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ON FIFTY YEARS OF *ONE-DIMENSIONAL MAN* AND A CRITICAL PHILOSOPHY OF TECHNOLOGY

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'True judgment judges this reality not in its own terms, but in terms which envisage its subversion.'

One-Dimensional Man

Introduction

This year marks the fiftieth anniversary of Herbert Marcuse's *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society* (henceforth ODM). As a work of philosophy, ODM is a critical theory of modern capitalist society that comfortably blends together aesthetics, literary theory, philosophy of science, Freudianism, the philosophy of language, phenomenology, and Marxism in order to diagnose the problems of advanced industrial society. It is a product of decades of reading, writing, and thinking and exhibits the influence of Marcuse's connection with some of the greatest philosophical minds of the twentieth century. ODM is also a memento of the radical spirit of the 1960s counter-culture and its association with the zeitgeist of that era bestowed on Marcuse a type of fame that is difficult to imagine today. Opposed to both the United States and the Soviet Union (a radical move in 1964), Marcuse developed a critical theory of modern society that resonated with a generation that was looking to reject the norms and expectations of the world they were

born into while also rejecting the conventional alternatives to this world. His essays and ideas were published and discussed in academic journals dedicated to radical thought, he was known to thousands of student activists in Europe and North America, and he was publically condemned by the Pope and Ronald Reagan (who was the Governor of California in the 1960s). By the 1980s, however, it was clear that the ambitions of the New Left and the 1960s counter-culture had failed and a new generation of philosophers and students looked to different traditions to make sense of Thatcher, Reagan, AIDS, crack, computers, a renewed cold war and the eventual fall of the Soviet Union. After fifty years ODM has a strange legacy: it is both a sophisticated philosophical critique of contemporary capitalist society and, fairly or unfairly, a symbol of the worst excesses of the 1960s counter-culture and a reminder of the unfulfilled potential of this generation. For many born after 1970, this latter interpretation of ODM tends to distort the former, detectable in today's generational bias towards first generation Frankfurt School writers like Theodor Adorno and Walter Benjamin. Although Marcuse's ideas parallel the ideas of Adorno and Benjamin, for contemporary readers these authors have an authority that has eluded Marcuse.

On this anniversary of ODM I want to return to the idea that this book is a sophisticated philosophical critique of contemporary society and draw out insights and perspectives that remain relevant today. The intellectual appeal of ODM in 1964 was that it proposed a dialectical philosophy that challenged the empiricist and positivist trends that dominated American philosophy and sociology in the 1960s. It also rescued critical theory from the Soviet Union's technocratic and scientific iterations of Marxism. Like all theorists affiliated with the Frankfurt School, Marcuse pushed Marxism past the assumptions that, first, capitalism will inevitably destroy itself (we just need to wait for socialism, a sort of Saint-Simon positivistic version of the stages of world history), and second, that the working class are the agents of revolutionary change. After witnessing the failed German revolution of 1919 (in which he participated [see Marcuse 1978]) and then watching the supposed agents of revolutionary change embrace fascism,

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the unshakable beliefs of scientific Marxists seemed untenable and invalid. Fifty years after this intellectual appeal found its audience, I argue that ODM's enduring relevance is the critical philosophy of technology that Marcuse developed in this book. Marcuse politicized the technological base of contemporary society by demythologizing the presumed neutrality of industrial technology while transforming Marxist critical theory to make sense of an industrial society that seemed not only capable of absorbing and deflecting the supposed inevitability of its own demise but also provided an unprecedented level of material comfort for a great number of people. Marcuse's philosophy of technology is an indictment of advanced industrial society in its totality while proposing, theoretically, the possibility of a radical alternative to this society. This is a philosophy of technology in which advanced industrial society – that is, a society premised on a technological infrastructure dedicated to mass production and consumption – is a project that extends beyond any particular technological object or practice. Marcuse uses the term technological rationality to describe this project and is indebted to Martin Heidegger's idea of 'enframing' (Heidegger 1977 [1954]), but the concept of technological rationality has a much stronger connection with the Marxist/Weberian-inspired theory of instrumental rationality developed by Max Horkheimer (Horkheimer 1994). Unlike his Frankfurt School colleagues, Marcuse holds out hope that technology, and technological rationality, can be radically transformed by materializing values that negate the forms of nonfreedom and domination inherent in the modern technological project. In this sense, Marx's suggestion that the technology of industrialization is historically contingent upon the social organization of labor is important for understanding the critical thrust of Marcuse's philosophy of technology (Marx 1867 [1954]: 351-476; see also MacKenzie 1996).

