

# THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

## The Reconstituting Nature of Modern Technology on Environment

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**Abstract:** My argument in this article is that, even though technology enables a renewed experience of nature by enhancing our appreciation and understanding of it, it also constrains the way the same nature appears to us in a very particular and unique way. To support this argument, I underline the reconstituting and manipulative tendency of technology on nature. Technology has become a form of revealing where environment is reduced to a heap of resources for human manipulation, thereby making it lose its ontological significance; through technology we humans are divorced from our internal relationship to our environment. We live according to an atomic conception of ourselves as independent from our specific environmental contexts, with alienating results not only from each other but also from our very environment. The enucleating philosophical question of the entire article is: With all the material benefits of modern technology, do we ever stop to think of its environmental consequences? The article will employ the phenomenological method taking the Heideggerian perspective of understanding modern technology. Heidegger argues that modern technology has passed from being an instrument (machines, ipads, smartphones, computers, genetic engineering, processes and invention) used by humans to attain specific ends to a way of being-in-the-world.

### 1. Introduction

Our regard to environment has changed considerably as a result of advances in science and technology. Technology, today, is not simply a means, but has become an environment itself and a way of life [i]. As a way of life, it defines our way of *being-in-the-world* and of our regard to it. As a constitutive element of our being, the same technology has revolutionised nature, such that almost all regard to it is organized by and around technology, changing human relationship to the environment dramatically. In this article, I will discuss the transcendental nature and totalizing tendency of technology, whereby technology has become the moving force, *destiny* of the modern world, to the point where it has outgrown the ontological significance of the natural world. My argument is that even though technology enables a renewed experience of nature by enhancing our appreciation and understanding of the environment, it also constrains the way environment appears to us in a very particular and unique way. On the basis of that claim, it is important to understand that the very enabling technological tools we use have human and environmental reconstituting downsides. This denotes that we can no longer carry on with the traditional instrumental view of technology; that traditional view is inadequate and we have to find the true picture of technology, particularly by questioning our regard to it. Borrowing from Heidegger as influenced by the Greeks, we have to conceive of modern technology as a way of *revealing* or bringing reality out of concealment [ii], exposing nature to human manipulation; technology is not in essence totally instrumental.

In bringing technology back to rightfully serve our purposes, and those of nature, despite its reconstituting force, we should not fail to ask ourselves several basic existential questions, such as: What is the end result of our technological progress? Is the ultimate result of technology to live only by proxy, experiencing the virtual world from the movie or television screen, instead of living and enhancing the natural world? Can we overcome increasing technological organization and growing scepticism to take it up as an individual responsibility? Can we use technology without losing the value of things in themselves? What is salient in these questions and in this article is the fact that the problems embedded in technological development seem not to allow human subjects to enhance asymmetrical relationship with nature over manipulative technological *destiny*. This prompts the need for a continuous renewed philosophical reflection on technology, particularly its ecological reconstituting challenges.

#### 1.1 The Essence of Modern Technology

The traditional and epistemological understanding of *essence* is that which refers to the fundamental set of properties which defines the composition of an entity. This way of defining *essence* seeks for objective truth and knowledge in regard to the object in question, since it explains what the entity is from its abstract and universal properties, in order to determine its objectivity in relation to the knowing subject. It is a mathematical, physical and external way of understanding *essence*, which obscures the internal aspect of relations between humans and objects being explained [iii]. In regard to technology, such traditional and epistemological definition seems not to give the true picture of modern technology. The *essence* of technology is something entirely different, as Heidegger clearly explains: "Just as the essence of a tree, that which pervades every tree, as tree, is not itself a tree that can be encountered among all the other trees, the essence of technology is by no means anything technological [iv]." What Heidegger means by *technological* is

the accustomed reference to the specific function of technological objects [<sup>v</sup>], and the human activity of furnishing means to effect a desired end. For him, this obfuscates a more originary, essential meaning of technology, namely, that technology is not a mere process of making, as is the case with *techné/production*, nor as a mere thing; it is not a high-tech gadget.

Heidegger's endeavour is to show the technological revealing of modern technology and its reconstituting nature [<sup>vi</sup>], as a distinctive way of *revealing* or relating to reality [<sup>vii</sup>] different from that of the Greeks as the un-concealment of the ontological significance of entities. Somewhere else, Heidegger says: "For technology does not go back to the *techné* of the Greeks in name only but derives historically and essentially from *technéas* a mode of *aletheuein*, a *revealing mode*, that is, of rendering beings manifest [<sup>viii</sup>]." What Heidegger argues, which explains further his negation of the instrumental understanding of technology is that, technology in its ontological sense is not just a collection of things and activities, but also a mode of truth or a field within which things and human activities may appear [<sup>ix</sup>]. So the *essence* of technology is not itself technological, but rather *existential*, a kind of essential, internal mediating relation that we have with nature, including our very selves. Heidegger, eschewing instrumental account of essence, preferred the notion of *enframing* [<sup>x</sup>]. His use of the *essence* of technology as *enframing* is a search for ontology of technology that reaches further than the dominant instrumental, external and discrete relation to technology. In other words, technology is not essentially instrumental [<sup>xi</sup>], but is a peculiar mode of *revealing* or disclosing reality [<sup>xii</sup>].

