Ignorance is Risk: The Ethics of Developing Information Technologies as Forms of Life

With the integration of new forms of technology into societal and academic value systems, a tension has emerged as to whether those who create information technologies should be held morally responsible for the consequences their creations have on existing and emerging ways of life. Drawing on the work of Floridi (2013) and Winner (2014), I argue that researchers and scientists should be held morally responsible for considering the potential repercussions of their work on others' welfare, both before and after the technological system is integrated into social structures. To support this claim, I consider two ways in which technological innovations reshape our value systems and social worlds; first by creating new kinds of activities as well as ways of life, and second, by informing our conditions for moral and epistemic agency. In light of these points, additional moral responsibilities and dimensions of care ought to be assumed with the operation and creation of information technologies (and other technological innovations). These moral responsibilities should account for how, as a vital part of the infosphere, information technologies reshape our reality by dictating the bodies of information one is exposed to. Using Langdon Winner's concept of technological somnambulism, it is further clear that those living in the infosphere remain vulnerable and unaware of the exact ways technological innovations re-ontologize our world.

Thus, developers, engineers, and CEOs must proceed cautiously when crafting new technological innovations and artificial tools – even when the specific consequences are unpredictable or uncertain.

With the recent verdict of the landmark K.G.M v. Meta et al. case in the Los Angeles Superior court, Meta, Instagram, and YouTube CEOs have been deemed liable for damage done by their apps to the plaintiff (Duffy, 2026). Combined, the companies were ordered to pay 3 million in compensatory damages (eg. mental health and wellbeing) (Duffy, 2026). Notably, this is not the first case filed against these tech companies. K.G.M v. Meta et al. represents only one of over 1,500 cases mounted against these social media companies. The legal push then, (which some have termed as "big tech's Big Tobacco movement") for social media companies to face consequences for prioritizing engagement over user safety, appears to be gaining traction. In this case, Meta et al. faced legal consequences for designing their tech with the intention of attracting young, vulnerable users to technological features "despite employees and 18 experts raising concerns that they could be harmful" (Duffy, 2026).

As new information distribution technologies and forms of artificial intelligence become more integrated into our social structures, value systems, and everyday lives, various philosophers of science (such as Heather Douglas (2003) and Eli Talbert (2019)), have considered if researchers should be held

morally responsible for their technological and scientific innovations. Traditionally, researchers have taken on responsibilities in proportion to the various health and/or ethical risks that come from their scientific and technological innovations. When the power of science and technology changes (through various developments or individual technologies), so too does our conceptualization of how creators of these systems ought to handle this newfound power. With technological innovations, researcher responsibility can be derived from the ways that information technologies and various forms of life mutually reshape each other. However, there remains the question of how researchers ought to account for the impacts their information technologies have on existing ways of life. On this topic, I argue that researchers and scientists should be held morally responsible for retrospectively and proactively considering the possible repercussions of their work and thus, must proceed with caution when developing new technological innovations and artificial tools (even when the specific consequences are unpredictable or uncertain). To support my position, I first explain how technological innovations substantially reshape our social world and its values; first by generating new kinds of human activity and forms of life and second, by informing certain conditions for moral and epistemic agency. To identify some of the ethical implications of the embeddedness of technological innovations in our social world, I consider how information technologies (as an expression of the infosphere), reshape our understanding of reality by moderating the societal realities to which one is exposed. Using Winner's

(2014) concept of technological somnambulism, I then consider how those living in the infosphere have remained unaware of the exact ways our technological innovations are re-ontologizing our world.

If we consider the substantial power and influential nature of technology as a form of life, it seems that technological innovations have an ethical dimension that demands further moral consideration. More specifically, the profound ethical consequences of technological innovations necessitate that additional obligatory moral dimensions of care come with the operation and development of information technologies (and other technological innovations). It is the developers, scientists, and others creating these informational technologies that ought to be held morally responsible for their creations – especially if we want them to proceed with the utmost care when constructing these technologies.

Moral Responsibility

To consider if and how researchers should be held morally responsible for the impacts of their innovations on these forms of life, it is first important to know what I mean by 'moral responsibility'.

