

I NFORMATION REVOLUTION AND THE FUTURE OF HUMANITY

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ABSTRACT

The emergence of modernism, animated by the Cartesian anthropological philosophy, threw overboard the theocentricism of the Medieval world bringing with it practical philosophies such as utilitarianism, pragmatism, Marxism, etc., featuring prominently on the landscape of philosophy, giving impetus to science and technology. Since then, three conceptual revolutions occurred following the works of Copernicus (1473- 1543), Darwin (1809-1882) and Freud (1856-1939). Each of these revolutions repositioned humanity with respect to the universe. Information revolution is the latest revolution in the history of western culture, bringing to the fore radical changes in the way

Introduction:

Information revolution is the latest revolution in the history of western culture, bringing to the fore radical changes in the way human beings understand themselves and their place in the universe. Three conceptual revolutions occurred following the works of Copernicus (1473- 1543), Darwin (1809-1882) and Freud (1856-1939)¹. Each of these revolutions repositioned humanity with respect to the universe. In more detail, before Copernicus'

human beings understand themselves and their place in the universe. Since the coming of information technology, science and technology have gone a long way in turning us into cosmopolitans on a global conference table. With the developments in the area of information revolution, the major question that this work puts forward is: is humanity really happy? What are the consequences of this revolution in the dimensions of society? With the radical changes experienced in the way human beings perceive themselves, has information revolution brought more good to the human life or has it dehumanized the human person? This paper would, therefore, discuss the organizational, economic, socio-cultural and political consequences of information revolution. This submits that while information revolution has tremendously positively affected human life and society, effort must be made to determine the limit of progress and safeguard the dignity and integrity of the human person.

Keywords: Information, Revolution, Consequences, Organizational, Social, Political.

Discovery, human beings thought that the planet Earth was at the centre of the universe and that the Sun revolved around it, determining the alternation of days and nights and the succession of the seasons. Copernicus suggested that the Earth is not at the centre of the universe and that it is the Earth that actually revolves around the Sun. A few centuries later, Darwin's biological studies showed that all species have evolved over time from common ancestors through natural selection. Darwin's work showed that humanity was not at the centre or at the top of the biological kingdom. Decades later, Freud introduced the idea of the unconscious, divided the human mind into *id*, *ego* and *super ego*, and showed that our mind is far from being transparent to itself¹.

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These three revolutions show a trend: they progressively dismantle the anthropocentric understanding of the universe, displacing humanity from the centre to the periphery of the universe. The latest step in this direction occurs with the information revolution. This is related to the work of the British mathematician Alan Turing (1912-1954), who provided a fundamental contribution to computer sciences by refining the concepts of algorithm and computation with what came to be called a Turing machine³³. He also contributed the Turing test to the debate concerning the possibility of developing conscious and thinking machines in Artificial Intelligence³⁴. The Turing test is the latest step in the trend of dismantling the anthropocentric approach to the universe. For the test introduced for the first time the idea that thinking and being conscious, which had been considered human prerogatives for millennia, could to some extent be attributed to non-human entities, like machines³⁵.

These new developments can be traced back to modernism, animated by the Cartesian anthropological philosophy which threw overboard the theocentricism of the Medieval world. Since then, practical philosophies such as utilitarianism, pragmatism, Marxism, etc., have featured prominently on the landscape of philosophy, giving impetus to science and technology: the conquest of nature, given advocacy by a good number of modern and contemporary thinkers. With scientific technology, thrilling and appalling prodigies and achievements in human history have been realized³⁶. Which field of human endeavour is not encapsulate din this trend? Is it in the area of information

³³ Petzold, C. (2008, 2012/07/13/21:59:43). The Annotated Turing a Guided Tour through Alan Turing's Historic Paper on Computability and the Turing Machine, from <http://proquestcombo.safaribooksonline.com/9780470229057>

³⁴ Turing, A. M. (1936), On Computable Numbers, with an Application to the Entscheidungsproblem. *Proceedings of the London Mathematics Society*, 2nd series, 42, 230-265.