Fifty years after ODM, the notion that Marcuse has anything substantial to contribute to contemporary philosophy of technology seems old-fashioned. Although there are nuanced interpretations of Marcuse's philosophy of technology that reflect contemporary challenges, he is routinely identified as a 'classical' philosopher of technology alongside Martin

Heidegger, Lewis Mumford, and Jacques Ellul. This distinction, Peter-Paul Verbeek points out, invalidates many of the insights of these writers due to particular theoretical and methodological commitments: 'In the eyes of contemporary critics, the judgments of the classical philosophers of technology were too abstract and sweeping: abstract in that they failed to connect with concrete technological practice, and sweeping in that were couched in blanket terms of 'Technology' with a capital *T*, leaving no room for different kinds of descriptions of different kinds of technology.' (Verbeek 2005: p.4; see also Brey 2010; Misa, Brey, & Feenberg 2003) Verbeek politely avoids the truth of this distinction – i.e. that 'classical' is a code that indicates that these writers fall prey to technological determinism and essentialism.¹

Marcuse did not consider himself a classical philosopher of technology nor was he troubled by the specter of either determinism or essentialism. The designation classical, and all this implies, was applied retroactively to distinguish Marcuse from empirical social theories of technology. The empirical turn in the social study of technology emerged in the 1980s through a variety of similar approaches that are collectively known as STS or technology studies (Mackenzie & Wajcman 1999; Bijker, Hughes, & Pinch 1987; Bijker & Law 1991; Oudshoorn & Pinch 2003). The theoretical insights that developed out of the case studies that make up the empirical turn forced social theorists of technology (philosophers, sociologists, historians, anthropologists) to carefully consider how they think about, write about, and study the relationship between society and technology. The empirical turn has been decisive for the current reception of Marcuse's philosophy of technology. In 1964, ODM propelled Marcuse to the status of philosophical guru for an entire generation. After the empirical turn, ODM has been remaindered as a 'classical' philosophy of technology; a designation that by its very name means that is has been surpassed.

Theoretical and conceptual designations like 'classical' are useful but need to be checked on occasion as in this case. ODM's fiftieth anniversary provides an opportunity to properly reconsider Marcuse's philosophy of

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technology as against the easy convenience of summarization in a few sentences so that it fits nicely alongside other determinists and essentialists who make up the canon of classical philosophy of technology. In the following paper I propose a way that Marcuse's critical philosophy can be reconciled with the work of empirical theorists of technology. To do this, I first present a summary of Marcuse's critical philosophy of technology as he developed it in ODM. Following this, I present an overview of the methodological and conceptual insights that developed out of the empirical study of technological design and innovation. Paralleling the ideas of philosopher Andrew Feenberg, I suggest that there are many similarities between these two social theories of technology and from this I propose a perspective towards technology that balances empirical studies of technological contingency and the context within which this contingency occurs.

Marcuse's Critical Philosophy of Technology

Echoing Heidegger's well-known claim that the essence of technology is nothing technological, the starting point for Marcuse's philosophy of technology is not technology. Rather, his point of departure is philosophy. We live in a society that is so wealthy and affluent that the goals and objectives of the individual are indistinguishable from the goals and objectives of capitalist society. (See also Marcuse 2007 [1965]). This leads to one-dimensional thought, which is thought that is focused on the world as it is, not as it could be. For example, if the laborer who works on the assembly line, the taxi driver, the doctor, the venture capitalist, the student, and the professor all desire a smartphone, it is in the best interests of all of these individuals, despite their different socioeconomic circumstances, to identify with a system that provides for this need. This need, though, is not their own, but that of advanced capitalism and industrial society. Inverting the traditional axiom of the triumph of progress, under industrial capitalism invention is the mother of necessity. Marcuse's theory of false

needs is one of the more contentious aspects of ODM. To claim that one's needs are not one's own is suspiciously close to the graduate school arrogance of accusing someone of having a false consciousness. Regardless of the accuracy of Marcuse's sweeping condemnation of the false needs of capitalism, we only need to consider a scenario in which nobody needs or wants an iPad, a flat screen TV, a new automobile, a smartphone, or any other luxury good to examine the legitimacy of Marcuse's ideas. If no one desired to consume beyond his or her basic needs, would this be detrimental for the individual or for the system of industrial capitalism? Only when we fail to identify with the needs of the capitalist system is it possible to distinguish between true and false needs.