Typically, moral responsibility is understood as the reasonable attribution of certain powers and capacities used by individuals to act in a manner deserving of praise or blame (Talbert, 2025). In everyday speech, moral responsibility is often used to specify that one has an obligation to act (or not act) in a certain manner given a set of circumstances (Talbert,

2025). Notably, the capacities and powers required for moral responsibility are not the same as those required for causal responsibility. An example of this distinction is drunk driving. Since a drunk driver is intoxicated and thus, not completely aware of their actions or conscious as to the decisions they make in operating the vehicle, they are still deemed morally responsible for any harm they could cause while under the influence. Since the driver made the conscious decision to get on the road without alcohol in their system, they are held morally responsible for their actions, even if they did not consciously cause harm to others without alcohol in their system. In this sense, moral responsibility involves considering if one bears the appropriate relation to their actions required to be held morally accountable for their consequences (Talbert, 2025).

For my purposes, moral responsibility is gauged based on the extent to which an act reflects attitudes of goodwill, esteem, or indifference towards others (Talbert, 2025). When interacting with others, we often expect them to possess a certain amount of due regard for themselves as well as our own wellbeing (Talbert, 2025). In this sense, assessing moral responsibility involves determining whether the appropriate amount of care for another's welfare has been taken. The degree to which an individual ought to care for another's wellbeing depends on a variety of factors, particularly if an individual is aware they are performing a certain action and the potential ways in which this action could affect others and the world around them (Talbert, 2025). In this case, engineers, developers, CEOs, and other top executives responsible for creating technological innovations are

(as innovators capable of creating complex and mechanized systems of cause and effect) competent enough to be conscious of the impacts their actions have on themselves and others. With this awareness comes an expectation that those responsible for creating technological innovations should reflect attitudes of esteem, care, and goodwill for the individuals to which their technologies are directed.

Technological Innovations Enabling New Forms of Life

Technology substantially reshapes the social world and its values by generating new kinds of human activity and thus, new forms of life. Winner explains the relationship between technology and human activities by arguing that we create technological systems and tools to primarily support existing activities and ways of life (Winner, 2014, p. 250). By supporting our current activities, technologies play an active role in shaping developing endeavors (Winner, 2014, p. 251). For example, when the carriage evolved technologically into the automobile, drivers no longer needed to maintain, feed, or house their horses. Thus, technological innovations can alter longstanding, daily engagements (like keeping livestock) and developing activities (like driving). In this way, technology does not just change our social lives and activities; our social lives and activities also change with that technology (Winner, 2014, p. 251). If (according to Winner) social activities and technologies mutually shape each other to the extent that they completely change how we (as individuals and social groups) go about our everyday lives, it seems that the relationship between technologies and our

activities can generate new 'forms of life' entirely. In the case of the automobile, cars created completely new markets (like car dealerships), changed city infrastructure (by taking us from dirt roads to highways), and created new kinds of dangers (like car accidents) that we needed to protect ourselves from.

Importantly, new forms of life come with new dangers that demand moral consideration. With the new risk of car accidents, there are ethical risks and obligations that come with the conduct of drivers towards pedestrians, other drivers, and between institutions and drivers or their vehicles. For example, when an accident occurs, drivers have a moral obligation to check on the condition of the other driver. While driving, vehicle operators have a moral and ethical responsibility to remain conscious of pedestrians as vulnerable parties that could be seriously injured or killed if they use the car (or technological innovation) in a particular manner. Thus, technological innovations can generate new forms of life by allowing for certain kinds of social worlds, activities, and moral values or considerations that would not be practically (or even conceptually) possible otherwise.

Technological Innovations, Moral and Epistemic Agency

Since technological innovations can generate new kinds of activities and ways of life, I argue that technology can and does impact our sense of moral and epistemic agency. More specifically, some technologies can become a condition required for certain kinds of moral and epistemic agency. This point is supported by Winner (2014), who argues that human agents alter and understand everyday activities differently as

technologies enable or restrict certain kinds of actions (p. 255). If we, as moral and epistemic agents, believe that our moral and epistemic agency prevents us from engaging in certain kinds of activities, we obviously will not engage in them. Thus, if technological systems become necessary structures to support and develop new activities, then certain technologies are required as a basis to exercise certain kinds of moral agency and authority as knowers. Even if we have the moral and epistemic agency required to produce systems of artificial intelligence (like ChatGPT), we must first have the computational systems needed to produce these technologies. These computational systems are required to produce the kind of digital information and spaces where we create and morally evaluate knowledge agency in the first place. Therefore, our ability to exercise certain kinds of moral and epistemic agency is conditional to the various technological systems that a particular social activity requires.

