

Shifting Technology and Society

Jaclyn Hawtin

Arizona State University

As humanity moves forward into this accelerated time of innovation and discovery, a consistent question poking its head out of our collective consciousness is what role does technology play in development? The term development has many faces but Sen's simple interpretation seems to hold more credence than others; "Development can be seen as a process of expanding the real freedoms that people enjoy (2000, pg.3)." We observe that modern day technologies are strongly impacting all sociological institutions including economic, political, familial, educational, religious and militaristic freedoms of individuals around the world. Historically technologies have had more localized impacts on society than we observe today. As our technologies have evolved they have enabled humanity to become globally networked to the point at which every change occurring within this dynamic system has lasting effects on all people connected to the network, thus undermining the traditional role of state autonomy. In the past human societies have tended to be segregated from each other as a result of their geographic locations, and as such states have historically made political and economic decisions with only their 'state' in mind. Today, the tables have turned, and we are evolving into more of a 'hive mind' status where all states, cultures, and freedoms of people globally must be considered. Today's technologies have changed the game in three major ways; technological innovation is accelerating at an exponential rate, networks have connected and united the world into a 'one world state' affecting previous notions of 'space', and our ability to exchange information simultaneously has changed the way we perceive 'time'. As we move through this new form of social evolution, a more homogenized global consciousness will emerge as a result of our technological revolution opening doors for human and societal interaction on levels in which we cannot yet even imagine.

Ben Goetzl, considered to be one of the foremost futurists of our time describes the future of technology in this way.

“A number of really big technologies are brewing. Virtual reality, which lets us create synthetic worlds equal in richness to the physical worlds, thus making the Buddhist maxim “reality is illusion” a palpable technical fact. Biotechnology, allowing us to modify our bodies in various ways, customizing our genes and jacking our brains, organs and sense organs into computers and other devices. Nanotechnology, allowing us to manipulate molecules directly, creating biological, computational, micromechanical, and other kinds of systems that can barely be imagined today. Artificial intelligence, enabling mind, intelligence and reason to emerge out of computer systems – thinking machines built by humans. And advances in unified field theory in physics will in all likelihood join the party, clarifying the physical foundation of life and mind, and giving the nanotechnologists new tricks no one has speculated about yet (Goertzl, 2001, p.1).”

The information technology revolution which took off in the 1970's interacts with economy and society in five major ways. The first observation is that information is raw material, where technology is actually acting on this 'raw material.' Secondly, technology has widespread effects on all forms of human activity. We also see that modern day technologies have an underlying theme of networking logic that allows for the structuring of the unstructured thus enhancing flexibility and growth of the system. The fourth dimension of this technological paradigm is its flexibility, which is apparent in its ability to reconfigure itself, a defining feature of keeping up with a fluid and constantly changing society. Lastly individually constructed technologies have the ability to converge with one another into fully integrated systems. The power of this new technological paradigm is elicited in the value associations representative of the user associated with the system. In 1973 Robert Metcalfe proposed a formula that showed that the value of the network increases as the square of the number of nodes within the net, $V = n^{(n-1)}$. The 'users' and the 'doers' of the system ultimately become one in the same, where all individuals participating become its productive force. Manuel

Castell's notes, "The diffusion of technology endlessly amplifies the power of technology, as it becomes appropriated and redefined by its users (1996, pg.31)."

A new economy is emerging as a result of this technological revolution in three main ways; it is informational as is its capacity to be productive and competitive is based on its ability to generate, process, and apply information, it is global as the characteristics of production, consumption, and circulation are based on a global scale, and it is networked because these interactions are performed between networks globally. Never before have we seen a global economy such as this. The technological revolution has played a part in the process of this globalized economy but is not fully responsible for its success. Information technologies have provided the means to a global economy but in general the global economy was 'politically constituted' through deregulation and liberalization of a number of policies that were implemented by both governments and international institutions alike. The global economy is dominated by; 'financial markets, international trade, transnational production, science and technology, and specialty labor' (Castells, pg. 76-100).