Heidegger's denial of the instrumental meaning of technology might seem to be an absurd way of thinking to some. Furthermore, such people might question why Heidegger still seeks for the meaning of technology if everyone already knows what technology *is*, at least from the conventional or traditional standpoint. However, by challenging the instrumental conception of technology, I think Heidegger as a philosopher is right not to try to push the experts out of their field and tell them what they should do. He denies giving a functional conception of technological objects. If we conceive of modern technology instrumentally and anthropologically, it is to position it on a purely *ontic* level; a position he sees as inadequate as I explained earlier. To conceive of technology both as an instrument and a human activity (in an *ontic* level) is not to say it is false. In fact, Heidegger insists that the instrumental view of technology is *superficially* correct, but not at all the *true* essence of modern technology [<sup>xiii</sup>]. Again as I had explained earlier, Heidegger agrees with both applications and meanings, but he considers them to be deficient and even dangerous, for it gives a false impression of man's superiority and does not allow for a comprehensive philosophy of technology that will explicitly bring out its true operational dynamics. As human beings, we depend so much on the technologically structured and organized frame of reference to the world to the point of annihilating the world's own natural significance. However, we have also to remember that what we do to the world is the very thing we do to ourselves. Why? Because, the world is part of us and we are part of it. Together with other entities we constitute the world and so, any destruction of the world also implies our own self-destruction.

### 1.2 Technology 'Enframes' Nature as a Standing-reserve

I have explained that Heidegger uses the term *enframing* to explain the way humans, as users of modern technology, have come to relate to the world, literally putting it in the *frame* of stockpile of resources for exploitation. This invasion of the environment as our *dwelling* or *home* changes our relationship with it (environment) by erasing that internal and direct experience of the intimacy and bounty of nature [<sup>xiv</sup>]. Heidegger basically describes modern technology in the mindset of the modern subject as something that engages its sustaining environment in a very constraining, parasitic and resource-oriented way [<sup>xv</sup>]. Technology has revolutionised our life-world [<sup>xvi</sup>], such that almost all aspects of the environment are organized by and around it, changing dramatically the ontological significance of the environment. The mining industry in almost all countries in the world is a good example to illustrate technology's invasion of nature. Today, land is perceived as an object where coal and ore and gas can be extracted, a source of energy, stored so that humans can use it at will. However, the problem with this is that it does not consider or respect what nature already is and our responsibility toward it. Instead, nature is reduced to only a very peculiar aspect of itself, as something that is composed of stuff and objects that can be manipulated, exploited, or as something that can be controlled by human manipulative will [<sup>xvii</sup>].

This manipulative technologization of nature is an ontologically minimalistic transformation of all natural entities into functionalized resources awaiting further optimization [<sup>xviii</sup>]. Heidegger emphasizing the intensity of the problem says: "Everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so it may be on call for further ordering. Whatever is ordered about in this way has its own standing. We call it the standing-reserve (*Bestand*). It designates nothing less than the way in which everything presences that is wrought upon by the challenging revealing. Whatever stands by in the sense of standing-reserve no longer stands over against us as object [<sup>xix</sup>]." Heidegger's claim is critical in that modern technology manipulates nature, to impose upon it, to undermine its ontological and structural integrity in innumerable ways so that we can demand more of it, extract more from it, set-upon it with the relentless zeal of an imposing inquisitor. Another example that Heidegger gives to explain the contrast between the old and modern technologies is that of hydropower generation [<sup>xx</sup>]. As perceived by Heidegger, a wooden bridge reveals the presence of a river, but the modern technology of the hydropower plant reveals the river as the source of energy and a system of hydropower generation. The river is no longer seen as an object with autonomy but is transformed into an object on call to be used [<sup>xxi</sup>]. With this logic of operation, things have meaning only insofar as they are subjected to this modern, universal and objectified definition of technology. The idea of *for-the-sake-of-which* of *readiness-to-hand* tools or instruments, changes its meaning in modern science and technology. Furthermore, modern science and technology have replaced the original attitude of *care* which we moderns should have towards nature and have also replaced the *for-the-sake-of-which* of technological tools (which is the totality of significance) with knowledge achieved through research findings [<sup>xxii</sup>]. At its height, whatever stands by in the sense of a resource for optimization no longer stands over against us as an entity with its own specific being or nature.