Thus far, I have established how technological innovations can impact our descriptive understanding of certain kinds of moral and epistemic agency. But how do technological innovations impact our normative understanding of particular kinds of moral and epistemic agency? The most obvious way that technological innovations can do this is through broadening our theoretical conceptions of possible moral and epistemic action. Since technological innovations provide new kinds of moral and epistemic agency, they force us to redefine what it means to have moral and epistemic agency by redefining the limits of our power as independent epistemic and moral agents.

Additionally, it is important to remember that these forms of epistemic and moral agency enabled by technological innovations require both human and non-human actors. For instance, with ChatGPT, both a human (as a moral agent) and the software (as either a passive tool or a moral agent in itself) are required if we want to ask the software to produce a summary of a novel, give us information on a film, or write a precis of an article. Information technologies (and other technological innovations) then can impact our normative understandings of moral and epistemic agency by forcing us to reconsider our individual power as moral and epistemic agents. Most importantly, the very nature of moral and epistemic agency enabled by information technologies requires us to think of moral and epistemic agency as a collaboration between non-human and human actors – whether both are moral agents or information technologies are simply passive tools. Regardless of whether we broaden our scope of moral and epistemic agency, or whether we decentre human agents as capable of independently reshaping the moral and epistemic terrain of information technologies, technological innovations have the power to significantly reshape our normative conceptions of epistemic and moral agency.

The Ethical Risks of Information Technologies as a Form of Life

Since technologies are so deeply embedded in our social world, values, and understandings of moral and epistemic agency, they present new kinds of risks to a variety of existing ethical

standards. To examine these ethical risks, I draw on Floridi (2013)'s notion of the infosphere, which can range from being the environment formed by all the informational entities or agents in our social world, their qualities, and interactions, to being "synonymous with reality" (p. 6). Importantly, information technologies are a vital part of the infosphere. By determining and making accessible the very knowledge or intellectual materials that make up the infosphere, informational technologies (in many ways) have the power to determine the topics of discussion or values in the infosphere. It is also important to note that in the infosphere, something is 'real' in any meaningful way when it is recorded (Floridi, 2013, p. 6). When recording or informational technologies change in response to the information circulating in the infosphere, these artificial systems re-define the very substance of the infosphere. In other words, information technologies are actively restructuring and fundamentally transforming the nature of our informational environment and thus, reality in this technologically-based form of life. This restructuring is referred to by Floridi (2013, p. 6) as re-ontologizing.

To illustrate my point, imagine news platforms. As a larger technological system, digital news agencies have the power to distribute and promote national and international video and audio media and, in fact, can produce new information by combining these various technological sources. By sharing information and updates on international affairs (or those that are beyond viewers' immediate visual scope), these platforms are capable of re-defining our perception of the dominant

relationships, tensions, and issues both nationally and internationally. Moreover, as illustrated in various news platforms in the United States, the articles, video footage, and interviews distributed to viewers can re-ontologize the viewers' sense of reality so much so that tensions can emerge between individuals whose realities have been re-ontologized in vastly different ways. In this sense, information technology's power to re-ontologize individual and collective realities also means these technologies can, in the very least, emphasize the relevance of some realities over others or even cause some in the infosphere to deny the existence of certain realities in the first place.

If the existence and significance of a reality is contingent on it being technologically recorded and validated, then our ethical frameworks can be significantly impacted by (and reliant on) our relationality to technological innovations. For beings that are not embedded in technological or recording systems, it may be unclear if or how these ethical standards ought to be applied outside of their original context. Thus, one of the substantial ethical risks that comes with embedding informational technologies as a way of life is that it can cause our experience of reality and value to be conditional on being recorded or connected to other technological systems or pieces of information.

