

A framework for research and initial propositions

What *is* technology: from ontology and epistemology to ethics

'Is technology neutral' is a question that has occupied the discourse on technology/technique throughout western history. For instance the Stoic philosopher Seneca (1st century AD) is usually held to have claimed that "no one is killed by a sword — the sword is merely the weapon of the killer". In fact Seneca is here only referring to a 'common belief', whereas he himself argued the exact opposite, namely that the tool or artefact "instigates" people into action and thus functions as an "antecedent cause". In other word, Seneca held that human artefacts/techniques are never neutral in any essential sense. Especially since the 17th century the common opinion within the academia/sciences began to advocate a neutrality conception of technology, a conception which was grounded in the conviction/suggestive claim that modern (techno)science was essentially neutral or value-free; it is only human action and sentiment that is value-laden, while seeing the facts of the world as they really are, is seeing them neutrally, disengaged. Hence the *method* of modern science was built upon an ideal notion of neutrality; the universal, disengaged, *method* of (techno)science would produce truth, as Bacon so aptly put it, "as if by machinery". *Might it perhaps be that this deeply engraved notion in modernity is one of the key reasons why technology has failed to be sufficiently politically thematised, i.e. understood to be, because of its fundamental neutrality, something that cannot as such be part of a value-laden political discourse? Is this why technology seems to be running, as it were, its own course?*

Although we within the working group strongly question the notion of technology's neutrality, this does not mean that we would be inclined to ascribe any independent agency or 'being' to technological devices; as if the devices themselves were responsible for any action. Rather, the problem with the notion of neutrality in relation to technology is, we would suggest, that it distorts our understanding of what technology *is*; how it interplays with and is embedded in human agency and desire. To make this a bit clearer one might contrast the neutrality idea with another general held notion, namely that the history of technology is coextensive with that of human kind: humans *are* tool using animals. Although these two notions are usually, and unthinkably, held to both be true they are nevertheless contradictory notions. *If* the development and usage of tools reciprocally is created by humans and co-creates the human species (shapes social, economic, material etc. dynamics) then there is no way in which we can think of technology without thinking of its embeddedness in the very structure of social/interpersonal reality and the trajectories it (specific technologies) opens up and points towards. The tool is then not a 'neutral object' that simply happens to be in the world, something which humans pick up and use in good or bad ways. Rather

tools/technologies are directly linked to and co-create the ways in which humans conceive, imagine, fantasise, etc. themselves as actors in the world and their relationship to others as well as their surroundings.

Furthermore, technology is quintessentially tied to knowledge, that is to say, to a know-how. Being so, any notion of technology's neutrality is also a notion of neutral or disengaged knowledge: a notion of *facts* of nature as neutral, as independent of our/the knower's *desire* to know(-how) and the social, political, economic etc. reality in which this knowledge is produced. Also, the neutrality idea of technology — the idea of the desire not only to know-how but to implement this knowledge — implicates and/or explicates a notion of the natural world — of the materials used for technological devices and the natural environment affected by technological/human intervention — as neutral 'stuff', as simply raw material for usage. This notion, and the technological development it has given rise to, has had grave environmental as well as social consequences. *What are the distortions and fallacies, or alternatively the advantages of such a conception? What is the truth of this knowledge?*

Such a 'modern secular' epistemological temperament with its science and technology — and social organisation more generally — is quite clearly in some kind of contrast with pre-modern and 'indigenous' epistemological and ontological conceptions. One might here for instance think of the myth of Prometheus and the moral charge embedded not only in the will to (technological) knowledge but also in the (natural) material which human know-how was to utilise. Nevertheless, such a contrast is perhaps more superficial than essential. For what is quite clear is that the alleged neutrality of modern technoscience and technological devices is itself a value, a value, one might say, on an ideological plane. In other words, the neutrality of technoscientific knowledge is bound to a certain imaginary of reason. Or; the notion of technological neutrality is bound to an imaginary, an ideological imaginary, of the potentials and imperative of human power: a vision of an imperative to fulfil and extend human (secular) desire and dominion unrestrictedly, indefinitely. This is, to be sure, a value that is scarcely neutral in any essential/general sense and, it should be added, comes with its own anxieties, fears and feelings of guilt, which are articulated and manifested, sometimes explicitly sometimes implicitly, in the different discourses of technology — like the ancients' disquietudes with technology were expressed in the myth of Prometheus.

