



Technological Determinism's Enduring Relevance Today

Joseph Martin M. Jose
De La Salle University, Manila
joseph_martin_m_jose@dlsu.edu.ph

Abstract: The problem of *technological determinism* is a classic one in philosophy of technology. Roughly, the problem is whether or not technology determines human affairs (cultural, political, economic, scientific, etc.) as well as changes in society. Technological determinists affirm that technology determines human affairs, while anti-technological determinists deny it. However, being a classic problem, philosophers and non-philosophers alike think that addressing questions posed by the problem of technological determinism is already irrelevant, if not obsolete. I argue, however, that with the emergence of new technologies, the relevance of philosophy of technology's classic problem of technological determinism remains enduring. I shall argue for such claim by showing (1) how addressing the problem of technological determinism can shed light on (a) the long-standing disparity between historians of technology and philosophers of technology, and on (b) the status and relationship of "science" and "technology" as discussed in philosophy of science. In addition, I shall demonstrate (2) the societal relevance of technological determinism (a) in terms of human responsibility in technology-use, and (b) in terms of approaching recent technologies such as the Internet. Lastly, in line with this year's congress theme, I shall conclude this paper by showing how thinking about technological determinism is crucial in our efforts to build resilient, innovative, and sustainable societies today.

Key Words: Technological Determinism; Philosophy of Technology; Technology's Agency; Human Agency; Human-Technology Relationship

1. INTRODUCTION

The problem of *technological determinism* is a classic one in philosophy of technology. It has been accompanying and bothering the discipline since its inception in the 20th century. Roughly, the problem revolves around the idea that technology determines social, cultural, political, economic, scientific, etc. changes in society. The problem has two major aspects: the problem of *technology's agency* and the problem of *human agency*. The former deals with technology's capacities, namely: (1) its capacity for autonomy, (2) capacity to have its

own logic and "will," and (3) capacity to determine, influence, or direct. Thus, for this major aspect, the questions asked are: "Is technology autonomous?" "Does technology constitute a power or force of its own, beyond the control of its human creators?" "Does technology possess a logic or (more metaphorically) a will of its own?" "Does technology determine rather than serve human intentions and purposes?" (Scharff & Dusek, 2014, p. 426). Given those capacities, as a consequence, "does technology bring about social and cultural changes?" (Misa, 2013, p. 13). On the other hand, the problem of human agency deals with the capacity of humans to shape technological products and processes, control



technologies, and shape sociotechnical systems. Such problem asks the following questions: "Can humans shape technological products and processes?" "Do humans have control over technologies?" "Can particular groups of people shape their sociotechnical systems?"

To answer in the affirmative on the questions about technology's agency or capacity is to answer in the negative on the questions about human agency. In other words, to affirm that technology has the capacity to determine socio-cultural changes is to deny human beings of agency. The converse applies, to answer in the affirmative on the questions about human agency is to answer in the negative on the questions about technology's agency and capacity. In other words, to affirm human beings' control, and power over technologies is to deny technology of its autonomy, logic, and capacity to determine.

However, being a classic problem, philosophers and non-philosophers alike think that addressing questions posed by the problem of technological determinism is already irrelevant, if not obsolete (Green, 2010). I argue, however, that with the emergence of new technologies, the relevance of philosophy of technology's classic problem of technological determinism remains enduring. I shall argue for such claim by showing (1) how addressing the problem of technological determinism can shed light on (a) the long-standing disparity between historians of technology and philosophers of technology, and on (b) the status and relationship of "science" and "technology" as discussed in philosophy of science. In addition, I shall demonstrate (2) the societal relevance of technological determinism (a) in terms of human responsibility in technology-use, and (b) in terms of approaching recent technologies such as the Internet. Lastly, in line with this year's congress theme, I shall conclude this paper by showing how thinking about technological determinism is crucial in our efforts to build resilient, innovative, and sustainable societies today.

2. TECHNOLOGICAL DETERMINISM'S ENDURING RELEVANCE TODAY

Now, there are several reasons why addressing and re-examining the problem of technological determinism is relevant even today. For one, the problem of technological determinism constitutes one of the many things that historians of technology and philosophers of technology disagree about. Scholars, such as Thomas Misa (2013) for instance, usually use the issue of technological determinism as one of the defining factors that contributes to the disparity, separation, and disagreement between these two groups of thinkers. Historians of technology are said to be anti-technological determinism. "Overall, historians conceptualize technology as contingent, constructed and contested" (Misa, 2013, p. 10). Philosophers of technology, on the other hand, are most open in entertaining the idea of technological determinism.