A defining characteristic of this global economy is representative in global financial markets. Enabled by technology, within seconds billions of dollars of transactions take place around the globe. As our technological revolution has gained steam the speed, complexity and volume of global financial flows have correspondingly increased. Global financial interdependence has resulted from five major developments. Financial markets have become deregulated and liberalized in terms of cross-border transactions. The installation of a highly sophisticated digital architecture with ability to support high speed information processes have

contributed in computing power. The evolution of new financial products such as derivatives have influenced this new economy, which previously would have been unimaginable without the support of technological systems able to compute such complex mathematical models and at an instantaneous rate. Financial risk management companies such as hedge funds have become a tool for global integration. Lastly the development of firms that perform market valuations such as Standard and Poor, or Moody's have made a significant impact as a result of their ability to create interconnections between large scale global financial markets (Castells, pg. 102-105).

Although many facets of human civilization are being greatly influenced by the technological revolution the most apparent is the transformation that is occurring within our modes of communication. "The potential integration of text, images, and sounds in the same system, interacting from multiple points, in chosen time (real or delayed) along a global network, in conditions of open and affordable access, does fundamentally change the character of communication (Castells, pg. 356)." For the first time in history we have the ability for people residing within nations around the world to simultaneously view and respond to the same information. There is a potential for interactivity here in real time that is beginning to change the way in which we interact with each other on a global scale. The recent utilization of social media technologies observed in the protests of the Arab Spring, and 'Occupy Wall Street' in the United States are just the beginning to what power these types of technologies are affording the general public. For the first time in history we are beginning to observe leaderless political movements created by the people and for the people. These types of interactions are in line with Sen's vision of development and definitely support the notion that technology is having a

very positive impact on the empowerment of the freedoms of individual people. The internet providing 'free' access of information to people around the world regardless of race, gender, or social class provides a potential for social cohesiveness that is conducive for real social change.

Space and time are being radically transformed as a result of our information technologies. Cultural, historic and geographical identities are beginning to merge as their symbolic representations are collected and combined within networks level thus redefining traditional conceptions of place and space. Time is being experienced in different ways as technological systems are providing new ways to combine experiences of past, present and future. Castell's provides an interesting definition of space, "space is the material support of time-sharing social practices (1996, pg.441)." By this he means that the material created by societies simultaneously within time creates the space in which societies exist. Within this space exist a number of flows including; capital, information, technology, organization interaction, images, sounds, and symbols. According to Castell's societies are constructed around these flows. They make up the expressions of the processes that dominate our societies political, economic, and symbolic life. A simple metaphor that comes to mind is that these flows are reminiscent of music being expressed by a symphony from a score, which would be the seen as the process itself. He categorizes these flows in three ways. The first layer is composed of circuits of electronic exchanges which allow for the rapid simultaneous exchange of the information; these form the material fabric for executing processes within society. The second layer consists of nodes and hubs; these exist within the physical world and are attached to place enabling the linkage of the network. Layer three brings in the human element, where

the 'managerial elite' manage the direction in which space is being expressed (Castells, pg. 440-445).

This leads to his main thesis in which he describes timeless time. A trend of the technological revolution has been its ability to increasingly compress and shrink time. Capitalism drives innovation to find new ways of doing things faster and more efficiently thus reducing the time it takes to complete tasks. Castell's highlights Leibniz's view on time in that time does not exist without 'things' as time represents the "order of the succession of things (1996, pg.494)." As we approach a paradigm of instantaneous information exchange our historical experience of time will shift. A once limiting factor will be lifted thus bringing forth a new era of infinite and eternal potential. This idea has interesting implications regarding current explorations of quantum physics and the idea of human beings manifesting reality with their thoughts. If this were to be true then the accomplishment of a timeless time experience through the technological revolution may have the potential to unlock a comparable revolution in human consciousness.

Technology has the potential to revolutionize human societies in many ways, but it is we who will guide how far down the rabbit hole we want to take it. It seems that this brave new world has characteristics of acceleration, speed, and connectedness that are completely unique to this time period in human experience. One thing we must keep aware of is that the potentials of our technological revolution lack ethical prescription, and it will be up to our 'managerial elite' to keep an eye on this. There exist many parallels in our growing technological and social 'networks' to that of organic systems. From a biological perspective it

seems that the information revolution, emergence of informationalism, onset of globalization, advent of networks, and the ideas behind space flows and timeless time are all manifestations of an underlying evolutionary step to a new collective consciousness for humanity as a whole.

Bibliography:

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