³⁵ Society for the Philosophy of Information, *The Information Revolution, History and Society*. Retrieved 29/4/17 from <http://www.socphilinfo.org/node/66>

³⁶ Kanu Anthony, *Man, Science and Technology*. View Point Magazine. 3. 4. p.3.

technology, where science and technology have gone a long way in turning us into cosmopolitans on a global conference table. With the developments in the area of information revolution, the major question that this works puts forward is: is humanity really happy? What are the consequences of this revolution in the area of information? With the radical changes experienced in the way human beings perceive themselves, the universe and interact with the world, has information revolution brought more good to the human life or has it dehumanized the human person? Responding to these questions and more would be the preoccupation of this paper.

THE THRUST OF INFORMATION REVOLUTION

The term *information revolution* concerns the increase in information and communication technologies (ICTs). It encompasses the recent rapid developments in collecting, channeling, and transforming knowledge³⁷. It includes everything from language, systems of writing and writing materials to newspapers, books, and magazines, to mass communications, television, movies, and the telephone, to satellites, databases, and computer networks. It includes forms of communication and ways of manipulating information³⁸. It further encompasses the newest, highest technology forms of IT, including multimedia and computer networks. The recent technological innovations in dealing with information are considered by some to be a revolution as important as the invention of the printing press³⁹.

During the past two decades such technologies have developed fast and acquired a crucial role both in individuals' daily practices and in

³⁷ Møller, J. Ørstrøm. *The Future European Model: Economic Internationalization and Cultural Decentralization*. Westport, Connecticut:Prager, 1995, p. 59.

³⁸ Møller, J. Ørstrøm. *The Future European Model: Economic Internationalization and Cultural Decentralization*. p. 59.

³⁹ Caitlin Howell, *The Impact of the Information Revolution on Europe*. Retrieved 2/5/17 from <http://pages.cs.wisc.edu/~caitlin/papers/bodyit.html>

the social, political and economic processes of current societies. From a different perspective, Irving E. Fang identified six 'Information Revolutions': writing, printing, mass media, entertainment, the 'tool shed' (which we call 'home' now), and the information highway. In this work the term 'information revolution' is used in a narrow sense, to describe trends in communication media⁴⁰. The information revolution Consider for example how many of our social interactions and how much of the weekly working or studying schedule we manage through ICT based devices, like smartphones, laptops or computers; or think about how many resources and infrastructures of our societies depend on ICTs. The information revolution is deemed to be the origin of radical changes concerning the way we interact with others, with the environment, and with the very structure of the reality in which we live. Such changes reshape current societies, so much so that they are now referred to as the information societies.

The following are the fundamental dimensional developments in information revolution:

1. There is a rise in economic commerce as a major form of economic activity with accompanying changes in the nature and structure of markets⁴¹.
2. The power and authority of the nation state is challenged as a result of the flow of information⁴².
3. There is the creation of a wide variety of sub-national, trans-national and supra-national groupings, communities, organizations, enterprises in the business, social and political

⁴⁰ Fang, Irving E. (1997) *A History of Mass Communication: Six Information Revolutions*, Focal Press ISBN 0240802543

⁴¹ Summary of the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999.

⁴² Summary of the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999.

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realms often largely beyond the control of individual countries and states⁴³.

4. There is an ever increasing porosity of national borders⁴⁴.
5. Information is a factor of production (along with capital, labor, land (economics), as well as a product sold in the market, that is, a commodity. As such, it acquires use value and exchange value, and therefore a price⁴⁵.
6. Labor can be classified according to the object of labor, into information labor and non-information labor⁴⁶.
7. Information activities constitute a large, new economic sector, the information sector along with the traditional primary sector, secondary sector, and tertiary sector⁴⁷.
8. Innovations are the result of the production of new information, as new products, new methods of production, patents, etc.

THE DEVELOPMENT OF INFORMATION REVOLUTION

The current wave of information revolution can be traced back to about 3000 BC with the Sumerian pictographs. From that moment on, information revolution has accompanied the history of mankind. Among the milestones of the information revolution are Gutenberg's invention of the printing press in 1455; the work of Augusta, Lady Byron, Countess of Lovelace and Babbage on the Analytic Engine in the early 1830s; the invention of the first telephone during the 1870s;

⁴³ Summary of the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999.

⁴⁴ Summary of the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999.

