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SUMMARY

The principal aim of this book is to analyze the philosophical debate on technology, which is carried on under the name “value-ladenness of technology”. The subject of this debate is the relation between technology and values; and it is the outcome of questioning a certain *opinio communis* concerning the nature of artifacts, and their relation to moral, social, and political values. For centuries it was commonly accepted that there is no need for investigating this issue and two kinds of arguments were developed to support this claim. The first one states that this relation does not exist since technology ‘in itself’ is neutral with respect to those values; only uses to which it is put deserve considerations. This argument was illustrated with a hammer which could be used to kill somebody or drive a nail in a wall. The second argument rejects the very rationality of asking the question about values and technology. There are several versions of this argument. One such argument, of a philosophical character, is based on a view called autonomous technology, which in its radical form advocates the thesis that technological development is predetermined and therefore, even if technology is value-laden, there is no point in analyzing this fact, as we can do nothing about it. There are also a few non-philosophical arguments, such as (a) religious: technology is a gift from God, and as such it is ‘good in itself’ and requires no investigation concerning its axiological dimension; (b) social-economic: technology is a tool for creating universal well-being, and all harmful consequences of production and utilization of technology are ‘costs’ that we

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need to accept; (c) ideological: technology is the best (and often the only one) tool for creating an ideal society. These arguments provided the ground for a general conviction that there is no need to investigate philosophically an axiological dimension of technology, which is neutral. Although there were some germs of a different view (for example in Romanticism), they remained undeveloped until quite recently. For only technological progress and certain historical events – like nuclear explosions in Hiroshima and Nagasaki, when technology has ‘lost its innocence’ - as well as some development of philosophical thought rendered the neutralist approach inadequate.

Many reasons are given for this inadequacy. It is stressed that technological development creates new possibilities of acting and determines conditions of making decisions. Ethical issues we never faced before appear. Moreover, operating technological devices demand certain kinds of actions which have an obvious axiological dimension. This in turn results with well observable changes in the social and moral sphere. New situations, new possibilities of acting and new kinds of acting call for rethinking moral and social norms, and this entails the necessity of rethinking various philosophical concepts, including those directly related to the area of moral values, such as the concept of responsibility. What for example would mean that one is responsible for killing a human in a virtual world? Also new objects are created to which we have to take an ethical approach. A good illustration of this issue are debates on the moral status of Artificial Intelligence. Technology also changes the way we understand human beings. Some define them as *homo faber*, and some employ notions and analogies taken from technology to describe human person; and introducing technological procedures and artifacts changes the conceptual framework of perceiving the world. For example, there occurs something we may call the process of ‘anthropomorphization of artifacts’ and ‘artifactualization of humans’, which in turn results with a change of what we consider to be good or bad. Technology becomes a prism by which we see the world, and therefore an intellectual separation of technology from the social context and considering it value-neutral and a ‘human will-obe-

dient' tool deforms our understanding of technology. Some people, like, Stanislaw Amsterdamski, stress that the possibility to use technology for good and bad purposes does not make it value-neutral, but value-ambivalent, and these two are not the same. Moreover, using various technologies according to what they were made for – and not only using it for bad purposes – cause side effects and an emergent effect, which is beneficial or harmful for people. These points (and quite a few more) – reinforced by an awareness of the cruelty which technology made possible in war – led to the thesis that technology is obviously neither value-neutral nor *a priori* good or bad—but that it has an internal axiological dimension, which is worthy to be philosophically investigated.

Although the debate on the axiological dimension of technology has been systematically carried on for more than 30 years, there seems to be no universally accepted resolution. However, it also seems that there is a need to recapitulate this debate, for analyses of existing approaches is a condition of its further progress. According to my knowledge there is no analytical recapitulation of the debate, although there are many collections of articles which present crucial topics in the debate. This is a sufficient – although not exclusive – justification of my choice of the topic for my book. The debate demands an analysis on a meta-level, because it encounters many difficulties. First, there is no universally accepted meanings of the key terms: 'value', 'laden', 'artifact', 'technology', and often they are treated as self-evident. However, closer considerations reveal that they are equivocal and their meanings are sometimes tailored to give expected results in the debate. Another difficulty is that an analysis of technology sometimes focuses on the whole of technology (a collective approach) and sometimes on particular types of technology (a distributive approach) and therefore some arguments only seem to concern the same topic. Moreover, arguments presented sometimes belong to different domains (philosophy, sociology, psychology, etc.), and even arguments of a philosophical nature often come from different and sometimes incompatible philosophical traditions. This demands a “common denominator”,

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since it is hard to provide a satisfying solution when there are different presuppositions, different accepted meanings of crucial terms, and different methods.