Feenberg, explaining more the intruding and disrespectful nature of modern technology, argues that “modern technology *de-worlds* its materials and *summonsthe* environment to submit to extrinsic demands. Instead of a world of authentic things of experience, capable of gathering a rich variety of contexts and meanings, we are left with an ‘objectless’ heap of functions [xxxiii].” The world into which we are *thrown* and find meaning for our existence no longer has meaning in modern technology and so our responsibility towards nature is rendered null. The world as a horizon of ontological meanings through which man manifests his revealing role of care or responsibility of giving meaning to it is destroyed and equally, the relationship to that world is destroyed. It is now a relationship of manipulation, which is not free in the sense of letting natural entities show up in their ontological significance. This is expressive in the operations of modern scientists, vivisectioning every corner of the earth’s structural integrity for no other reason other than to expand the domain of research, by making entities more fully and extensively calculable, with no further *for-the-sake-of-which* [xxxiv] or purposes of their own. In his commentary on *Heidegger and Modernity*, Zimmerman remarks that “... the attempt to make everything close and available arises from the increasingly one-dimensional ontology of modernity: everything appears to be nothing but various kinds of matter which can be used and switched about at will [xxxv].”

The contentious issue, according to Zimmerman, is the un-concealment of the will to power, whereby humans are eager to investigate everything hidden in nature. We are now in what Albert Borgmann calls the regime of the *device paradigm*, [xxxvi] where the technologies we use in our daily lives, such as automobiles, ipads, smart-phones, and computers now signify the kind of people we are. Feenberg argues that today, we ‘wear’ our technologies just as we wear clothes and jewellery, as forms of self-presentation [xxxvii]. In our technologised world, not only are we what we do, but, more emphatically, we are what we *have, use* and *consume*. However, this same impulse alienates humans from the intimate union with nature since nature is perceived merely as a site from which we moderns can obtain knowledge and material benefits in total disregard of the being and significance of nature in itself. This attitude towards nature is simply curiosity; it is all about how the world outside there is perceived and objectified by us for our own self and selfish interests. Modern science and technology is about facts of the world and theories on how to get to those facts. Modern science and technology have made our age the age of the *world picture*, [xxxviii] whereby the being of entities (their intelligibility, the ways in which they can manifest themselves) is now determined by the demands of human thought and action.

On that basis of the *world picture*, technology as a revealing saturates our life-world with instrumental interpretations of it, suffocating it in the process of setting up both humans and nature as a resource store, available for future optimization for its own expansion. The most critical issue here is that this setting-upon nature extended to all other areas where mountains, waters resources, air, minerals, plants, and animals are all brought forth onto centre stage so as to be seen in the new light of modern machination of exploitation [xxxix]. All that is related to nature, e.g., distances are subjected to calculation and machination [xxx] leading to their dissolution. It is essentially a different way of relating to nature, in the sense that it is instrumental, calculative, and subordinative, a diminishing of the otherness and the uniqueness of objects in the world, since every way of thinking and acting towards nature is inverted. No longer is the world *already there*, nor do we receive its *facticity*; rather *facticity* of the world begins with our projection. In this whole process we humans form the picture of the natural world. We frame that picture and always see that picture of the world through the lens of technology, leading to the disappearance of the real natural world of objects [xxxi]. Objectivity of the nature, ironically, dissolves completely, in the objectlessness of the *standing-reserve* purported to serve human will, and nothing *stands against us* anymore as an object of autonomy, integrity, wonder and admiration. All seems to subsist only as an object of human invasion that lacks reverence. We are left with an abstraction or virtual picture of the real nature thereby destroying the dialectic of a world always already there, in Husserl’s terms, as opposed to a world that is reflected upon [xxxii]. Grounding this claim, Don Ihde emphatically remarks on this ontological meaninglessness of entities in the technological frame with the claim that “symptomatically, nature as that which ‘stirs and strives,’ as the ‘springhead in the dale’ is lost [xxxiii] Entities become just “things ready for any human bidding [xxxiv].” This same thought is echoed by Hannah Arendt’s worry: “... *homo faber*, the toolmaker, invented tools and implements in order to erect a world, not-at least, not primarily, to help the human life process. The question, therefore, is not so much whether we are the masters or the slaves of our machines, but whether machines still serve the world and its things, or if, on the contrary, they and the automatic motion of their processes have begun to rule and even destroy the world and things [xxxv].”

What Arendt notes is that the critical problem of modern technology is two-fold: On the one side, technology makes us masters of our world through machinery. On the other side, it also puts the ability to destroy the world in our hands. Everything regresses into an interlocking of issues that yield what man wants whenever he demands them. Guignon in his development of Heidegger’s authenticity thesis clearly explains the spirit of modern technology when he argues, ironically, that “scientific mastery of the world requires that we adopt a stance in which we are disengaged subjects, methodical and objective observers who are collecting data and formulating theories [xxxvi].” In other words, the scientific spirit does not see us *being-in-the-world*, as world forming agents, but rather, as minds engaged in the development of theories that will be used in the study and manipulation of the physical world just like scientists themselves. Zimmerman says that “instead of doing violence in order to disclose entities in and for themselves, modern man does violence in order to subjugate entities solely to his needs [xxxvii],” so that he separates himself from the natural order of things. Increased scope for subjective power and manipulation made possible through technology carries with it not only the danger that erodes the resources from which the meaning of any subjective action could be granted, but also erodes the ontological integrity of the same resources.

