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# TECHNOLOGICAL WISDOM ON THE ETHICS OF TECHNOLOGICAL DESIGN, USE AND WILL

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## Abstract

In *Nicomachean Ethics*, Aristotle divides human knowledge in three great domains: proper knowledge dealing with the necessary, practical wisdom dealing with good life and good actions, and *techne* dealing with making artificial things. Aristotle discusses at large theoretical and practical philosophy and ascribes to each of these two domains a specific wisdom. In the case of *techne* he certainly does not conceive of the existence of a technological wisdom. Nevertheless, the prevalence of technology nowadays requires a deeper theoretical and practical involvement with technology, a technological wisdom, in order to answer its challenges.

Carl Mitcham argued that technology can be analyzed on four great components: objects, knowledge, activity (further divided into making and using), and volition. Technological volition and activity are the focus of an ethical approach to technology. In order to argue for such an ethical approach, I will use the insights of Actor-Network Theory and postphenomenology that defined technology essentially as mediator of all aspects of human life. Technologies mediate actions, perceptions, options, decisions, practices and moral values, beliefs and norms. Another important characteristic of technologies is the fact that they become part of technological practices and become part of one's own body schema. Moreover, technologies (software or devices) are social objects that fulfil social roles and are part of social practices; their social functions carry moral norms and values that are encoded into technologies and thus these are genuinely morally charged.

On this theoretical background I will analyze the three ethical-relevant components of technology: making, using and willing, and argue for a threefold approach: designing the material conditions for ethical action, meaningful appropriation of technology into one's everyday practices, and conscious control over the production of technological desire.

*Keywords:* technological wisdom, ethics of technology, mediation, affordance, practice

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## 1. Introduction

In *Nicomachean Ethics*, 1139, Aristotle admits five ways of knowing [1]: (a) science (*epistheme*, "the disposition by virtue of which we demonstrate"); (b) intuitive reason (*nous*, the faculty that grasps the first principles); (c) theoretical

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wisdom (*sophia*, the union of science and intuitive reason directed at the loftiest objects as heavenly bodies or God); (d) practical wisdom (*phronesis*, doing, dealing with living a good life, political or military actions, and taking good decisions) and (e) art (*techne*, making artificial things). Nevertheless, the faculties of knowledge can be reduced to three given that *epistheme*, *nous* and *sophia* have the common domain of knowing the necessary and the immutable. Therefore, we have, in order of importance, proper knowledge dealing with knowing, practical wisdom dealing with praxis or doing and *techne* dealing with making artificial things. Aristotle discusses at large theoretical and practical philosophy and ascribes to each of these two domains a specific wisdom. In the case of *techne* he is generally silent and he certainly does not conceive of the existence of a technological wisdom. Nevertheless, the prevalence of technology nowadays as well as the important insights from the philosophy of technology requires a deeper theoretical and practical involvement with technology in order to answer its challenges. The answer to these challenges, I will argue, should take the form of a technological wisdom.

Aristotle, in dealing with wisdom, admits that human life is subjected to biological and social conditioning, and that these phenomena should be taken into consideration for the development of a moral theory. On this ground, Alasdair MacIntyre [2] formulates a life-ethics focused on practices in the context of *biological vulnerabilities* and *social interdependence*. What the analyses of the philosophy of technology and science and technology studies (STS) show is that there is still another important dimension that more and more shapes human life: technological mediation [3]. Our practices are not conditioned only by *biological vulnerabilities* and *social interdependence* but also by the mediation exercised by the technological environment. As Katinka Waelbers shows, the autonomy of human agents in socio-technological settings is diminished by technological mediations, which ruled out any deontological or consequentialist ethical approaches.

Therefore, an ethics should deal with living a good life acknowledging that humans are biologically vulnerable, socially interdependent and technologically mediated.