My book thesis is written with a meta-level character. The subject-matter of my analysis concerns the various standpoints within this debate, not technology itself. My aim is to put in order the debate. By 'put in in order' I mean here two things. First, a clarification of the key terms of the debate, especially that of 'technology,' 'values,' 'technical artifacts,' 'value-neutrality,' 'value-ladenness,' etc. Second, a reconstruction of those views that give an answer to the question whether - and if the answer is "yes" - how technology is value-laden. I take these two views - the one that technology is value-neutral, and the other, that technology is value-laden - as ideal types in the sense developed by Max Weber. Thus, one should not expect that all theses constituting the two ideal types appear in a 'pure form' in views of debate participants, or that analyses represent the history of the idea of value-ladenness, or the history of the debate itself. The book is not a reconstruction of some views of particular participants of the debate, but rather an instrument for putting in order questions, theses, notions, arguments, and philosophical assumptions engaged in the debate.

The aims and subject-matter presented above determine the method adopted, which is an analysis of texts aimed at answering the following questions: (a) how the key terms are understood?, (b) what theses are advocated?, (c) what arguments for those theses are provided?, (d) what philosophical assumptions lay at the basis of those theses and arguments?, and (e) what are the consequences of adopting those theses? This method was chosen because it is able to sort out and present in a clear way the labyrinth of approaches, to answer the above questions, and because it allows me to build the ideal types of the parties of the debate.

The analysis of the views of thinkers involved in the debate is a precondition for an analysis of technology itself. The latter analysis is theoretically interesting, as it allows us to understand our own creations and the world they constitute, but it also has a practical benefit, as there is a strange discrepancy in our atti-

tude towards technology. In times of rapid technological development, on the one hand, there is still an *opinio communis* that technology is value-neutral, and on the other hand, experts are appointed to determine the proper direction of technological development. Controlling the development seems to be one of the greatest challenges of our times (E. Agazzi). Thus, an answer to the question of whether technology is value-neutral or value-laden, and if the latter - to the question of what ladenness consists in, has significant consequences for providing that expected expertise. This practical dimension of the issue is an additional cause for undertaking the investigation.

Furthermore, the aim and subject-matter determined the structure of my book. In the first chapter I indicate some historical sources of the debate and discuss meanings of its key terms: 'technology' and 'value,' including shifts in their meaning in a few languages. This allows me to distinguish four types of things denoted by the Polish term '*technika*' which I accepted as a proper translation of the term "technology" used in the debate: (1) elements of the form of certain kind of acting: a method of doing something; special language as a formal aspect of a technological system; institutions, (2) acting of a specific kind: based on science (applied science); based on experience, (3) a result of that acting: knowledge; skills; artifacts, and (4) the domain of culture. This procedure allows me in turn to determine more precisely the proper subject-matter of the controversy. Ultimately, the debate concerns the value-neutrality or value-ladenness of artifacts. The chapter ends with a discussion of contemporary approaches to the issue of technological artifacts: techno-enthusiasm, techno-skepticism, and techno-realism.

Chapter II presents four main arguments for the neutrality of artifacts preceded by an inquiry into the notion of 'neutrality'. These arguments can be expressed by the following theses: (1) technological artifacts are not moral agents, so moral values cannot be predicated of them, (2) technological artifacts can be used for good and bad purposes, so they are neither good nor bad, but neutral, (3) the same processes occur in artifacts seen as 'good' as in those seen as 'bad', and (4) one should distinguish technological artifacts from a context in which they are used.