Another substantial ethical risk presented by technologies as forms of life is related to their capacity to re-ontologize our world at an increasingly rapid rate. For some information technologies, their capacity to re-ontologize other systems of operation is far greater than our ability to understand the larger

consequences of these ontological changes in the infosphere. This risk is defined by Winner as technological somnambulism, which has caused us to "willingly sleepwalk through the process of reconstituting the conditions of human existence" (Winner, 2014, p. 254). When we consider this concept in the context of information technologies, a significant ethical risk of having technology as a form of life becomes obvious. If the re-ontologization of the infosphere makes it easier to access, process, and distribute information, and if we are not fully conscious of the consequences of some of our technological innovations, it seems that by increasing our rate of technological innovation, there is the risk that our rapid rate of technological innovation could inhibit our ability to clearly understand the consequences of these innovations. Though technological somnambulism is not inevitable, it should also be noted that it is not always immediately clear which technological innovations have consequences that we can predict accurately. Furthermore, because of the relational nature of the infosphere, technological somnambulism could indirectly impact a variety of technological systems (or broaden the gap between what we are actively doing and understanding the impacts of our immediate action). Thus, rapid re-ontologization is one notable risk that emerges when technologies constitute forms of life. If the nature of the infosphere changes at a rate that exceeds our ability to evaluate the ethical implications of ontological developments, it seems unlikely that we will be able to consider the ethical consequences of the changing data included in the infosphere. Without access to this information, redirecting innovation or

taking preventative measures to avoid undesirable social consequences of rapid technological development seems impossible. In the very least, it would require predictive powers that we do not yet possess.

Moral Responsibility for Technologies as Forms of Life

So far, I have considered how technological innovations have clear and powerful social effects and therefore have an ethical dimension. I have argued that the technological systems we create can reshape moral agency, epistemic agency, our sense of reality, value, and informational ontologies. But how do the direct and indirect ethical risks presented by information technologies suggest that researchers should be held morally responsible for their technological creations?

When we create devices that have profound moral impacts (and in fact, could be moral agents themselves), we (as moral agents) often take on additional responsibilities proportionate to these consequences. A common example of this relationship between moral responsibility and ethical impact is seen in airlines. The technological systems involved in airplanes are not just evaluated based on their ability to get a group of people from point A to point B. The substantial risk involved in traveling at high altitudes means that each airplane must be designed with passenger safety in mind. Seatbelt features, air masks, and emergency lighting are all examples of features that exist explicitly to protect passenger safety. In this sense, the value of airplanes as technological innovations is not limited to their ability to transport people across space. These technologies are

also morally evaluated for the ways in which they could have a profound impact on human lives. Importantly, the airplane analogy showcases how the value of technological innovations is not limited to their original purpose; their value is also reliant on the potential cost of using this technology. Thus, it seems the possible ethical consequences of technological innovations can demand that creators and innovators of technologies take on special moral obligations to allow the technological system to further human aims within the limitations of existing or established moral obligations, the most obvious one being our interest in preserving human life (which is not an interest guaranteed by artificial systems).

Holding Creators of Technologies Morally Responsible for their Technology's Impact

Given the significant ways that technological innovations can shape our conceptions of reality, value, and knowledge, and our ignorance to the full consequences of implementing technological systems, I propose that those developing new technologies must be held morally responsible for their creations if we want them to proceed with the utmost caution when developing potentially life-changing technological innovations.

Those critical of my position would be quick to point out that if researchers cannot anticipate the full impact of technological innovations, creators of technologies cannot be reasonably held morally responsible for the (ambiguous) use of their technology. At the very least, it seems strange to hold creators responsible for the consequences of their technologies in

unforeseen or unreasonable circumstances. Furthermore, if technology becomes a condition for certain kinds of epistemic agency, other more foundational technological systems could interact with new technological innovations to create unforeseen effects. In this sense, it is unrealistic to hold researchers morally responsible for their technological innovations because technologies are always being operated in unpredictable ways and in the context of other artificial systems. There is no conceivable way researchers can accurately and precisely predict the moral implications of their technological innovations and consequently, they should not be held morally responsible for these undesirable ethical consequences.

In response to the first objection, I first note that by arguing that researchers should not be morally responsible for unpredictable technological consequences, my critics conflate unpredictability and unaccountability. Even if unpredictability was reasonably equated with unaccountability, partial ignorance of the effects of technological innovation does not automatically exempt creators from having any responsibility for their technological innovation.

It is a fair point that often, technological innovations are too complex and layered to have moral responsibility assigned to them (because the creator of the technological innovation is not the sole causal factor in the real-world). However, it is important to consider what alternatives are obvious or sensible in terms of who ought to be held morally responsible for these technological impacts. Because of the many causal factors involved in dictating the impacts of information technologies,

dividing up moral responsibility between these various agents might be appropriate. Even if true, however, we should keep in mind that many of these agents are non-human, or even non-agents. Larger social contexts such as capitalism and consumerism (which can be thought of as causal factors driving the development of information technologies) cannot be reasonably held responsible as autonomous moral agents. Even if these larger social systems could be held responsible for the negative impacts of technological innovations, enacting change to avoid further negative impacts (or to avoid future blame) would inevitably involve changes made by and to human behavior and operators. Thus, considering the individuals and broader groups guiding these systems could be productive in assigning moral responsibility across the various causal factors of the consequences of technological innovations.