## 2. Technological mediations

Bruno Latour developed the idea that technologies are not mere inert objects but that they mediate and co-constitute actions. An important aspect of technologies is that they do not serve only as instruments for human actions but they actively mediate these actions. Postphenomenology takes a step further in showing that technologies mediate not only actions but all relations between humans and reality. "The central idea in this approach is that technologies play an actively mediating role in the relations between human beings and reality." [4] Technology comes to mediate all our life so that one can speak of a technological lifeworld. A person experiences and acts through his technologies as experiencing and acting through his own limbs and senses. Don Ihde [5] analyses the process of

mediation on two components, the mediation of action through *embodiment relations* and the mediation of perception through *hermeneutic relations*. In the first case, one embodies a technology and act in the world through this extended body. In speaking on the telephone the device assume the same transparency as that of the body in action: it vanishes from awareness in order to make action possible. In the second case, the world is 'read', perceived through technology. Telescope, television and even the car present the world according to their own constraints; they mediate perception. But, the mediating role of technologies is present at more levels. Technologies do not mediate only actions and perceptions, but also options, decisions, practices and moral beliefs.

The first mediation is that of *perception*. Technology tells us how the world is; it presents the world according to technological schema. Technological embodiment operates through a structure of reduction and magnification [5]. It concentrates on and enhances, magnifies, one component of reality, and, in the same time, reduces others aspects. When speaking on the telephone, the multidimensioned presence is reduced to and focused on the voice, while other characteristics are reduced. This structure of reduction and magnification affects the moral domain because the reduction of some aspects of reality reduces also the moral importance of those aspects. Driving a car, for example, increases the physical distance to others as compared with bicycle riding or walking, where the contact with others is more direct. But the increase of this physical distance reduces the emotional awareness toward the other and thus creates a moral detachment.

A second mediation operated by technology is that of *action*. This represents the focus of Latour's work and a main part of Ihde's. Actions are mediated by technologies. Technologies 'determine', 'backdrop', "authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid, and so on" human action [6]. Technologies tell how to do things. There are technical affordances that permit and require certain modes of operation. Once somebody possesses a credit card there are certain ways in which one can make payments. The ethical relevance of mediating actions is that human autonomy is diminished. That produces a lack of responsibility toward one's own actions. Nevertheless, the mediation of actions constitutes human subjectivity in the sense that it builds the abilities and the patterns of coping with the world. As such, mediation is extremely important in framing the question 'who am I?'. In embodying certain artefacts, one defines himself and this self-definition is morally relevant.

A third type of mediation is the mediation of *options*. Technologies create the available options for action. Given the available technologies, there are various paths of action that can be taken to arrive at a certain result. Each path taken modifies in certain aspects the results obtained and it has different possible consequences. On the one hand, many of Latour's examples show how technologies reduce our options. The speed-bumpers offer no other option but to slow down. On the other hand, technologies are often viewed as providing more options. For example, I can buy a bus ticket from a real person, from a vending

machine or by sending a SMS. Also, technology not only creates more options or reduces previously extant options, but it modifies existing options. The availability of e-mail creates the urge to act and respond more quickly to a received message. The contents of messages changed accordingly, the messages becoming shorter and usually containing a large attachment that can eventually supply the succinct character of e-mails. The change in options operated by technology (disappearance, creation and alteration) modifies the duties and the values associated with these options.

The fourth mediation is the mediation of *decisions*. Technologies produce the relevant evidence for taking certain paths of action. Verbeek exemplifies this mediation by analyzing obstetrical ultrasound. In this case technology mediates perception but by doing so it also mediates, offers reasons for, medical and parental decisions. The foetus, by obstetrical ultrasound, becomes a social person long before birth, receives a name and a public image on social media networks. The bond between child and father is especially increased by this technology-mediated perception of the child. Also, "Ultrasound isolates the foetus from the female body. In doing so, it creates a new ontological status of the foetus, as a separate living being rather than forming a unity with his or her mother. This creates the space to make decisions about the foetus apart from the pregnant woman in whose body it is growing." [7] Medical decision is based on the evidence offered by obstetrical ultrasound (*e.g.*, various possible malformations observed during investigation). Moreover, even the decision not to have certain tests done is technologically mediated as long as, tests being available, new decisions are required by extant technologies, decisions based on previous tests, belief systems and technical knowledge.