⁴⁵ Wikipedia, *Information Revolution* Retrieved 29/4/17 from https://en.wikipedia.org/wiki/Information_revolution

⁴⁶ Wikipedia, *Information Revolution* Retrieved 29/4/17 from https://en.wikipedia.org/wiki/Information_revolution

⁴⁷ Clark, C. (1940), *Conditions of Economic Progress*, McMillan and Co, London.

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Turing's work during World War II; the development of ARPANET by the U.S. Department of Defense in the 1960s; the first versions of the UNIX Operative System in the late 1960s; the progressive dissemination of personal computers, laptops and smart phones begun in the late 1970s and continuing until today⁴⁸.

We witness the dissemination of ICTs every day. You may think of personal usage of computers for working or entertainment purposes as an example of such dissemination, but this only the tip of the iceberg. ICTs provide the ground for the economic and industrial growth of our societies; they constitute one of the fundamental tools for the progress of experimental science and provide the means for storing and managing historical, economic, and legal information. Slowly and ineluctably ICTs have grown to the point of becoming necessary for societies and individuals to live and prosper. They provide new modes for creating and managing information, which lead to new means of interaction with other individuals and with the environment. Consider for example the way in which we perceive distances and time nowadays, when we can talk and see someone on the other side of the world or when we can exchange documents in a matter of seconds, rather than in days or months as it used to be only a few decades ago. Not only do such changes affect our personal experience, they contribute to redesigning the very structure and rules of our societies as well⁴⁹.

THE CONSEQUENCES OF INFORMTION REVOLUTION

Although information technology may be the natural outgrowth of decades of gradual technological advancement, Caitlin avers that the

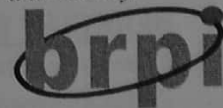
⁴⁸ Society for the Philosophy of Information, *The Information Revolution, History and Society*.
Retrieved 29/4/17 from <http://www.socphilinfo.org/node/66>

⁴⁹ Society for the Philosophy of Information, *The Information Revolution, History and Society*.

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present development is a time of dramatic and sudden change⁵⁰. Kupfer said recently of information technology, "the new technology holds the potential to change human settlement patterns, change the way people interact with each other, change our ideas of what it means to be human."⁵¹ These changes have consequences on the human society. Thus, James Burke avers:

Throughout history, radical improvements in the ability to generate and share information have always triggered information surge, which has in turn always generated bursts of innovation that brought into existence new entities, new kinds of people, new ways to live. The present surge is no exception; it's just immeasurably more complex than anything that went before⁵².

This section, would, therefore, discuss its organizational, economic, socio-cultural and political consequences of information revolution.

1. ORGANIZATIONAL CONSEQUENCES

The developments in information revolution have had consequences for organizational structures. The rationale for centralized, hierarchical structures--in firms, in governmental agencies, and in other institutions--is passing. When communication was slow, costly, or cumbersome, vertical structures were efficient because they minimized the necessary flow of information and the associated transaction costs. Much cheaper and easier communication is giving rise to flatter structures characterized by much more horizontal communication. Moreover, hierarchies have a way of slowing and distorting information flows. The direct exchange of information through a flat, networked structure that are facilitated by advancing

⁵⁰ Caitlin Howell, *The Impact of the Information Revolution on Europe*. Retrieved 2/5/17 from <http://pages.cs.wisc.edu/~caitlin/papers/bodyit.html>

⁵¹ Kupfer, Andrew. "Alone Together: Will Being Wired Set Us Free?" *Fortune* March 20, 1995, p. 51

⁵² Burke, James. "Technology and the New World Order." *Byte* December 1992, p. 324.

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information technology today provides an important efficiency advantage for organizations that can create the right structures⁵³.

The alterations emerging in organizations have important social consequences. For example, to the "displacement" of male blue-collar workers from the central positions they occupied in the old, manufacturing-dominated economy. He went on to speculate that the disruption of these traditional economic roles had led to changes in family life-- more divorce, less cohesion within the family, etc. Information revolution has further allowed individuals to form social connections with like-minded folks who are not part of the same physically local community⁵⁴. Freed from the restrictions imposed by geography, each of us can now have multiple identities, arising from the different "communities" with which we are able to interact.