The cost of maintaining and fulfilling the needs of industrial capitalism is quite high: unnecessary competition for dreary and unsatisfying jobs that provide us with the resources to buy things, a throwaway culture premised on planned obsolescence and waste, and an attitude towards environmental degradation that is appalling. Yet there is a marked inability to imagine a world where the technical infrastructure of society and the social organization of labor does not include the mass production and consumption of unnecessary consumer goods and services; we conceptualize potential through the options that industrial capitalism provides for us.

In Marcuse's view of history, progressive social change is impossible without dialectical, or critical, thought and its elimination means eliminating the ability to transcend or even recognize alternatives to the world as it is. This is problematic because contemporary industrial society contains the means by which a very different society could be realized, a world in which people could be free to pursue their own interests and needs free from the obligation to make a living in a system that is not of their own making. Following Marx, industrialization is not a wrong turn or a historical error. It is a necessary step towards liberation from necessity. Labor that was materialized in manufacturing technologies was intended to free humans from the toil of providing the basic necessities for life like food,

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shelter, and clothing. Once these goals have been accomplished, humans could be free to imagine a life where it was not necessary to dedicate one's life to securing basic necessities or competing with others for these necessities. 'Complete automation in the realm of necessity would open the dimension of free time as the one in which man's private and societal existence would constitute itself. This would be the historical transcendence toward a new civilization.' (Marcuse 1964: 37) The containment of this potential transcendence is accomplished by having individuals identify with the false needs of industrial capitalism. Advanced industrial society must irrationally perpetuate itself; unnecessary luxuries, more efficient and effective forms of violence and ways to wage war, and the celebration and pursuit of profit and wealth dooms us to a life determined by the needs of industrial capitalism while blocking the development of critical faculties that could direct technological society in radically new directions. Hence Marcuse's tragic diagnosis of technological society: it is onedimensional and the potential for truly critical thought leading to a society where human potential can flourish is blocked by the achievements of industrial society.

The counter to one-dimensional thought is dialectical thought, or what Marcuse jokingly calls the power of negative thinking (at the time of ODM, one of the more popular self-help books in the United States was titled *The Power of Positive Thinking*). Dialectical thought is negative in the sense that it negates the given world in light of the very real potential for the pacification of existence. From Plato onwards, dialectical thought has existed in tension with other ways of knowing, but modern scientific knowledge, and the materialization of this knowledge in industrial technology, presents the greatest challenge to dialectical thought. Marcuse argues that dialectical thought is on the verge of being obliterated by industrial society and in ODM he explains in more detail the connection between the decline of dialectical thinking and industrial technology. (See also Marcuse 2007 [1960]).

For Marcuse, industrial society is a historical project that corresponds

with the emergence and standardization of Taylorism and Fordism in the early twentieth century. These techniques for the organization of labor and resources mark the establishment of a technological system of mass production and consumption that, by virtue of its ability to deliver increased production of material wealth, becomes universally rational. States and societies either employ this system or aspire towards it and those that don't are considered backwards and irrational. Typically, opposition to the organization of labor and resources would come from those classes upon whom this organization is imposed. But within industrial capitalism, control over the organization and direction of one's labor is exchanged for managerial control of the labor process and the opportunity to consume the goods and services being produced. This, in turn, creates an alignment between the interests and objectives of all classes for the benefit of the wealthiest class:

'[...] scientific management and scientific division of labor vastly increased the productivity of the economic, political, and cultural enterprise. Result: higher standard of living. At the same time and on the same ground, this rational enterprise produced a pattern of mind and behavior which justified and absolved even the most destructive and oppressive features of the enterprise.' (Marcuse 1964: 46)