Therefore, addressing the problem of technological determinism at present has implications in the disparity between historians and philosophers of technology. It is because if we are able to resolve the issues surrounding the problem of technological determinism, then, in a sense, we can help contribute in settling the disagreements between these two groups of thinkers. The classic problem of technological determinism, therefore becomes very relevant and interesting.

The same is true for the second reason. The problem of technological determinism in philosophy of technology has implications in philosophy of science. Specifically, it has bearings on the status and relationship between science and technology. A number of scholars claim that the contents, methods, and aims of science are quite different from those of technology, thereby demonstrating the disparity between the two. James Feibleman, for instance, argues that the aim of science is *to know*, and to formulate universal laws. It deals with abstract idealized objects. On the other hand, technology aims *to do*. It strives for empirical



DLSU RESEARCH CONGRESS 2020
"Building Resilient, Innovative,
and Sustainable Societies"
June 17-19, 2020



generalizations, and deals with concrete objects in particular contexts (Boersema, 2009).

This distinction rests on a more fundamental distinction between "pure science," "applied science," and "technology." Feibleman argues that applied science is nothing but an application of theoretical science and is not another label for technology. It is neither a middle ground of pure science and technology. Rather, applied science is a form of science and should not be confused with technology (Boersema, 2009). It is because technology is not an applied science. Technology existed even before science, in a sense that we have been smelting metals even before we are able to understand properties of metals *via* chemistry. Therefore, technology is conceptually and historically rooted from a different source, and such a source is not science nor applied science (Boersema, 2009).

Now where does the problem of technological determinism picture in such debate? One position in technological determinism is that of Jacques Ellul who argues that technology is autonomous from major aspects of our lives such as science, state, politics, economics, religion, etc. As such, technology has the capacity to determine science. And if it has such capacity, then science depends on technology (Ellul, 2014). Now, examining Ellul's position can actually shed light on the status of the relationship of science and technology because if we are able to show that technology is autonomous, and that science does depend on technology; thus affirming Ellul's technological determinism; then indeed Feibleman might be mistaken in his claim. The point here is that findings on technological determinism have implications in debates in philosophy of science.

But the most important reason for its relevance and interest lies in its societal aspect and importance. It is because scholars agree that technological determinism is the default and common sense view of folks when confronting technologies. It is the view or model that makes most sense to people. As Sally Wyatt (2014) writes,

The simplicity of this model is, in large part the reason for its endurance. It is also the model that makes most sense of many people's experience. For most of us, most of the time, the technologies we use every day are of mysterious origin and design. We have no idea whence they came and possibly even less how they actually work. We simply adapt ourselves to their requirements and hope that they continue to function in the predictable and expected ways promised by those who sold them to us. It is because technological determinism conforms with a huge majority of people's experiences that it remains the "common sense" explanation. (pp. 458-459).

However, the problem with such default position and common sense view is that technological determinism provides no space for human choice, hence for human freedom. When technology determines such freedom, humans can neither be totally praised nor blamed for technology-use. In other words, technological determinism denies humans of responsibility for technology-use. Wyatt (2014) elaborates that,

One of the problems with technological determinism is that it leaves no space for human choice or intervention and, moreover, absolves us from responsibility for the technologies we make and use. If technology are developed outside of social interests, then workers, citizens, and others have very few options about the use and effects of these technologies. This serves the interests of those responsible for developing new technologies, regardless of whether they are consumer products or power



DLSU RESEARCH CONGRESS 2020
"Building Resilient, Innovative,
and Sustainable Societies"
June 17-19, 2020



stations. If technology does indeed follow an inexorable path, then technological determinism does allow all of us to deny responsibility for the technological choices we individually and collectively make and to ridicule those people who do challenge the pace and direction of technological change. (p.459).