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Chapter III develops an analogous analysis of the arguments for the value-ladenness of technology. I distinguish the following theses supporting this claim: (1) technological artifacts constitute 'forms of life', (2) technological artifacts have politics, and (3) there are obvious cases of the value-ladenness of technological artifacts. They are "laden" metaphysically/morally, promotionally, materially, expressively, emergently, epistemically, and conditionally. The first four of the listed types of ladenness appear directly in the debate. The remaining three are the results of my own analysis. Metaphysical/moral-ladenness corresponds to the history of an artifact and those values that occurred in the process of its creation (for example, one says, that the Egyptian Pyramids were 'contaminated' by the death of many slaves who constructed them). Promotional-ladenness reflects the fact that by purchasing certain artifacts, we support certain institutions or powers which stand behind their production and those institutions and powers realize certain values. Material-ladenness occurs due to the fact that artifacts have a value-connected aim (or aims) built into their structure, and regardless of the intention of a user, certain values are realized when a given artifact is used (the idea of destruction is built into the structure of an atomic bomb). Expressive-ladenness brings our attention to the fact that an artifact can assist in realizing values that are socially ascribed to it (for example, an expensive car or a watch can be a symbol of social status and express the superiority of the owner over the rest of the population). Emergent-ladenness occurs when the number of certain artifacts exceeds a certain limit – they acquire new properties which realize certain values (there was no digital divide when computers and the internet was only available in some universities). Epistemic-ladenness concerns the fact that technological metaphors and analogies with artifacts enter our cognition and interpretation of things, which has consequences for our understanding of the world. Those metaphors and analogies become part of our conceptual framework, which provides a ground for our morality. Conditional-ladenness concerns the fact – well known in the domain of law – that providing tools for an act also means participating in this act.

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In chapter IV I first introduce certain analogies taken from the domain of chemistry – that of catalysis and amphoterism – which, I believe, better captures the basic intuitions of both sides of the debate concerning the neutrality and value-ladenness of artifacts. I then show that the main source of the controversy is over a different understanding of the concept of artifacts; and I propose an understanding of artifacts, which allows us to grasp the relation between artifacts and human beings. I also show that the debate in fact concerns either moral values or those values that have a ‘moral constituent’, because the relation of artifacts to other types of values – technical, economic, or aesthetic, is not usually not questioned. And since the need for understanding what artifacts and values are raises metaphysical - or in general philosophical - questions, in the last part of this chapter I put as a well-grounded hypothesis that a philosophical tradition called the classical philosophy is able to provide a promising framework for asking and answering the question about whether technology is value-neutral or value-laden.

The analysis developed in the book allows me to advance the following conclusions:

The analyzed arguments for value-neutrality turned out to be problematic or even logically invalid. The first one, appealing to the fact that artifacts are not moral agents, is actually directed against another thesis than the thesis of the value-ladenness of technology. The second argument required a detailed analysis of the expression “the artifact can be used for good or bad purposes”. For this is an elliptic expression – what is missing is a quantifier (universal/existential) for the variables: ‘artifact’, ‘purpose’, and ‘used’ (when, by whom). Moreover, one needs to distinguish the technical and ethical meaning of the terms ‘good/bad’. My analysis revealed that either this expression is trivial or as a whole the argument is logically invalid. The fact that somebody can use one thing sometimes for a good aim, and another person can use something else sometimes for a bad aim does not endanger the thesis of value-ladenness. The argument appealing to the fact that seemingly “good” and “bad” artifacts employ the same processes, are built with the same material omits the fact that processes or

material (like a chemical compound) are not artifacts. The argument advocating the need to distinguish the nature of artifacts from the context of their use isolates artifacts from society what – as I argue – is an unjustified operation. So the final conclusion is that none of the analyzed arguments for value-neutrality are valid. The thesis of value-neutrality functions within an *opinio communis* but any answer to the question: why it is so, should be found within psychology, sociology or even politics, but not within any philosophical understanding what artifacts are.

The arguments for the value-ladenness of technology are strongly supported by evidence, as they show that both the very existence and functioning of artifacts take part in creating the world with particular properties (which is important also from an axiological point of view) and that artifacts themselves contribute to changes in interpersonal relations (social, political, economic etc.). So it is not only the uses for which they are put that are of great importance. Value-ladenness does not of course entail technology is a moral being or agent; it only means that an artifact by the fact of its existence and operating supports the realization of certain values.

There are various types of value-ladenness. A general distinction may here be introduced between (a) direct-ladenness, when values are ‘built into’ the structure of an artifact and are realized through the existence and use of it and (b) indirect-ladenness, when values are realized through the relation between an artifact and something else (for example, its history; an institution it supports, symbolic content it represents, ideas for interpreting reality, or the value-dimension of the consequences of its operating). Those various types of value-ladenness do not compete with each other but rather complement one another. One artifact can be value-laden in many ways. Moreover, value-ladenness can be lost or be acquired by an artifact. However, these issues require a detailed analysis not of views about artifacts, but instead of the artifacts themselves, which falls outside of the scope of this book.