Recovering critical thought and opening up a horizon within which real social change can occur can only happen through the transformation of the technological base of industrial society. 'Domination perpetuates and extends itself not only through technology but as technology, and the latter provides the great legitimation of the expanding political power, which absorbs all spheres of culture' (Marcuse 1964: 158). The technological infrastructure of industrialized society results in a society in which goods are produced and desired, and this desire effectively blocks the potential for critical thought. Unlike traditional Marxists, who theorized that technology is a neutral tool that can be used for either socialism or capitalism, Marcuse believes that industrial technology itself is designed to reproduce a system of domination and control, and so liberation must begin with the basic form and function of industrial technology. Marcuse

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argues that the design and function of the machines and techniques that make up advanced industrial societies are premised on a logic of domination and control that he equates with modern science. Science is methodologically biased by its inability to grasp the history and social context of the objects that it studies. Working within a scientific perspective the immediate appearance of artificially isolated objects is taken as truth, 'these objects can be used, but not transformed, adapted to the dominant social purposes, but not transcended toward the realization of their potentialities in the context of a better society' (Feenberg 2002: 169). This logic is translated into the logic of industrial technology, which, under the guise of objectivity and neutrality, is oriented towards domination and control, 'the apprehension of nature as (hypothetical) instrumentality *precedes* the development of all particular technical organization' (Marcuse 1964: 153; see also Heidegger 1977 [1954]).

But what would a new technology look like? Because modern science and technology have rendered possible the translation of values into technical tasks, what is required is a 'redefinition of values in technical terms, as elements in the technical process. The new ends, as technical ends.' (Marcuse 1964: 232) As noted previously, Marcuse provides one guiding idea for the development of technology: the pacification of existence. If technology could be designed to meet the basic needs of humans (food, shelter, clothing), if technology could conquer scarcity with a minimal amount of toil and suffering, then a qualitatively different society could emerge that would enable greater freedom for individual and social development, free from the compulsion to work in order to consume unnecessary and destructive goods. The basis of this transformation would be a logic, or a rationality, directed towards a more long-term and tempered relationship with nature; not the conquest of nature, but a reciprocal relationship with it. More abstractly, Marcuse hypothesizes that the logic of art and aesthetics could serve the same purpose that the technocratic rationality of calculation and efficiency serve in today's technological society; this is a model of design and innovation premised on the Greek concept of techné. Liberation from the affluence of industrial society would free humans

to develop under their own self-determination, free from the false needs of a system bent on the perpetuation of destruction and competition. From pessimistic beginnings, Marcuse's critical philosophy of technology culminates with a humanistic portrayal of technological potential that is closer to the practical utopianism of Edward Bellamy's *Looking Backwards* than the pleasant dystopianism of Huxley's *Brave New World*.

To summarize, Marcuse's philosophy of technology in ODM argues that for philosophy to be effective and relevant it must necessarily be a philosophy of technology. Society is technological society and so any sort of social theory that aims to describe or explain ideas about politics, identity, or art must account for the role that technology plays in organizing, disseminating, and producing these ideas. This is a philosophy of technology in which industrial society is an historical project that extends beyond any particular technological object or practice. However, Marcuse is also opposed to any sort of escapist back to nature' attitudes towards technology and holds out hope that technology, and technological rationality, can be radically transformed by materializing values that negate the forms of unfreedom and domination inherent in the modern technological project. The potential benefits of directing technological progress towards different ends means that liberation from this technological society can only be accomplished through technology.

One-Dimensional Man after the Empirical Turn

Insights and methods developed through empirical social theories of technology highlight deficiencies and shortcomings of Marcuse's critical philosophy of technology and have effectively made obsolescent this philosophy for a generation of writers and students. Doomed to the fate of a 'classical' philosopher of technology, for contemporary readers Marcuse is taken to be an example of essentialism and technological determinism. In Marcuse's time (he died in 1979), there was nothing that could be com-

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pared with today's Actor-Network Theory or Social Constructivism and so he never had the opportunity to respond to either the methodological or conceptual challenges that these theories pose for his philosophy of technology. In this section, I reconsider the relevancy of Marcuse's philosophy of technology in light of empirical social theories of technology. It is obvious to anyone who studies technology today that the contributions made by empirical theorists are essential for grasping the complex relationship between the social and the technical and so it cannot simply be a matter of dismissing one perspective for the other. In this section I propose a synthesis between these two social theories of technology, highlighting their similarities and proposing a research trajectory that resonates with the interests of both traditions.