In the political realm, the speaker noted, the information revolution seems to have provided a boost for democracy. It seems also, however, to be leading to more social stratification, although it is not clear that this reflects the rise of information technology per se or the increasing returns to education. Advances in information technology have, of course, contributed to the processes widely recognized as globalization, the speaker noted. Although it is true that trade and investment flows are not a lot greater (in relation to the global economy) than they were in 1900, the speaker argued that harder-to-measure flows of ideas, people, cultural attitudes⁵⁵, etc. are much greater today than they have ever been.

2. POLITICAL CONSEQUENCES

Information revolution has had and continues to have serious consequences on the political and governmental scenes. For instance,

⁵³ Francis Fukuyama, *Social and Organizational consequences of information revolution*. A paper presented at the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999. p. 7.

⁵⁴ Francis Fukuyama, *Social and Organizational consequences of information revolution*. p. 8

⁵⁵ Francis Fukuyama, *Social and Organizational consequences of information revolution*. p. 8

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national sovereignty has been viewed as challenged by each new communication media. What is new about the Internet is the distributed nature of access and content. The Internet becomes a force for democratization (i.e., for political change in authoritarian societies). Whether or not this is true in any given country, depends on their relationship with the internet. Historically, nationalism has been based on geographical communities, however, with information revolution, the Internet makes possible non-geographic, network communities. These network communities can be either global (i.e., larger than nations) or local (i.e., smaller than nations). As the information revolution progresses, these network communities may come to supplant, at least partially, communities based on nationalism⁵⁶. Governments and people have been affected in fundamental ways by increasing efficiency, changing or improving interaction with the outside world, affecting the speed and availability of information⁵⁷, challenging existing regulatory frameworks.

3. ECONOMIC CONSEQUENCES

Information revolution has ignited changes in the business and financial world. Dionne sees it as the arrival of "a new economic order"... characterized by open borders for goods, technology, of income and yes... information," calling it "one of history's greatest technological transformations"⁵⁸. He enthused further, "Stated

⁵⁶ William Drake and Paul Bracken, *The Political/Governmental Dimension of the Information Revolution*. A paper presented at the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999. p. 23.

⁵⁷ Jim Norton and Colin Crook, *The Business/Financial Dimension of the Information Revolution*. A paper presented at the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999. p. 25.

⁵⁸ Dionne, Joseph L. "Information - The New Wealth of Nations." *Vital Speeches of the Day* March 15, 1995: 339-341. [Delivered at the Chief Executive Club of Boston, Boston, MA, January 31, 1995], p. 339

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another way, information has become the 'New Wealth of Nations,' the strategic tool that permits a country or company to understand the dynamic nature of its environment, and next to respond more quickly-and more effectively-to change."⁵⁹ E-commerce engineered by the information revolution has a growth and potential that is dramatic. It has become so widespread that and its speed of adoption is unprecedented⁶⁰. There is an explosion of growth in retail e-commerce and in transactional use by small businesses. It has further broken the many existing barriers to market entries, including geographic and market separation barriers, custom and practice barriers, business scale barriers, etc. information revolution has further enabled the increase in efficiency and effectiveness within existing business models⁶¹. Companies have now been able to reduce development costs and shorten product development circles by means of e-commerce links with their suppliers. In the business to consumer relationship, companies have been able to improve productivity, reduce cost and increased customer satisfaction through e-commerce. In reducing the cost of production, it also reduces the price of product and increases the avenue for feedback from consumers⁶².

4. SOCIO-CULTURAL CONSEQUENCES

The speaker emphasized the degree to which English-language literacy is synonymous with the globalization of information. This is the case not only in terms of hardware acquisition, installation, and

⁵⁹ Dionne, Joseph L. "Information - The New Wealth of Nations." *Vital Speeches of the Day* March 15, 1995: 339-341. [Delivered at the Chief Executive Club of Boston, Boston, MA, January 31, 1995], p. 339

⁶⁰ Jim Norton and Colin Crook, *The Business/Financial Dimension of the Information Revolution*. p. 26

⁶¹ Jim Norton and Colin Crook, *The Business/Financial Dimension of the Information Revolution*. p. 26

⁶² Jim Norton and Colin Crook, *The Business/Financial Dimension of the Information Revolution*. p. 26

repair, but also in the realm of software applications. The dominance of the English language in the global information revolution is accompanied by what he termed the bombardment of Western images⁶³. He asserted that the prevalence of Western images is both tempting and frustrating, as it may create unattainable desires.

