Book Review: History of Technology

When people think about technology from a contemporary perspective, they often think about all the gadgets and devices that are common-place in our lives. For example, only ten years ago we were watching movies on VCRs and were talking on cell phones that would be unrecognizable compared to today's standards. Is this the essence of technology, or is there more to it? Technology has been something that has undoubtedly marked our world and our lives for a very long time, and especially since the industrial revolution occurred in the late 18th and early 19th centuries. Major changes occurred in the way the world produced its goods, and the level at which goods were produced. Science and technology began changing the world. How then are we to view technology today? It is clearly a phenomenon that as been influencing the world for any centuries. Is it any different today than it was one or two hundred years ago? These are questions that are important in the study of the history of technology, and even culture. There are many theorists who have written on this topic, including Thomas J. Misa who wrote *Leonardo: Technology & Culture from the Renaissance to the Present to the Internet.* In this essay we will comment on Misa's analysis of how technology has influenced culture since the Renaissance, with specific reference to the industrialization. We will then compare Misa's theories of technology and culture and compare them with that of two other authors who have their own views on the history of technology and how it has affected culture. From this it will be clear that when analysing technology and culture, we need to evaluate not the level of innovation, but rather how the technology is really

impacting our lives and culture, and this will show that technology is an ever-evolving process, and not a recently exploding one.

In his book, Misa examines the many different types of technologies that have existed in our civilization over the last five centuries, and how they have affected our lives, our culture, and our societies. He provides an in-depth examination into several different 'periods' that occurred throughout his time of study, but one of his notable sections is his analysis of the present, or at least the last half century, and what has transpired in this time (Misa, 2004).

Misa paints a picture of technology and history, such that the last fifty years is when technology has begun to explode. If we look back to the time of the Cold War, we can see how technology was having a drastic impact on not just people, but culture. It was a time when we were fighting enemies with technology. It was a war over who had the best, most powerful, and of course most destructive technology. In the post-World War II era, there were countless innovations regarding powerful technology, specifically in weaponry and technologies of national defence. The technology sector was being fuelled by a society that wanted more. This brought with it a plethora of social changes, and a culture of government secrecy in terms of technological progress. This further fuelled worldwide innovation. However, when the Cold War ended, so did the deep pockets of those funding the boom. As such, innovation in technology had to shift to other sectors of the economy and industry. This signalled the beginning of a new global culture, one that, in the last three decades, has changed the face of the world, but most notably in the Western nations. If we try and imagine the world as it is today, with the internet, large multi-national conglomerates, cell phones, technology billionaires, and so

on, it is hard to imagine life just thirty years ago. How did we manage? Misa is not arguing that technology in inherently good or bad, but what we is arguing is that we must realize how powerful it is. Technology has forever proven to be the tool of drastic social, political and cultural change, and this fact is not likely to change in this generation, or generations to come. As such, technology must be harnessed in the proper way so that we can adequately deal with the challenges that our world in undoubtedly facing, and going to face in the future (Misa, 2004).

Misa acknowledges that there is no shortage of theorists out there, whom have provided different opinions of the technology. He tends to agree with what he says is the consensus among these theorists, and that is that technology is not bad, but it is powerful. We need to learn how to best use of it because, if we do not, that is when it becomes bad. On the spectrum of theories about how technology is and should play a role in our society, Misa would fall in between the two extreme views. He discounts the one extreme view, which is that technology is a bad thing, and that the goal of the future should be to halt the progress that is being constantly made. This to him is not what we should striving for, and understandably so. However, he also rejects the other extreme view that says we should strive for maximum technological intervention in our lives and societies in the years to come. Throughout Misa's book, he highlights all the different ways in which technology has significantly influenced culture and society, and how these technologies have changed. There are many different conceptions and ideas about what technology is, but there is a consensus that technology, however it is used, will have an effect on our civilization in a significant and profound way. He also acknowledges that our world will face serious problems ahead such as global warming, a global water crisis,

depleting energy reserves, and so on. The way that we choose to use technology, and the path we choose to take in developing different technologies will ultimately decide the fate of people and the world (Misa, 2004).

One of the theorists who we will compare with Misa is Alvin Toffler, who wrote the book *Future Shock.* Toffler gives a different perspective on technology, as his book was written in 1970. This book was intended to give insight into the future of technology and how it will affect culture and society if it is left to take the course that it was presently on. It is interesting to study this book almost forty years after it was written because we can evaluate his predictions based on what has actually transpired. He predicted that several trends would begin to occur that would essentially change the nature of the world system, and significantly change the world for those living in it. He predicted that the world would begin to see a drastic increase in mergers and acquisitions, which would change the face of the organization as it was once known, and make it vastly more unstable. Work will be done under different circumstances; it will be increasingly performed by disposal labour like project teams. These are teams that are employed to perform a specific task or job, but who are usually disposed of after the job is complete. This adds to increased instability within the organizational structure. In addition, he said that as technology got better, and the modes of production became more effective and efficient, downtime would become more costly, thus fuelling a need for quicker executive decisions. He argues that society (in the 1970s) was, as has been outlined, experiencing a significant structural change, an insurgency from an industrial society to one that could be thought of as a super-industrial society. The name of his book, *Future Shock* refers to the state that people experience when they live in a society

that has advanced technologically at a rate faster than people can adapt to. He predicted that if this happens, which it likely will, a surplus of social problems will be created that will plague society. He warns that people may experience an information overload, and that this will have a significant impact on societies (Toffler, 1970).