The work of empirical social theorists of technology can be characterized by case-studies of technological innovation and design. By following the actors, a category that can include engineers, elected officials, and users as well as objects and inscriptions, it is possible to 'open the black box' of technology to discover exactly how technological objects come into being. The benefit of this perspective is that it empirically falsifies assumptions of technological determinism. Opening the black box reveals that technology is neither inevitable nor predictable nor neutral. There is no abstract technological rationality that determines the form and function of technology a priori. Rather, design is contingent upon empirically observable social contexts. Whereas Marcuse was concerned with industrial technology in its totality, empiricists are drawn towards case-studies that at the micro-level reveal fascinating details about the processes of technological design and innovation and the individuals and social groups who are involved with and contribute to these processes - what Bruno Latour calls studying 'technology in the making' by 'following the actors' (Latour 1987). Working from insights derived from case-studies, many empirical theorists of technology challenge the traditional distinction between the social and the technical and in turn challenge assumptions of social or technical essentialism. In practice, distinctions between the social and the technical are not clearly observable and so it is more useful to employ the

prefix 'sociotechnical' to deny this distinction. Tracing complex sociotechnical interactions reveal that macro-level concepts like technology and society, as well as concepts like capitalism, power, safety, or health are the result of interactions that occur within sociotechnical networks: '...society, organizations, agents, and machines are all *effects* generated in patterned networks of diverse (not simply human) material' (Law 1992: 380; see also Callon & Latour 1981). In practice, this means that researchers do not impose pre-existing categories or concepts upon the phenomena they observe and describe. Rather, they examine how categories and concepts are produced through complex sociotechnical networks.

Despite methodological and conceptual differences, there are important similarities between these social theories of technology. The philosopher of technology Andrew Feenberg argues that empirical theories of technology validate ideas that were anticipated by Marcuse. These include the idea that technology is underdetermined by purely technical principles. For a technology to work, for it to succeed, there needs to be fit between the object and the interests and goals of the various social groups who are involved in the design process. The co-construction of the social and the technical is evident in Marcuse's philosophy, especially in regards to the concretization of values, needs, and technology that he describes. Feenberg also argues that the concept of delegation, a concept developed by Bruno Latour to describe how values are translated into technical design, parallels ideas found in Marcuse, although for the latter these ideas are identified at the macro-level instead of Latour's micro-level perspective (Feenberg 1999: 83-84; Feenberg 2005: 104). Working from these similarities, Feenberg locates the meeting point of Marcuse and empirical theories of technology at the level of design. He uses the environmentalism as an example of this synthesis: 'Such fundamental social imperatives as environmental protection are beginning to shape an alternative technological rationality in Marcuse's sense. These imperatives are the technological a priori embodied in the devices and systems that emerge from the culture and reinforce its basic values.' (Feenberg 2005: 105; see also Feenberg 1995b: 19-40) For Feenberg, empirical social theories of technology reveal that

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technical design is malleable and can meet a number of different social imperatives. Following Marcuse, if we wish to transform the social world, this transformation will take place at the level of technical design.

Feenberg's synthesis is premised on the idea that both Marcuse and empirical theorists of technology understand technology at different levels of abstraction.³ Debating the legitimacy of these traditions is fruitless. The task of the philosopher of technology is not to waste time arguing for the validity of one social theory of technology over another, but rather to 'relate levels of abstraction' (Feenberg 2005, p.104). Feenberg accomplishes this by identifying how macro-level ideologies can be translated through micro-level design decisions. Feenberg's critical theory of technology is convincing and an important framework through which progressive sociotechnical change can be theorized. Where Feenberg's synthesis occurs at the level of design, I want to suggest a synthesis that aims towards macro-level theorizing.