The profound consequence of setting-upon nature is that as reality is being transformed into something abstract, it simultaneously becomes something absent and human experience is undermined (equally, subjectivity), such that the human ego is empowered and, nature is seen as an inert set of forces to be harnessed to human ends [xxxviii]. Nature now appears as an object open to the attacks of calculative thought, attacks that nothing is believed nor able any longer to resist the forces of such thought. Through continued pursuit of scientific discoveries and knowledge, human beings regard nature as the other, the *enemy* for that matter; it is sacrificed for the

purpose of achieving scientific or technological discoveries. This manipulative attitude creates a dichotomy between science and nature: whereas science represents the known and progressive, nature is conceived as chaotic, and primitive, and therefore to be organized by the power of the mind. Of course, the profound implication of this is twofold: on one hand, we have the loss to humanity of substantive external reality since reality is now the product of the scientific and technological mind. On the other hand, we have the loss to humanity, of humanity through this loss of that (world) which constitutes us. This twofold loss is basically the result of thinking and our understanding of reality that has been reduced to *theory*, engendering the attitude that other beings and entities are there simply for what we can get out of them and that the world is there for us to exploit.

### 1.3 The Nihilism in Modern Technology

The ordering of nature into a resource is above all *artificial*, in contrast to *natural* Greek ordering, which respected nature as an object of autonomy. Unlike the Greeks' use of *techné*, nature in modern *technologized* thought is now reduced to a network of resources for manipulation, alienating man from his comportment with it as a horizon through which he manifests his being. Nature is removed from our human involvement in a more fundamental and basic way and thereby loses its character as an ontological source of reference for us [xxxix]. Physical objects are no longer grasped from within the perspective of human experience and purposes and the human subject does not stand opposed to the world. This leaves us with a yearning for the Cartesian epistemology of the need for a subject/object bridge. Unfortunately, such a need does not arise because there is no such bridge to cross. Modern science and technology have collapsed the ontological reference to nature, and instead, created a kind of bridge whereby objects are, on one side, seen as objects of study and manipulation, external to human meaning and significance. On the other side we have humans extending their manipulative wills to dominate nature. This raises a fundamental problem whereby to do away with the natural world is also to do away with the human subject herself. Viktor Ferkiss argues: "Human self-knowledge is impossible in a world in which nature has been destroyed *to the point that nothing is left to learn from* or is altered that it cannot speak to *humans* [xl]."

The disappearance of the world in which we actively relate and participate, and where we derive our subjectivity, would mean that we too implicitly and unconsciously define ourselves against the natural world, hence our own self-alienation. In other words, if the world becomes totally conceived as a resource to be worked upon by technology, then equally, humanity itself may come to conceive of itself in the same way, given that the destruction of the world by modern technology is equally the destruction of our own selves and of our subjectivity. The calculable manipulation of nature enters into the core of the self, the self becomes a calculative living project [xli], and everything else about the self is dissolved by the expansion of technological knowledge. This disappearance of the world and of human alienation from the world is where we find a kind of nihilism embedded in modern technology. Feenberg explains clearly this kind of nihilism brought about by modern technology when he says: "... a universe ordered simply by the will has no roots and no intrinsic meaning. In such a universe, man has no special ontological place but is merely one force among others, one object of force among others." [xlii]

Successful technological manipulation of nature enhances the instrumental theory of technology, which thinks to change the ontological meaning of the world while benefiting the tool user. This stance seems faithfully to follow Newton's third law of motion, which states that for every action there is an equal and opposite reaction. Applying this to our interpersonal relations we find love evokes love, mercy evokes mercy, and so on [xliii]. Every one of our acts returns to us in some form as feedback. The paradox of this is that when we act technologically on an object in the natural world, there seems to be very little feedback, certainly nothing proportionate to our impact on the object in question. However, this appearance is an illusion, the illusion of technology. Again Heidegger points out this illusion saying: "Meanwhile man, precisely as the one so threatened, exalts himself to the posture of lord of the earth. In this way the impression comes to prevail that everything man encounters exists only insofar as it is his construct. This illusion gives rise in turn to final delusion ..." [xliv]

The illusion that Heidegger describes blinds us to three basic reciprocities of technological action: the causal side effects of technology, changes in the meaning of our world and changes in our own subjectivity. However, Newton cannot be defied for long; in one way or another, the reaction will manifest itself. As modern technology grows more powerful it becomes increasingly important and increasingly difficult to ignore the negative environmental side effects that eventually will have repercussions on us as humans [xlv], not to mention the practical ones. It is impossible to ignore the dangers they create to the acting subject. Ignorance of the significance of Newton's scientific third law of motion for our relationship with technology is the illusion of modern times. Instead of correcting the illusion of technology, modern man takes that illusion for reality. He imagines he can use technology to conquer the world without consequence for himself. But only God can act on objects from outside the world, outside the system on which He acts. Technological action only exposes the actor; the illusion of godlike power in our relation to technology is very dangerous [xlvi]. We may strive all we want to make nature conform scientifically and technologically to our desires. In its deeper sense, it is not truly the conquest of nature we are engaged in if all we care about is redesigning ourselves in obedience to our wishes and desires. Furthermore, if in our actions we look only to what we want from the world, it is inevitable that we will do so only to realize that we have destroyed ourselves, since we are part of the technologically *enframed* world.