Closely connected to the question of neutrality, technology, or rather the question of human power and the desire for power, has throughout western history affected how the demarcation or differentiation between the 'natural' and the 'artificial', 'human' and 'natural/non-human' norms, or, in post-Darwinian times, between the normative and the non-normative, ought to be drawn. Or perhaps even better put; technology/technique has not so much affected as created or substantialised this discourse. Be it how it may, the central issue here is that the question of technology is also a question, or rather

perhaps essentially, a question as to what it is to be human, a *living* being. *How then does this imaginary look like in the dominant discourse?*

Today, at least two different technological fields generate heated debates about the fate of this demarcation, namely synthetic biology (or genetic manipulation as it was formerly known) on the one hand and artificial intelligence and robotics on the other. Without much clarity as to how exactly we are to understand the relationship between the living and the 'made', the non-normative and the normative, and how technologies will shape our social and interpersonal realities, our self-understanding and the fate of the planet, the deepening of technological presence/dependency advance with horrific pace towards a future just as unclear and ambiguous as our current (mis)understanding of technology. It is then no surprise that our lack of clarity is strongly and passionately 'compensated' by, arguably, phantasmatic imaginaries of both utopian and dystopian kind: e.g. an AI takeover awaits us; or, the human will transcend her 'natural' limitations and become perfected, cognitively, morally, bodily and spiritually *through* technology. *What are the (phantasmatic) hopes invested in technology? What does the future really look like when we are able to honestly reflect on the confused state of our current predicament, without escaping to ideological compensations?*

The technological system/complex

One of our working suggestions is that especially modern technology forms a system or complex that must be understood, analysed and diagnosed as such. In other words, we are calling for in-depth reflections on how to understand and analyse the effects of technology. The urgent need for this is, as already noted, that especially both the public as well as the political perception of technology and its effects is confused and lacking in honest appreciation of the scope of the phenomenon.

What makes modern technology a system or complex? This is obviously one of the central issues that our project is set out to map and elucidate, but some preliminary working proposals should be noted. When an advance is made in one field of technology, either this technology or sub-parts of it are quite commonly utilised by other fields/technologies, hence expanding and opening up new possibilities and trajectories even there. Many of these instances are calculated and orchestrated by different institutions and 'players/stake-holders'; they represent a kind of 'synergetic' force at play in the technological system. One of the most influential and dominating 'synergies' we find is that between military and civil technologies/markets with their so-called 'spin off' and 'spin in' dynamics.

Yet while a portion of the effects of technology is orchestrated and under control, the technological system yields effects beyond conscious intention and control: a scope of

effects which we can scarcely hope to predict. The difficulty with the unforeseeable effects of technology (and human action more generally) is not only that unexpected consequences result from specific technologies. The difficulty goes much deeper. It is only today that we can see what kind of a world follows from the technique of written language, or from printing technology. Yet the effects will not stop with us, with our time, but will continue living beyond us and our understanding, influenced by the decisions and actions we take.

Given that technology (as a subspecies of human action) always involves a risk, a leap into the unknown, a central question is then how we are to think of our responsibility for technology's effects and how this should be politically thematised: e.g. how can this risk, this leap into the unknown be squared with democratic deliberation and freedom? Can we at all imagine democracy, equality, fairness and freedom with the kind of technological system we have today? And, what is democracy, equality, freedom?

Another important facet of modern technology is that it is centrally a complex exchange and distribution of knowledge (know-how), political power, material resources, energy, labour and finance. That is to say, each technological device is more or less always a composition of subset technologies, materials, energy and labour originating from around the world and coordinated together. This exchange and distribution has its winners and losers and the effects of production span from the environment to the social and political sphere. In other words, technological devices should not, cannot, be understood as independent 'objects', but must rather be understood as a complex/system. Here again we can note the immense complexity of modern technology and the challenge of understanding and analysing the effects of it. *What are the parameters that must be taken into account? What does fair, non-oppressive and sustainable technologies look like when a clear and honest assessment is made?*

Finally, modern technology has the character of a system in that the implementations of modern technologies tend to generate a need for more technology, a deepening of technological dependency. A quite explicit example of this can be found in the case of modern industry. The industrial revolution, centrally a technological-economic reorganisation of society and the natural world, utilised technology to create an unprecedented increase in production and productivity. Fossil fuel was quintessential for the powering of the machines of industry. As so happens, industrial technology is not only very efficient but also environmentally destructive, deriving on finite resources. Lessening or even rethinking the culture of production — and nowadays the culture of consumption — seems never to have been an option. Instead new techniques, both social and technological are introduced in order to sustain ('fix') and develop/intensify the *status quo*. Although perhaps not a universal rule, modern technology seems to incite the need for more technology; deepening the dependency and hence the vulnerability of our social organisation.