One of Marcuse's more problematic ideas is his totalizing view of technology. This idea develops out of his understanding of philosophical concepts. A concept, for Marcuse, is 'taken to designate the mental representation of something that is understood, comprehended, known as the result of a process of reflection...objects of thought, and as such, their content and meaning are identical with and yet different from the real objects of immediate experience' (Marcuse 1964: 105). Employing this definition points toward thinking about technological society in its entirety, as something that can be experienced both as a series of isolated phenomena and as something that is greater than the sum of these phenomena. In ODM, this is advanced industrial society, an undifferentiated whole that includes the machinery of production, the objects that are produced, the techniques of production, and the values, expectations, and behaviors that legitimate and reproduce this society: 'when technics becomes the universal form of material production, it circumscribes an entire culture; it projects a historical totality - a world' (Marcuse 1964: 154).

Can advanced industrial society, or any other similar interpretation of the relationship between the social and the technical, be reconciled with empirical theories of technology? For both proponents and critics of empirical theories of technology the answer seems to be no. For proponents, to speak of technological society in the way Marcuse does is to essentialize technology and fail to see the significant differences that make objects unique. For critics of the empirical approach, research that is case-study oriented results in an inability to recognize patterns that transcend discrete case studies and so technical objects end up being artificially locked in a time and a place, disconnected from the whole of technological society (Radder 1992). Overcoming these obstacles requires developing an empirical theory that can account for the similarities that tie our sociotechnical world together instead of describing the differences of a world of discrete and seemingly disconnected technical objects that are only tangentially related to each other. An example can help demonstrate how I think this can be accomplished. Upon entering my office each morning, I have already participated in dozens of interactions mediated by digital communication media, including sending text messages, checking email, buying coffee, using a transit pass, using a key card to enter my office, being recorded on surveillance cameras in public spaces, and so on. A long series of activities materialized through different objects and actions where I produce and receive large amounts of digital information, and I haven't even begun my workday yet. From this example, dozens of objects can be identified and reverse-engineered to reveal their inherent sociotechnical contingency. The key card reader that lets me enter my office, for example, is a complex system of knowledge, objects, and social norms materialized in a small device. Yet, there is something else going on here that transcends any particular object or even the individual involved. I do not experience these interactions as discrete activities; rather, each of these actions, and the objects and knowledge that they draw upon, are experienced and can be reflected upon as an undifferentiated whole within which each of these distinct objects and actions makes sense.

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This recognition of the similarities that tie together the sociotechnical world and our place in it hints at the idea that technical objects are not designed in isolation from each other; rather, they are designed under a cultural-political horizon that legitimates a range of choices (Feenberg 1999: 87). Using the insights developed from empirical case studies it is possible to better reveal the particular cultural-political horizon within which technical design and experience occurs, thus directing empirical research towards the identification of the similarities that can reveal the horizon within which our sociotechnical world is produced and makes sense. Accounting for these similarities requires moving from case-studies to concepts (in the sense Marcuse uses the word). These concepts, in turn, draw out similarities that persist across case-studies, contributing to an articulation of the horizon within which designs are selected and everyday experience occurs. This last point requires a clarification of a difference between Marcuse's critical philosophy of technology and the synthesis I am proposing. We cannot reduce the meaning of technology to the extremes of capitalism as Marcuse does. Technological society is not a battlefield between control and domination and freedom and liberation. I agree with Marcuse that we need to consider technological society in its totality, but the characteristics of this totality are more complex and varied than the simplistic freedom/domination dichotomy that Marcuse theorized.

Following the example of ODM, the synthesis I suggest is meant to be a non-instrumental understanding of technological society that draws upon a type of philosophical reflection that is becoming rare in contemporary discussions and debates about technology. Marcuse's dedication to insights derived from reflection is a reminder that philosophical studies of technology do not need to move at the pace of modern technology. Writing and researching at a pace that attempts to 'keep up' with incessant technological innovation comes at the cost of an inability to comprehend technological society in its totality. When every new device, application, and activity is fascinating, there is neither the time nor the perspective to allow for contemplative thought. This is a problem of concepts. Focusing on the isolated activities and objects that make up contemporary techno-

logical society necessitates a strategy where one is always trying to hit a moving target. Identifying those aspects and characteristics that can be identified as part of a historical continuum, or attempting to conceptualize the similarities that tie technological society together, enables different kinds of insights that transcend any one particular technical object. Sustained philosophical reflection on contemporary technological society in its totality allows for the development of critical concepts that could transcend ways of knowing generated and privileged by this society and this, after all, was Marcuse's aim in ODM: the recovery of critical thought.