## 2. Critical Reflection

It is indubitable that the presence of advanced technologies in our lived-experience [xlvii] and in the natural world is an issue that calls for a deep reflection. It is itself an issue that challenges all of us by restructuring and reconstituting our being and perception of the world, calling for a re-affirmation of our responsibility, thus making itself a philosophical problem that merits a critical attention. Technology is "inside" us, is "inside our world" and it is our lived-experience; we live *through, with* and *in* it, particularly in our daily undertakings with the natural world [xlviii]. Today, we can no longer conceive of technology as something that is external to us. This

internal relation of technology is affirmed by the Spanish philosopher José Ortega y Gasset when he said: “man without technology is not man [xlx].” Technology has become an indispensable dimension of our being, and it is impossible today to think of being human, independent of our *being-with-technology*. However, the fundamental issue, which has been the concern of this article, is that, if our existence is intertwined with technology, then any attempt to regard it as a mere instrument used to attain stipulated effects is to underestimate its true nature.

Instrumental regard to technology has, for a long time, cultivated an uncritical attitude with respect to it, to the extent that we do not question the significance of nature in its interface with technology. We think only of what technologies can *do*, unable to reflect on what the same technologies can *undo* in our world [l]. Technological benefits seduce us into the deficient assumption, claimed, for instance, by Ortega y Gasset, that, as humans, we are essentially technological. According to Egbert Schuurman this kind of thinking fools us into considering ourselves more powerful today than ever before [li]. Furthermore, this kind of assumption, at its face value, considers modern technology as having no inherent problems. I consider this to be the illusion of modern man.

Technology challenges our responsibility in its many forms: on one hand, as indicated above, it has become an expression of our understanding of ourselves as masters of everything and, on the other hand, it is something that recreates us, fashioning new identities and reshaping old ones, thereby becoming a power over us as it undermines our asymmetrical relationship with the natural world. Our subjective responsibility, which is an essential characteristic of who we are and whom we take ourselves to be, is now directed by technology: our beliefs and desires, our experiences, our plans and goals, our visions of what we are, have been, and might yet become are all determinations of technology. In our desire for a better life, technology, to a great extent, determines, broadens and transforms our subjectivity. Given this reconstituting power of technology, a critical ontology [lii] of technology, particularly of its instrumental regard and embedded related problems, will have much to offer on the conception of the actual position we humans have in the technological world. We cannot conceive of technology as a mere instrument that brings us benefits; rather, as an internal relationship, it opens other new worlds of meanings, while acting as a medium for interpreting those new worlds. Heidegger says: “The power concealed in modern technology determines the relation of man to that which exists.” [liii] That is, technology determines our relation to nature and we cannot take this for granted.

Of course, from an instrumental viewpoint, we can think of various technologies we employ as carefully designed to do what we want them to do, which is to bring about a certain change, presumed to be good, in the lives of their users in their corresponding fields of concerns. When they are employed to do what they are meant for, their marvels are very great. Further they represent a fundamental characteristic of our modernity [liv] and critical dynamics of world systems, be they atmospheric, ecological, biological, radioactive, or for that matter cultural, or economic, increasingly bear the human imprint. Intriguingly, as we live in this complex and technologically-defined world, we rarely stop to think critically about the extent to which nature and ourselves are determined by the technologies we employ.

As more technologies are invented, we need to reflect on our relationship with them in terms of whether they properly serve nature and our purposes or not. We need to ask ourselves the basic question: To what extent do those technologies affect our relationship to the natural world? We cannot continue to perceive technology from a merely instrumental and external basis, since its domain extends beyond material artefacts to fundamental modes of assessment. As a matter of fact, the ecological nature of modern technology analysed in this article sets us on a *vigilant* position in relationship with it and with the natural world, particularly given the fact that the technological developments we experience in our world today do not necessarily mean our lives are improved and made easier. This is basically because, the idea of progress carries with it an inbuilt disputability due to technology’s elusive and inherently problematic character, where the dream of a wonderful and technologically determined future is progressively becoming a defining factor for modern man’s existence, whether we wish it or not. Furthermore, our uncritical engagement with various technologies which we conceive to be progress and the anxiety created by the obsession to own and use them have today become common symptoms of modern human subjectivity. Today, we are what we *do* to the natural world and what we *possess* of the natural world; the things we do and possess have become forms of self-presentation, so that we are defined by the framework of technological progress. However, as technology increasingly becomes the defining agent of nature and of our existence, the call for a critical, self-reflective stance toward it can help us to understand that whatever technology we conceive to simplify our lives, if it is not carefully thought through in terms of its ontological significance, will also complicate our lives together with the natural world detrimentally. We have to be conscious of the fact that technology in its transcendental operations is also an elusive phenomenon with serious ecological implications for humans. That is, despite its benefits, technology through its reconstituting of nature has the potential of complicating human life.

