1960s pilot worked with very different technical systems than today’s completely networked user. A modern user can no longer understand new technology using older concepts of interaction. Contemporary digital and networked machines rely on a new concept of the machine, one that goes beyond the dichotomy between trivial and non-trivial or between the classical and the post-classical machine (Hörl, 2012). It thus becomes all the more interesting why this confrontation between “human” and “machine” is still described in the classical anthropological terms that were used by Gehlen and Schmidt. The human-machine interface is very different today but it is still discussed in the familiar categories. This is the success of the anthropological signature. The discourse about modern technology and the anthropological foundation of modernity does not call for post-, trans-, or anti-humanistic images, but rather well-known humanistic-anthropological ones.

Anthropological-holistic arguments and anthropophilic („human centered“) interface designs are still successful in our digital world. They are accepted and they generate efficiency in human-machine interactions. Although Michel Foucault rightly says that the sciences should awaken from their “anthropological sleep” and stop “talk[ing] about man, about his reign or his liberation” (Foucault, 2001, p. 342), it is precisely this anthropological slumber that has decisively influenced human-machine design on both the theoretical and practical levels. Anthropology, humanism, and anthropocentrism are economically efficient. An analysis of the theoretical and practical approaches to an anthropology of technology shows that the generation of acceptance involves more than just rhetoric. Rather, our lifeworld is determined by the design of user-friendly interfaces. These interfaces are oriented towards the subjects as living, psychophysical users. It is this anthropological signature of technology that enables us to handle, deal with, and live with technology. The concrete technical-anthropological reflections that I have present here are all the more important because the “problem of



technology,” which is an intuitive part of our life-world, otherwise remains largely concealed by considerations about abstract *pros* and *cons* of technology.

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