An interpretation of the value-ladenness of artifacts was conducted in terms of a certain property of artifacts, namely plasticity. In the debate, the authors distinguished hard and soft plastic

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features in relation to two aspects: environment and society. So artifacts can either demand great changes in the natural environment (for example, cars demand roads, gas stations, oil rigs, etc.) or some minor ones (for example, satellite telephony). Analogously, the situation may be in a political or social sphere (the internet resulting from the information society, as an example of big changes, and nail clippers as small changes). Yet, the above views should be further developed with the following claims. (A) social plasticity can concern many aspects (economic, political, moral etc.) and there can be artifacts that have hard social features, in terms of politics, or have soft social features, in terms of the economy. Moreover, plasticity comes in degrees. So, any full analysis would require a complex matrix reflecting these aspects. (B) The authors do not distinguish external and inner plasticity. There is a difference between the ability of an artifact to adjust to an environment into which it is put (inner plasticity), and the ability to adjust the environment to itself (external plasticity). Once elaborated, the notion of plasticity allows us to give an answer as to what the terms in the debate, such as 'embedding', 'promoting' or 'encompassing' values, mean.

In order to answer the question of whether technology is value-laden, one needs to answer the question, What is value? My analysis shows that we need an objective understanding of values. A subjective approach renders the subject of the debate obsolete – either there is nothing that artifacts can be laden with, or each person 'ladens' a given artifact with values according to her own will, while the structure or history of that artifact, or the consequences of its use have nothing to do with the process of ladenning. The objective approach gives the possibility that a creator, producer, or user of an artifact makes a cognitive error and wrongly ascribes the artifact a kind of ladenness, which in fact it does not have. Thus, an objective approach to values is a necessary condition of the rationality of the debate.

I believe that a definition provided by Tadeusz Ślipko is satisfactory for our purposes. According to him value in the most general sense is a perfection [quality] of an object [here - an artifact], which corresponds to certain capabilities of the human person

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and which presents itself to her as better (potentially or actually) than other perfections [qualities] of the same or another object, which makes it valued and desired. This definition satisfies the need for understanding the value as something objective and really existing, and at the same time human-related. Ladenness would then be a certain relational property of being: *X* is laden with *Y*, where *X* is a certain technical artifact, and *Y* is a value. This property to exist requires on the one hand a being—an artifact with its qualities—and on the other hand, an actual/potential intellect as a recipient of a quality that is a value. The above definition includes that aspect. Of course, the claim that this definition, as well as the definition of technical artifact provided below, are satisfactory is a hypothesis requiring further investigation.

There are various views on what a technical artifact is and concerning its relation to society, creator, and user. For the advocates of the value-neutrality of technology, the relation between human beings and things is unnecessary for considering what kind of thing a technological artifact is; they recognize that relation but see it as this non-constitutive. For advocates of the thesis that artifacts are value-laden, this relation is constitutive for anything to be an artifact. The views of the two parties in the debate differ also in regard to the relation between technology and the intellect. The followers of the neutrality approach seem to consider the artifact as a deposit of functions which can be implemented in any material or structure. The followers of the value-ladenness thesis recognize technical artifacts as something created by an intellect and for an intellect, and so the structure and material is not incidental. This is why the relation between the artifact and society is considered to be constitutive for the artifact. Taking this relation into consideration provided the ground for understanding technical artifacts as the being in which three levels of intentionality can be distinguished. First, there is the case when an artifact exists as a plan in a creator's mind, and that plan included aims that that artifact is to serve. Second, there is the case when this plan is embedded in the physical material and structure of the artifact and can be read by a user. Third, there is the case when that artifact is used not in accordance to its aims embedded into

the structure and material, but in such a way that does not destroy the previous internationalities.

What then is a technical artifact? On the basis of the investigation carried on in the book I have developed my own definition of a technical artifact, which is narrower than a definition of artifact in general. A technological artifact is a human-created material being for an extra-aesthetic and extra-spiritual (religious) aims, which actually realize them or are potentially capable of doing so.