Even though to a certain degree we may seem to have lost our responsibility towards nature and our awareness of the meaning or wonder of things through technology, I also want to affirm another fundamentally important aspect of my argument in this article. It is the idea that science and technology in the modern world should be considered as essential phenomena of our being as humans and thus as a focus for metaphysical reflections in the modern world. Of course, from what I demonstrated, there is no doubt that technoscience allows entities to show themselves as calculable and orderable, revealing the impending loss of any meaningful references to the human subject as the source and end of the whole technological process of revealing and enhancement of the ontological significance of entities. But that should not prevent us from taking seriously this phenomenon as the framework through which we understand the modern world, nature and ourselves as those whom technology is purported to serve.

Taking the human subject and nature as the end of technology does not imply that we should conceive of our relationship with technology in a merely calculative and instrumental way, instead, we have to consider it a challenge to our subjectivity that is supposed to be responsible of nature as a form of self-manifestation. We have to recognize that the human subject in the 21<sup>st</sup> century, the era of scientific and technological explosion, is ontologically suffering from an inevitable clash: a clash of technological progress,

which should not only be conceived of as a clash of gain or loss. This clash of technological progress is primarily a matter of seeking for our authentic human responsibility to nature within the inevitable technological frame in which it is situated. It should be considered a metaphysical space for further and open reflections on nature-technology interface that will respect human search for authentic values in nature directly related to the meaning of our existence with nature as a whole spectrum for self-development. If we are to re-channel technology toward a more human and nature-oriented, then this clash of technological progress should not be regarded as an appendix in the whole critical issue of technology. Therefore, we cannot absolutize science and technology. In fact, if anything, we are challenged to educate ourselves to avoid believing in some things that are not necessarily true about science and technology, since on their own, they cannot solve all our human problems, if we do not change ourselves and our regard to them.

Even though, on a daily basis, we are in technology, we need also to assert other non-traditional human values that are equally important for our *dwelling* in today's world: religious, moral, cultural and environmental values. This is basically because without a renewed religious and moral framework to direct our development and give new purpose to the technological system, then technology (given its inability to cover every aspect of human life) may become the instrument of our own self-dissipation or destruction. That destruction, as we have seen, moves inexorably closer to the mechanization of humanity and nature. Without a personal moral framework to control technology and understand its ethical and ecological limits, we will go down a path of losing control of technology's direction, which is to serve humans and the natural world. But with the right value-system, we can also begin to reassert control over technology by directing it to properly serve our purposes in our search for the integral meaning of our existence in the natural world.

### 3. Conclusion

It can be concluded that modern technology is a complex phenomenon: it cannot be conceived of as either-or, but as *this-and-that*. We have to be *conscious* about our relationship with the environment; that we are beings who have the responsibility to direct our very lives, the lives of other beings and of the world that is now subject to scientific investigation and technological manipulation. Through this awareness of our role, we may take the responsibility of being authentic agents who not only think of themselves as technological beings, but also of the rightful ends of technology and the caretakers of the natural world.

Moreover, we should avoid having *uncritical and naïve stances to technology* and to believe that we humans have total control over technology. Such a stance could be right from a technical perspective, since many today have a technical knowhow of technological management. However, the story from an existential viewpoint is different. As Heidegger clearly argues, technology is an elusive phenomenon and it will always remain elusive. Even though we use technology for various purposes, and even if we design better technologies, as claimed by Feenberg, its elusive nature and totalising power will always remain, and this makes us incapable of mastering it. This is fundamentally because improved technologies have inherent dangers, like the dependency syndrome that I consistently alluded to in the article. Furthermore, as the ones claimed by technology, we leave no subject left to master it. Because of its elusive nature, as I endeavoured to explain in this investigation, technology has outgrown the individual's recognition and appreciation of nature as an essential component of our being. We have to *keep away from a blind and total surrender to technology* that could lead us to give up all possible efforts to respond to the technological monopoly. The profound implication of surrendering ourselves to a technological monopoly will only add more reductionism or minimalism in conceiving of our subjectivity and relation to nature in relation to technological reductionism. We are so accustomed and conformed to technology that we often give ourselves totally up to it in the name of security and a better life. However, this is not the only way; we can use technology and even admire it, without blindly accepting its imperatives, and, instead, direct it to human and nature friendly imperatives.