Therefore, both the benefits and dangers of technological progress are not at all in our hands. Not being able to do anything about such a progress, however, can be very dangerous considering that,

Technological progress appears to bring not only the goods of increased wealth, reduced physical labor and extended lifespan but also the more problematic, unintended and not easily controlled consequences of alienation, bureaucratization and intensified decision-making – not to mention environmental pollution and transformation. (Mitcham & Waelbers, 2013, p. 368).

This again only goes to show that all the more there is really a pressing need to re-consider and re-examine this classic problem of technological determinism in philosophy of technology. Add to this is the presence of such a default position in recent scholarly literature on recent technologies such as the Internet.

Scholars of Internet studies in general and philosophy of Internet in particular seems to be operating on an unreflected and uninformed stance on how they approach Internet technology. There is

¹ Durbin (2000) writes, "For me, the primary concerns about technology that gave rise to philosophy of technology were practical – even political. Philosophers and social commentators were worried about negative impacts of nuclear weapons systems, chemical production

a prevalence of an unquestioned assumption, an assumption that operates on technological determinism. Let us take a case in point for us to see the gravity of the current scholarly situation. The entrance of Internet technology in China has spurred debates among scholars on the effect of such technology in the culture and values of the nation. For instance, Mary Bockover (2003) in her "Confucian values and the internet: A potential conflict" argues that China should not be pressured by critics to fully adopt and use the technology of the Internet. It is because the Western (American) first-world value of autonomy with its accompanying ideas of consumerism, free expression, equal opportunity, and free trade of the Internet are in conflict with the long-held Confucian values of the people. Now, this on-going debate seems to rest on the assumption that Internet technology has the power to affect and modify Chinese values and that the Chinese people cannot do anything about it. It is a clear manifestation of subscribing to technological determinism. Indeed, "assumptions of technological determinism often underlie popular perceptions of the Internet in China" (Yang, 2009, p. 109).

Therefore, once again we are reminded of the urgency of addressing and re-examining technological determinism in our contemporary era for it somehow "dictates" the reasoning and argumentation of many scholars of Internet studies in the way Internet technology is understood and analyzed. If we are not wary of their implicit use of technological determinism, then we might end up overemphasizing the threats of Internet technology to cultures such as that of China, and overlook Internet's other non-threatening aspects.

Finally, true to the original spirit of philosophy of technology which, according to Paul Durbin (2000), is practically and politically inclined,¹ the issue of technological determinism – re-surfacing because of new technologies such as information communication technologies and

systems, the mass media and other (dis)information systems (among others) on contemporary life in the Western world – including negative impacts on the environment and on democratic institutions." (p.38).



artificial intelligence – needs re-examination and re-consideration. The problem of technological determinism, indeed, remains germane. As Robert Heilbroner (2014) writes,

What other political, social, and existential changes the age of the computer will also bring we do not know. What seems certain, however, is that the problem of technological determinism – that is, of the impact of machines on history – will remain germane until there is forged a degree of public control over technology far greater than anything that now exists. (p. 447).

3. CONCLUSION

From the foregoing we have shown that, indeed, the relevance of thinking about and addressing the classic problem of technological determinism in philosophy of technology remains enduring today. We have demonstrated such relevance by showing how resolving the problem of technological determinism has implications in fields such as history of technology, philosophy of technology, and philosophy of science. In addition, we have concretized such relevance in the social realm specifically on how important it is to question the default position of folks regarding technology-use which is inclined towards technological determinism, and how essential it is, as well, in approaching recent technologies such as the Internet.

Allow me to conclude this paper with an insight on how technological determinism is crucial in our efforts to build resilient, innovative, and sustainable societies today – in line with this year's congress theme.

Our contemporary time is a witness to various calamities in their extremes such as earthquakes, typhoons, droughts, forest fires, volcanic eruptions, among others. Disasters brought about by human beings, which unfortunately affect

non-human beings, are also being experienced such as major fires, explosions, machine and transportation accidents, release of toxic substances, nuclear and radioactive disasters, etc. And as this natural calamities and human-made disasters are part and parcel of our everyday *being-in-the-world*, we inevitably have to face them and their effects (Abram, 1996). We have to confront natural calamities' effects on people and communities such as loss of livelihood, loss of homes, and even loss of lives. We have to deal with human-made disasters' threats to society such as health hazards and natural environment hazards.