If assigning moral responsibility first requires that one must possess meaningful moral agency, it seems that considering the ways in which human action or inaction have contributed to the results of technological innovations is necessary to enact future change. Nonetheless, it seems that certain moral agents occupy more influential positions as opposed to others. More specifically, those who mediate the relationship between the mechanistic nature and function of information technologies, their implementation in society, and the infosphere seem to have greater abilities to pre-emptively influence the design of the technological innovations at hand. Thus, creators of technological innovation occupy a particularly powerful, unique position in the relationship between the

infosphere and technological innovations. Though creators of technology are not the only moral agents who contribute to the application of technological innovations in the infosphere, their power over the nature of their creations clearly shows that not all causal factors in the consequences of technological innovations can be conceptualized as equal contributors. Better yet, creators of these systems have the unique power to define and re-define the very nature of their systems (and thus, the purposes, consequences, and target audience of these technologies).

To be more specific, creators of technological innovations have the power to change design features which pose a significant and known risk to user health, wellbeing, and their ability to operate as productive members of society. With intimate knowledge and understanding of their technology, developers can consider how or if certain elements of technological innovations can be removed, altered, or changed and the overall effect these changes will have on the function of the technological system at large. Furthermore, moral agents who create technological innovations have a unique understanding of the intention behind individual technological features and information technologies that is not easily perceptible to other moral agents or causal actors in the implementation of these larger systems. In this sense, creators of technological innovations have unique access to various elements of their creation process vital to assessing the extent to which they have given appropriate care to the ways in which their information technologies could (or have) impacted the

wellbeing of others. In simpler terms, creators of technological innovations hold unique power, influence, and agency in the more intimate and internal aspects of the technology while it is being constructed that can largely dictate whether the technological innovation was created in a morally responsible manner.

Conclusion

Overall, creators of technological innovations (including scientists and researchers) ought to be morally responsible for proactively and retrospectively considering the larger social and ethical consequences of their work. Considering how technological innovations enable new forms of life (that include new domains of moral responsibility), and their ability to (descriptively and normatively) influence our conceptions of moral and epistemic agency, technological innovations must be evaluated by their creators not just for their functionality. Instead, they must be also evaluated for their potential ethical consequences.

Some of these ethical consequences can be revealed by drawing on the works of Floridi (2013) and Winner (2014). By being embedded in our way of life (and thus, creating the infosphere), technological innovations hold significant power in determining our understanding of knowledge and thus, reality and value. Because of informational technologies' ability to rapidly re-ontologize the infosphere (and our inability to precisely and accurately identify which technologies will or will not have substantial moral or ethical consequences), rapid

technological innovation also comes with the risk of the passive re-ontologization of our physical world and those in it.

Because technological innovations can have such profound moral impacts, we must take on additional moral obligations to ensure the infosphere remains safe for its (human) inhabitants. As a result, I have argued that creators of informational technologies and technological systems must proceed with the utmost caution when developing technology. As a part of proceeding with the required caution, creators of technologies and informational technologies must be responsible for considering the larger consequences of their technological innovations, both before and after the technology has become integrated into the infosphere.

Although these consequences are unpredictable, it is important to consider that creators of technological innovation occupy a unique position and hold exceptional power and knowledge in altering their information technologies and understanding which aspects of an innovation ought to change or remain the same to prevent or minimize social consequences. Although creators of technologies are not the only causal factor for consequences of these innovations, their ability to largely determine and guide the intention of technological features (and the mechanical form in which they manifest) gives them considerable moral agency and responsibility not held by other, non-human causal factors or ontological actors.

Without holding innovators accountable for their technological creations, we will only continue to grow more unaware of the consequences of our technological actions until

we are forced to face them. Considering the increasing role technologies like ChatGPT are playing in our form of life, it is imperative we hold creators of technological innovations morally responsible for the impacts of their creations. Otherwise, we could risk losing our power as moral agents to normatively define and assign moral responsibility in the first place.

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