The essence is not to abandon any of the incredible inventions of the modern age (the role played by science and technology in solving human problems, changing human life for the better is great), but rather, to recognize their limits and limitations in relation to nature and humanity in general. As Heidegger argues, if we are to live in today's world, there is no way to be without technology; we cannot be independent of technology [lv]. Supporting this claim, Ellul once claimed that "it is not a question of getting rid of technology, but an act of freedom, of transcending it" [lvi] by going beyond the technical and instrumental frame of regard to it. To think that we can do away with technology is like doing away with our very selves, with our own nature, resulting into a self-contradiction and a self-defeating intent to make life liveable (meaningful) in a world where technology is an indispensable determining factor for human existence. The issue should be how we attend to technology; whether we are capable of re-channelling it to properly serve nature and us as part of the natural world; how we can actually go forward from this technological monopoly. I indicated the way forward, first by beginning with our own taken for granted attitudes toward technology, particularly to challenge our instrumental regard to technology and consider technology once more as an internal relationship that relates us to the world of our daily concerns.

It is equally fundamental to recognise that the underlined technological issues in this article affecting environment should lead us to a committed, open and consistent philosophical reflection on environment-technology relationships. I have analysed a misconceived regard to technology, where the modern subject is only going through a phase of feeling and acting that she is technological, and wishing to remain technological regardless of the ecological constraints technology causes. However, I do think and hope that over time, the modern subject will also regain a more balanced sense of technological equilibrium, whereby she will turn to other non-scientific and non-technological aspects of her being, to properly  *dwell*  in the natural world and to feel more at home with herself in the constantly changing technological world that calls for her active and subjective participation and judgment.

The summative point is that technology is neither totally good nor totally bad. Technology is paradoxical; it carries within itself both that facilitating and disabling ability. Technology constrains the natural world outside, making it increasingly difficult for us to understand our relationship to it and the recognition of ourselves as part of the natural world. There is need, therefore, to evaluate critically the dynamic and structural operations of technology. We have to assess our technological practices in their objectification

and control of nature in order not to turn us back on ourselves. Nothing that man has made should objectify him; man should be the end, but not a means to an end.

#### 4. References

- i. Andrew Feenberg, *Transforming Technology: A Critical Theory Revised*, New York: Oxford University Press, 2002, 8; William Barrett, *The Illusion of Technique: A Search for Meaning in a Technological Civilization*, New York: Anchor Press, 1978, 208.
- ii. Martin Heidegger, *The Question Concerning Technology and Other Essays*, New York: Harper and Row, 1977, 13.
- iii. Charles Guignon, *Heidegger and the Problem of Knowledge*, Indianapolis: Hackett Publishing Company, 1983, 161.
- iv. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 4.
- v. Andrew Feenberg, *Questioning Technology*, New York: Routledge, 1999, 202.
- vi. Andrew Feenberg, *Between Reason and Experience: Essays in Technology and Modernity*, London, Cambridge: The MIT Press, 2010, 193.
- vii. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 12-4
- viii. Martin Heidegger, "Letter on Humanism," in *Basic Writings: From "Being and Time" (1927) to "The Task of Thinking" (1964)*, ed. David F. Krell, London and New York: Routledge, 2011, 166.
- ix. Don Ihde, "Heidegger's Philosophy of Technology," in Robert Scharff and Val Dusek, *Philosophy of Technology: The Technological Condition An Ontology*, ed. Robert Scharff and Val Dusek, Oxford: Blackwell Publishing Ltd. 2003, 279.
- x. 'Enframing' is a particular way of approaching reality, a dominating and controlling one in which reality appears to be revealed only as raw material to be manipulated. This "frame" of modern technology is the network of positioning or setting-upon everything into a standing-reserve for maximum further use. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 16-19.
- xi. John Loscerbo, *Being and Technology: A Study in the Philosophy of Martin Heidegger*, The Hague: MartinusNijhoff Publishers, 1981, 130.
- xii. Trish Glazebrook, *Heidegger's Philosophy of Science*, New York: Fordham University Press, 2000, 245; Richard Rojcewicz, *The Gods and Technology: A Reading of Heidegger*, New York: The University of New York Press, 2006, 109.
- xiii. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 21.
- xiv. Albert Borgmann, *Technology and the Character of Contemporary Life: A Philosophical Inquiry*, Chicago: University Chicago Press, 1984, 182ff.
- xv. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 27.
- xvi. The life-world is the everyday world we live in with all its taken-for-granted assumptions; the world of our lived experience of the phenomena. Husserl describes it as "the world of immediate experience", "already there" and "pre-given" to us, of human concerns: of culture, art, sports, music, science, technology. Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*, Evanston: Northwestern University Press, 1970, 379ff.
- xvii. Iain Thomson, *Heidegger On Onto-theology: Technology and the Politics of Education*, New York: Cambridge University Press, 2005, 75.
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- xix. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 17.
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- xxii. David Kolb, *The Critique of Pure Modernity: Hegel, Heidegger and After*, Chicago: The University of Chicago Press, 1986, 125.
- xxiii. Andrew Feenberg, *Questioning Technology*, 184; Michael Zimmerman, *Heidegger's Confrontation with Modernity: Technology, Politics, Art*, Bloomington: Indiana University Press, 1990, 140.
- xxiv. Joseph Rouse, "Heidegger's Philosophy of Science", in *A Companion to Heidegger*, ed. Hubert Dreyfus and Mark Wrathall, Malden, MA: Blackwell Publishing Ltd., 2005, 184-6.
- xxv. Michael Zimmerman, *Heidegger's Confrontation with Modernity: Technology, Politics, Art*, 151.
- xxvi. The regime of the device paradigm is the expression Borgmann uses to refer to our technological epoch that is ruled by technological devices. The device paradigm is the formative principle of a technological society which aims above all at efficiency as the goal of any technological action. Albert Borgmann, *Technology and the Character of Contemporary Life: A Philosophical Inquiry*, 40ff.
- xxvii. <http://www.sfu.ca/~andrewf/paradoxes> 2010. The Ten paradoxes of technology described by Feenberg reflect on the reality of our technological world and the condition of the human subject in that world.
- xxviii. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 127.
- xxix. *Ibid.*, 16.
- xxx. *Ibid.*, 17.
- xxxi. Michael Zimmerman, *Heidegger's Confrontation with Modernity: Technology, Politics, Art*, 86-7.