A fifth type of mediation is the mediation of other *practices*. The introduction of new technologies affects extant practices, how they are pursued and what is their relevance in the new technological environment. The practice of writing a personal letter almost disappeared with the adoption of new technologies of communication. There are new practices that are created by the introduction of new technologies: the practice of driving, of putting the telephone on silence mode at certain social events, of touching the intelligent screens. Other practices radically change with the advent of new technologies. For example, religious practices are mediated by technologies. There are lots of applications that help the believer to practice properly his own religion and there are media facilities that transmit and transform religious discourse.

The sixth type of mediation, and the most important for the present article, is the mediation of *moral values, beliefs and norms*. Technology creates, eliminates and modifies morality as such, not only by mediating other aspects of human life. The watch created the value of punctuality. The surveillance cameras repositioned the values of privacy and security and create a new way to conceptualize and live in a panopticon-type of world.

There are at least these six types of technological mediations. All these mediations influence morality and are important from the ethical point of view. These meditations take the form of *affordances*, *i.e.* possibilities allowed or

imposed by technologies. Given these technological affordances, we can no longer speak of a moral neutrality of artefacts. A chair invites a tired person to sit, a speed-bumper obliges a car driver to slow down and a gun predisposes an enraged person to kill. Affordances create a field of possibilities that direct us toward certain decisions and actions, technologies becoming thus morally charged.

Along with these affordances, another important characteristic of technologies is their habitual employment. Usually, technological devices do not require conscious awareness of their presence in the process of using them. Technologies become, through recurrent employment, as *transparent* to actions as our own body. That is because a technology is usually not something used one single time. The employment of technologies in one's life evolves from episodic uses (that requires full awareness of every interaction with that technology) to technological habits (the artefact and its associate affordances become fully embodied, part of one's own body schema, having the character of immediate coping and lacking conscious awareness). Therefore, an ethical approach to technology should focus on technological practices, on moral habits afforded and imposed by technologies in their daily (un)conscious employment.

### **3. Designing, practising and willing**

Carl Mitcham [8] argued that technology can be analyzed on four great components: objects, knowledge, activity (further divided into making and using), and volition. Making (crafting, inventing, designing, manufacturing), using (working, operating, and maintaining) and willing (will to survive, will to control, will to freedom, will to efficiency, will to realize the self) are the focus of an ethical approach to technology. Designing (making) technologies creates the affordances that are appropriated and modified through habitual technological practices (using) according to the complex phenomena of technological volitions (willing).

The first highly morally charged domain of technology is technological design. To design a technology, be it a device or software, amounts to designing a certain morality, a certain way of being in the world through that technology. The designer embeds moral norms and values into the technology and creates the material conditions for various kinds of mediations. Designing morality have two major components: a) the evaluation of future moral consequences of technology and assessing and influencing these modifications in order to enhance human well-being [3, p. 134] and b) creating the techno-moral skills and enhancing moral abilities of users through the design of material conditions of use.

As Katinka Waelbers [3, p. 95] shows the evaluation of future moral consequences and the creation of material conditions for good practices presuppose taking into consideration a multitude of factors: the predictable improvements and the predictable risks of emerging technologies, the unintended bad consequences, the embedded social preconceptions, the predictable new skills, practices, options, moral norms and values that are created by the introduction of new technologies as well as the changes of adjacent practices. In order to make

these evaluations, the designer has three sets of tools. First, by using moral imagination he will gain insights into the way various people and social groups relate to technology, he will picture a broad range of possible outcomes and he will extract the relevant moral aspects of a technology. A second tool is the Technology Assessment, a practice that comprises strategic conferences, consensus conferences, dialogue workshops, interviews, and social experiments such as role-playing. Finally, the design process should be informed by behavioural studies, from computer simulation to statistical data regarding the use of similar technologies and to experimental uses of the prototype.