Conclusion

In many ways, ODM can be seen as a remnant of philosophical traditions that were waning even in the year it was published. Marcuse writes with an unabashed utopianism that seems optimistically naïve in an intellectual climate where concepts, belief systems, and accepted truths are taken to be constructed illusions. But his utopianism is intertwined with a fatalism and pessimism that is also anachronistic. A term like totalitarianism is thrown around too loosely to describe a social world that seems closer to science fiction, and the drastic descriptions of capitalist society are, at times, so extreme they are tough to take seriously. ODM shares a spirit of defeat with the post-war writings of George Orwell (b. 1903), Aldous Huxley (b. 1894), and Martin Heidegger (b. 1889), all of whom can be read as arguing that we had a chance to create a better world but we missed it, perhaps intentionally, and tragically this opportunity is lost forever. Add to this Marcuse's attitudes towards human agency and it is easy to see why readers influenced by important works in cultural theory and empirical social theory find ODM deeply problematic.

Despite these criticisms, only lazy writers reduce a book as prodigious as ODM to its faults. In this paper I have argued that after fifty years the legacy of ODM is the critical philosophy of technology that Marcuse developments.

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oped. Although much has changed since 1964, socially, politically, and perhaps most significantly technologically, Marcuse's philosophy of technology can still be used to describe technological modernity. At a basic level, capitalism is the determining influence over the characteristics and direction of contemporary technological society. Planned obsolescence is rational and the material infrastructure we experience as 'new' digital media is manufactured within an accelerated context of Taylorism and Fordism that is only legal outside of the West. At a personal level, most of us continue to be condemned to unfulfilling jobs in order to purchase material goods that we don't need. Yet, as Marcuse argued fifty years ago, there is widespread identification with this technological society regardless of its terrible consequences; one-dimensional thought persists. To paraphrase Marcuse, the intellectual and emotional refusal to 'go along' with digital media appears neurotic and impotent (Marcuse 1964: p.9). To be critical, or even suspicious of digital media, as novelists Jonathan Franzen (The Kraus Project) and Dave Eggers (The Circle) have done recently, is to be denounced for questioning the logic of progress and condemned as an enemy of friendship, connectivity, knowledge, and sharing (as defined by software corporations).

Yet, as I have described in this paper, the relevancy of ODM is not solely that it provides a compelling critique of technology; Marcuse's critical philosophy holds out hope that things can be different. The synthesis between critical philosophy and empirical philosophy that I have described in this paper is intended to better comprehend technological modernity in its current iteration. Marcuse's ideas push us toward the utilization of empirical research to trace the connections that conceptually bind technologies together. These concepts can be used critically, as Marcuse uses them, to describe the world as it is in light of what it could be. It is a compelling endeavor for social theorists of technology to attempt to define and describe the similarities that tie modernity together alongside empirical research. Identifying and describing the concepts that can be used to make sense of technological modernity is a difficult task, but one that is necessary if we are to develop a strategy for progressive sociotech-

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nical change. The first step towards a technology that realizes different values and needs is talking about the values and needs materialized in technology today.

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¹ Determinism consists of two complementary aspects. Technological development is autonomous from social, economic, or other contextual influences and second, technology determines social change (Misa 1988; Smith & Marx 1994; Wyatt 2008). Essentialism posits that technology, as a totality, is oriented towards particular social ends, like efficiency or functionalism. A consequence of essentialism is the artificial separation of the social from the technical on the basis of fundamental differences between these two different spheres (Feenberg 1999).

² Opposition to this idea was the basis of Habermas's critique of Marcuse's dialectical philosophy of science and technology; see Habermas (1972). For more on the debate between Marcuse and Habermas, see Feenberg (1995a).

³ It would be incorrect to somehow claim that these micro-level descriptions are any more or less concrete or abstract than the philosophical insights of Marcuse, a point that has been repeatedly demonstrated through the philosophical tradition of phenomenology familiar from Husserl and Heidegger who draw out the conceptual *a priori* that bestows meaning on empirical facts. Or, as Marcuse writes (against the logical positivists), for those working within the empirical tradition 'the range of judgment is confined within a context of facts which excludes judging the context in which the facts are made' (Marcuse 1964: 115-116).