- xxxii. Christopher M. Drohan, 'I Think Therefore Everything Is: A brief Phenomenology of the Spirit of New Technology', in *Semiophagy: Journal of Pataphysics and Existential Semiotics*, Vol. II (2009), 1.
- xxxiii. Don Ihde, "Heidegger's Philosophy of Technology," in Robert Scharff and Val Dusek, *Philosophy of Technology: The Technological Condition An Ontology*, 290.
- xxxiv. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 14-5.
- xxxv. Hannah Arendt, *The Human Condition*, Chicago: The University of Chicago Press, 1998, 151.
- xxxvi. Charles Guignon, *On Being Authentic*, London and New York: Routledge, 2004, 31.
- xxxvii. Michael Zimmermann, *Heidegger's Confrontation with Modernity: Technology, Politics, Art*, 163.
- xxxviii. Anthony Giddens, *Modernity and Self-Identity*, California: Stanford University Press, 1991, 164-5.
- xxxix. *Ibid.*, 66.
- xl. Victor C. Ferkiss, "Toward the Creation of Technological Man", in *Technology and Man's Future*, edited by Albert H. Teich, New York: St. Martin's Press, 1972, 111.
- xli. Anthony Giddens, *Modernity and Self-Identity*, 32.
- xlii. Andrew Feenberg, *Questioning Technology*, 184.
- xliii. Andrew Feenberg, *Transforming Technology: A Critical Theory Revised*, 181.
- xliv. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 27.
- xl. Langdon Winner, *Autonomous Technology: Techniques-out-of-Control as a Theme in Political Thought*, Cambridge, MA: MIT Press, 1977, 3.
- xlvi. Andrew Feenberg, *Transforming Technology: A Critical Theory Revised*, 181.
- xlvii. The lived-experience is a particular and unique kind of experience, lived by a person at a given time and condition, in a given place in her relation to the world. We may address the same phenomenon, but our experience of it is not the same, but rather, personal, since we have different worldviews. The lived experience is a pragmatic one and it implies the totality of human life. Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*, Evanston: Northwestern University Press, 1970, 343ff.
- xlviii. Don Ihde, *Bodies in Technology*, Minneapolis: University of Minnesota, 2001; *Ibidem*, *Technology and the Life-world: From Garden to Earth*, Bloomington: Indiana University Press, 1990, 72-80.
- xlix. José Ortega y Gasset, "Thoughts on Technology" in Mitcham Carl and Robert Mackey, *Philosophy and Technology: Readings in the Philosophical Problems of Technology*, New York: The Free Press, 1983, 293.
- l. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 4ff.
- li. Egbert Schuurman, *Perspectives on Technology and Culture*, Sioux, US: Dordt College Press, 1995, 18.
- lii. A Critical ontology addresses and analyses different attitudes to technology, particularly the instrumental regard, which only remains on the benefits of technology without a deeper reflection on its structural operations. It addresses ontological problems embedded in technology while advocating for our conscious and careful relation to technology, its reform and reconstruction.
- liii. Martin Heidegger, *Discourse On Thinking*, New York: Harper and Row, 1966, 50.
- liv. Modernity, in the context of this work, is the understanding that our experience of the world and our knowledge of it are all constituted and mediated by science and technology, and as the warrant for the validity of our existence that directs our actions and manner of relating to the modern world and to ourselves.
- lv. Martin Heidegger, *The Question Concerning Technology and Other Essays*, 156.
- lvi. Jacques Ellul, *The Technological Society*, New York: Vintage Books, 1964, xxxiii.