But there is a deeper aspect of technological design that is not concerned primarily with the consequences of technological artefacts but precisely with moral aspects of practicing technologies. This part of technological design aims at creating the moral skills and at increasing users' dispositions to make moral decisions. The designer should create technological affordances that would promote techno-moral skills of users for a meaningful coping with the technological environment. Thus, the design should increase the capacity of users to live a technologically-mediated good life.

The second focus of an ethical approach to technology is the technological practice, the process of using technologies. Technological practices refer not only to individual employment of technologies but also to their employment by social groups (governments, companies, etc.) As such, a moral evaluation of practices will focus not only on individual uses but also on social patterns of the use of technologies.

To choose between using and not using technologies is not an available option. Living in a techno-world makes technology as essential as our own body. Given the fact that we live through technologies, the wisdom of using them means that everyone (individual or group) should act being aware of technological embodiment and the meaning and consequences of technological mediations. Also, because technology is always embedded with values, to adopt a technology amounts to redefining the value system. This requires a constant evaluation of moral environment and a constant co-adaptation of self and technologies toward the best predictable consequences. Also, a conscious assessment of the technological mediations of one's life is required in order to appropriate in a meaningful way the technological practices. As Albert Borgmann [9] shows, to adopt a technological practice only on the basis that it facilitates an easiest and more pleasant life seems to be inadequate. He exemplifies this with microwave oven that, while make the meal preparation easiest, it promotes junk food consumption and conduces to a bad health and standardized meals.

Finally, the moral assessment of technology focus on the domain of technologically mediated human volition. Technology is not only about making and using artefacts but about desires and reasons for action elicited/afforded by technology. Martin Heidegger in his seminal article 'The Question Concerning Technology' already made clear that technology is a challenge-to-bring-forth. This Herausfordern (the challenging-to-bring-forth) means that technology requires human being to become a resource for technological ends. The main targets of

technology in relation to human freedom of will are attention and desires. Technologies require attention (a limited resource) for the satisfaction and production of desires (an unlimited resource). Through their affordances, technologies orient and produce human desires and require a constant attendance of technological processes. The moral approach toward the technologically mediated volition consist in the control over one's own desire-production in order to escape the challenges-forth (Herausfordern) of technology and direct one's attention to a meaningful life. The control over desire-production deals with second-order desires. This is the will to have certain kinds of desires that are guided by reasoning and long-term convictions. To resist or to fight technological desires is not a realistic option and an ethical approach toward technological volitions should be conceived in terms of orienting one's desires toward what one considers desirable, good-life-conducung and self-fulfilling existence. Thus the aim is not to restrain or to fight one's technological desires but to elicit those desires that correspond to the ideal of good and meaningful technological life and to act in accord with them.

#### **4. Conclusion**

The present article inquired into the ethics and wisdom related to technological practices. In order to analyze the moral dimension of technology and to map out the domain of technological wisdom, I showed first the modality in which technologies, far from being mere inert objects, mediate all aspects of human life: perceptions, options, decisions, practices and moral values, beliefs and norms. These mediations have an important impact on moral life. The focus on technological practices and technological affordances showed how technological mediations orient and modifies moral environment, moral values, beliefs and norms, and how they affect the prospect of living a good life. Based on these premises, I further analyzed the main moral relevant parts of technology, design, practice and volition, in order to extract the elements that pertain to a theory of wisdom in a technological world. The main points argued for were that: a) technological design should create, through embedded affordances, the material conditions for morality, b) the awareness toward the consequences of technological practices and mediations is a key feature of their meaningful appropriation, and c) one has to be aware of, and capable to influence, the technological mediation of one's desires.

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