The above definition requires some explanation. First, the term 'create' is understood here in a very broad sense, to the effect that a row of trees planted in such a way that the trees provide some protection against wind is also a case of technological artifact. The fact that trees are a part of nature is not a counter-argument against this notion, since every artifact is built of material taken in from nature (or of something created from natural components) - it is not created *ex nihilo*. Secondly, a technical artifact is a technical artifact as long as it is capable of fulfilling an aim written in its structure. Any technical artifact that is damaged beyond repair is no longer a technical artifact; instead, it has become merely an arrangement of natural material, of which another artifact can be created. Thirdly, a technological artifact can be created for fulfilling several aims, but usually it can be used in more than one function. This is why the technical artifact can be used for purposes not foreseen by its creator. But if it is used for a purpose other than to fulfill its original aim or aims, the technological artifact ceases to be *this* technological artifact.

The basic questions necessary to be answered if the controversy is to find a solution are of a philosophical character. Thus, the solution should be searched for in philosophy, not in sociology, or psychology. The question then arises - which philosophy? I argue that classical philosophy constitutes a promising (although I am not claiming that the only one) framework for solving this controversy. There are a number of arguments supporting this choice. Classical philosophy is realistic, has an empirical point of departure, and therefore it is open to new data; it searches for explanations in the structure of being. In this respect it is compatible with technology-creating sciences. It also recognizes the

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real existence of relational properties of being and therefore is able to capture ladenness. It has a number of concepts like 'intentional being', 'finality', etc., which allow us to express ideas that are important for the debate. Moreover, due to the empirical starting point it is immune to cultural or religious relativism, and as such can provide a 'common denominator' for debates independently of culture and religion, which is important, for nowadays technology is global and, as they say, it 'makes the world smaller'.

Once we accept the above conclusions, new areas of investigations arise. The first one concerns the philosophy of technology itself. Originally philosophy of technology focused on the essence of technology, while the relation between technology and culture was seen in the context of its positive and negative effects on it. If we accept that the relation of artifact-value is constitutive for the artifact, then new problems occur. Those new problems, to a large extent, concern ethics because the debate mostly concerns moral values. Ethics is seen not only as some kind of theoretical reflection, but also as a regulative factor allowing the evaluation of technology. Yet, the idea of evaluation of technology presupposes the idea of value-ladenness of technology (at least some types of ladenness), since this evaluation concerns the existence and functioning of technological artifacts, not the kind of use for which they are employed. The claim that technology is to serve human beings—to provide a "human good" does not seem to be controversial, but what, exactly, does "human good" mean? This question shows that debates within the philosophy of technology must be rooted in anthropology and must lead to anthropological conclusions. In short, apparently philosophically-neutral evaluations of technology in all forms of 'technology assessment' must ultimately become one area of reflection with philosophical reflection on the essence of technology, values, and human good.

Another area of investigation arises when we accept the claim that technology is value-laden, namely, the issue of responsibility. This acceptance specifies and justifies ascribing responsibility to many social groups, and sometimes to the whole society. If technology is value-laden then its user, its creator, and its distributor are all responsible for the results of its existence and operating. An

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answer to the question concerning the value-ladenness of technology and of what such ladenness consists in has serious consequences. This is because it is connected to the issue of rationality and necessity of moral evaluation of those actions that lead to creation of particular technological artifacts, and because that evaluation must be made with various perspectives. And it opens new areas of research with major questions concerning the responsibility of corporations and factories and of relations between moral, legal, and technological responsibility. For if technology is value-neutral, this evaluation is unnecessary.

I conclude the analysis over the debate on the value-ladenness of technology with a more general reflection. Almost a century ago Stanisław Ossowski wrote: "Science with all other domains of culture is therefore this kind of reality, whose history depends on what we think about it" (Ossowski 1967, p. 102). Since technology is a domain of culture, its history and development depend on what views we hold on it. If we believe that technological artifacts are value-neutral, we develop technology and educate scientists, engineers, economists, people of industry, and regular artifact users in a different way, than we do when we think technological artifacts are value-laden. Concerning the answer to the question of whether technology is value-laden or -neutral it might depend – at least partially – on the possibility of finding proper answers to the questions on directions and principles of the global and sustainable development, so, to an extent, our future depends on a philosophy, which lays at the foundation of accepted solutions.