Now, the prevailing proposed solution in order to face and address these effects of natural calamities and human-made disasters is to craft resilient, innovative, and sustainable developmental approaches. And one of the ways by which society realizes this solution is through technologies that will help us prevent and mitigate the debilitating effects of calamities and disasters.

However, in our quest for such a resilient and innovative society, I think it is important that we also reflect on our fundamental relationship with technology especially that it is a fact that human-made disasters are brought about by technologies themselves. In reflecting about our relationship with technology, the classic problem of technological determinism arises. And we cannot help but ask the same questions that thinkers asked in the 20th century when philosophy of technology was simply a budding field. Now, how does technological determinism picture in our quest for resilient and innovative societies in terms of technology-use? I think our answer to the problem of technological determinism has crucial implications. If indeed it is true that technology determines our lives and that we have no power in the face of technology, then we cannot help but be in despair for the disasters brought about by technology be it physical or existential. Technology determining our lives strips us of our freedom and responsibility. On the other hand, if technology does not determine our lives, thereby making us humans free and responsible for our creation and use of technology, then there is so much hope we can gather from the fact that we have



the power to make technology our mean towards desirable ends such as a resilient and innovative society.

Indeed, the latter implication is more palatable than the former. But the former, however, also has some wisdom to share. Such a gloomy implication may also propel us to re-think the immense role and value we have placed in technology in our quest for a resilient and sustainable society. It may have been the case that we have placed so much trust in the power and capacity of technology and have forgotten that, despite the fact that technology may determine our lives, it is definitely not the be all and end all of our quest for a more sustainable, innovative, and resilient future.

4. ACKNOWLEDGEMENTS

The author wishes to thank Dr. Robert James Boyles, Ms. Veniz Maja Guzman, and the two anonymous reviewers for their valuable insights, comments, and suggestions on this paper. The author also wishes to thank Ms. Hannah Sophia Jose for her patience and diligence in editing the pre-recorded video presentation of this paper.

5. REFERENCES

- Abram, D. (1996). *The spell of the sensuous: Perception and language in a more-than-human world*. New York: Vintage Books.
- Bockover, M. (2003). Confucian values and the internet: A potential conflict. *Journal of Chinese Philosophy*, 30, 159-175.
- Boersema, D. (2009). *Philosophy of science: Text with readings*. New York: Pearson.
- Durbin, P. (2000). Philosophy of technology: Retrospective and prospective views. In E. Higgs, A. Light, & D. Strong (Eds.), *Technology and the good life?* (pp. 38-49). Chicago: The University of Chicago Press.
- Ellul, J. (2014). The "autonomy" of the technological phenomenon. In R. Scharff, & V. Dusek (Eds.), *Philosophy of technology: The technological condition (an anthology)* (2nd edition) (pp. 430-441). West Sussex: Wiley-Blackwell.
- Green, L. (2010). *The internet: An introduction to new media*. Oxford: Berg.
- Heilbroner, R. (2014). Do machines make history? In R. Scharff, & V. Dusek (Eds.), *Philosophy of technology: The technological condition (an anthology)* (2nd edition) (pp. 442-448). West Sussex: Wiley-Blackwell.
- Misa, T. (2013). History of technology. In J.K.B.O. Friis, S.A. Pedersen, & V. Hendricks (Eds.), *A companion to the philosophy of technology* (pp. 7-17). West Sussex: Wiley-Blackwell.
- Mitcham, C., & Waelbers, K. (2013). Technology and ethics: Overview. In J.K.B.O. Friis, S.A. Pedersen, & V. Hendricks (Eds.), *A companion to the philosophy of technology* (pp. 367-383). West Sussex: Wiley-Blackwell.
- Scharff, R., & Dusek, V. (2014). Is technology autonomous? In R. Scharff, & V. Dusek (Eds.), *Philosophy of technology: The technological condition (an anthology)* (2nd edition) (pp. 426-429). West Sussex: Wiley-Blackwell.
- Wyatt, S. (2014). Technological determinism is dead; long live technological determinism. In R. Scharff, & V. Dusek (Eds.), *Philosophy of technology: The technological condition (an anthology)* (2nd edition) (pp. 456-464). West Sussex: Wiley-Blackwell.
- Yang, G. (2009). The internet as cultural form: Technology and the human condition in China. *Knowledge, Technology & Policy*, 22, 109-115.