What can be seen here is that Misa and Toffler share the same sort of idea about technology and its effect on culture and society. By saying that technology was creating a fundamental shift in the way that organizations were being structured, he is acknowledging the importance of technology and how it has the potential to impact culture and society in profound ways.

Much like Misa, Toffler offers a suggestion of the same nature in terms of where he thinks the future of technology needs to go. He offered a solution to the problems that technology would bring, and he referred to this solution as 'Adhocracy.' He says that if technology is going to have a positive impact in the future, it will need to strengthen the structure of its components so that they are not unstable. In light of ever progressing technology, organizations will need to constantly change its components, but it will need to maintain a strong structure. Technology will need to be used in a way that allows for components to change, but in a way that does not compromise the structure. This is what Toffler predicted almost forty years ago, and they are very similar to what Misa has recently said (Toffler, 1970). They both agree that technology needs to be designed and used in a way that is best suited for the differing circumstances of the world; otherwise it might prove to create a very unstable world.

Both of these theorists tend to think that technology has attained new heights. Misa on one hand believes that the progress that have been made in the last fifty years is

like a technological revolution on its own level, and almost forty years ago, Toffler predicted that what would transpire over this period was analogous to a super-industrial revolution. We will now bring into the discussion our third theorist. David Edgerton wrote the book *The Shock of the Old: Technology and Global History since 1900.* This book asks readers to view technology in a different way than the other two theorists appear to have.

Edgerton claims that his interpretation of the history of technology and culture is superior to that of the other theories that have been given on the subject. He says that as a society, we have all erred in the way we view and talk about technology. Technology is something that has influenced society for a very long time, and there is no shortage of different ways of analysing this influence. However, Edgerton argues that there has been a popular, yet disturbing trend, in the way that people discuss the past, present and future of technology. It is assessed against the standard of today's technologies, and the technologies of the future (Edgerton, 2007). Why should we get excited about a light bulb being invented a long time ago, when you can buy a device the size of someone's palm that acts as a music player, a personal organizer, a cell phone, and an entertainment centre?

When we think of technology, we think to the future and not the past. We think of it as a phenomenon that is somewhat new in the sense that it is now so big that we must place checks and balances on the ways that we use it. However, if we look to history, we can see that technology has always been this important, and there are technological advances that have been made decades and even centuries ago that are still significant today. If we think now what the most significant pieces of technology we use

are, we will see that they are not new, but in fact very old. Edgerton suggests that some of these technologies include: flight, adopted in 1903; nuclear power, adopted in 1945; contraception, adopted in 1955; and the internet, adopted in 1965. (This last one might be true, but it is misleading as the internet did not take the form back then as it does now). Either way, these are the inventions that have really marked out society, and they have been spread out over history, they are not a product of the last few decades (Edgerton, 2007).

Edgerton discounts the argument that our society is futuristic, that we have progressed beyond ourselves. This is an argument that has been taken by prominent intellectuals, they cite the 'cultural lag,' or the inability to live in a way that is in-line with our level of technological progress. The reality is that our world has been steadily influenced by technologies of history, and the fact that we are seeing and doing things (through technology) now that has never occurred before does not mean that technology is currently exploding. In fact, it is progressing at the same rate as it always has. This argument comes in conflict with that of Toffler, and even to a small extent that of Misa (Edgerton, 2007).

Edgerton explains that the way many theorists err is by analysing technology in the wrong way. They often analyse it based on an innovation-centric approach, when they should be analysing it based on a use-centered approach. We can not assess something for how innovative it is, but how much it is used, as this is the real measure of how culture and society is changing. It is true that in the present year we are seeing televisions in stores that are bigger and better than ever before, and at surprisingly low prices. But the presence of bigger and better televisions is not what changes our culture,

as the most important advances in technology that have really altered or culture and society are those that were already listed, and they are not new (Edgerton, 2007).

By examining the work of three different authors, it has not been intended to prove one wrong or the other right. All three theorists gave very insightful perspectives in how technology has shaped our world. However, credit must be give to Edgerton for advancing a theory of technology that is unlike most of the other credible academic arguments that have been proliferated. He makes, and argues well in favour of, his argument, which is that we are not experiencing a technological revolution in a fundamentally different way than we have been for the last century (and before). The process of technological innovation is a steady and constant one; it is an ever-evolving process.

After analysing the different viewpoints, it has become clear that when studying technology and the effect that it has on our world, our culture and our society, we need to ask if what is being produced is actually changing the essence of our lives, and just making it a little shinier. Technology is a process that has been occurring for centuries and centuries, and it is naïve for people to think that we have become so evolved that we are attaining levels of technological innovation that is ahead of us. This just underestimates the power of humans, as we will likely progress technologically in a same way, year after year. It is true that we need to use technology responsibly and effectively if we are going to tackle the challenges that we will face in the near and distant future, however we need to stop viewing in a narrow context, and start looking at it in the context of a broader history, and this will really put it into perspective.

References

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