An additional element of the global information revolution is increased social stratification in which those most likely to participate most actively tend to have fluency in English, foreign ties, and high degrees of education. Thus, the speaker asserted that the information revolution is a phenomenon that is largely restricted to the political elite. He further asserted that only a limited group can afford to acquire high-tech devices, and that a relatively small group profits economically from the information revolution. Indeed, in some place the market for these tools is already saturated⁶⁴. He further noted that it aids trans-national movements, creates new sources of authority, and widens socio-political gaps⁶⁵.

EVALUATION AND CONCLUSION

Technology and society have a symbiotic and interdependent relationship; and technological developments have worked as a panacea to create the ever elusive digital bridged that has advanced human society in ways too numerous to enumerate. The present piece recognizes that our places of work and relationships with one another are gradually being reshaped by the information revolution. It understands that improved communications is changing the way that individuals spend their time and what the social consequences of these changes might be. The forgoing has, therefore, studied the range

⁶³ John Alterman, *The Social/Cultural Dimension of Information Revolution*. A paper presented at the Global Course of the Information Revolution: Political, Economic and Social Consequences. Held in Washington DC on November 16-18, 1999. p. 35.

⁶⁴ John Alterman, *The Social/Cultural Dimension of Information Revolution*. p. 38

⁶⁵ John Alterman, *The Social/Cultural Dimension of Information Revolution*. p. 38

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of existing views on the consequences of information revolution on the social, political, economic, etc., dimensions of the human society. However, information technology has also come with some disadvantages. There is now the problem of information overload. People are finding it difficult to keep up with the amount of information they can receive. The sense of privacy is gradually diminishing as information now gets easily shared and sometimes information meant for private consumption is given out to the public. There is also the problem of government and private agencies spying at people's private information. This has happened in many countries and agencies in relation to people's private information.

With the development of global communications and domination by multinational companies, there has been a concern about a monolithic imposition of uniformity. Films produced in the United States are shown everywhere, to the detriment of locally produced films. The US media products are not necessarily better, but simply cheaper to buy. This is partly due to the economies of scale that arise from producing commodities that can be sold in markets throughout the world. In addition, these products were sometimes 'dumped' on foreign markets. Films have not been the only commodities that circulate in the global economy. There has been internationalisation of many commodities, especially relevant to 'fads' and 'styles'. Whether it is fast food, jeans, skateboarding, Power Rangers, or Teletubbies, people increasingly have the same buying preferences in clothes, food, music, and so on, leading to uniformity in the films and news viewed, the clothes worn, the food eaten, and the music listened to. The concern is that there is an emergent global culture with a monolithic set of meanings, and that since these are products of the United States, the United States cultural values implicit in all these goods and products will become global cultural values. That is,

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all cultures will be subsumed within single set of meanings (US meanings) at the expense of local, indigenous cultures.

This notwithstanding, a glance at this paper reveals that, the two most important impacts of Information revolution are economic and technological globalization and cultural decentralization. Globalization, defined as the international growth of exchanges through the development of communication is a concept reflecting the increasing economic and informational interdependence of separate nations. Cultural decentralization, or localization, is the trend in which people identify more strongly with their local culture as geographical boundaries lose importance. The information revolution is moving us towards a better integrated world market economy as we move towards a more complex and fragmented earth culture. Freer economic boundaries and increasingly complex cultural boundaries redefine peoples identities; we will be removed a step further from the agricultural age concept of territory as well as a step from our current political identities. This is a thing of concern as Møller asserts that "The national state is based upon the idea of territory. If or when territory loses its importance, so does the national state."⁶⁶

While every revolution comes with its challenges, it always does with its goods as well. A key good characteristic of the social, political, economic, cultural, etc. changes is that today, to a larger degree than previously, people can truly choose how to do their work, live their lives, and spend their time. The information revolution has increased the transparency of government operations and about the consequences of this increased transparency. The regulation of information revolution resides in the human person who has the capacity for reason. If there is any blame at all, it must go to human

⁶⁶ Møller, J. Ørstrøm. *The Future European Model: Economic Internationalization and Cultural Decentralization*. Westport, Connecticut:Prager, 1995, p. 24.

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persons who handle its progress and should determine the limit of progress.

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