

Technological Advancement and the Meaning of Progress

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Abstract

The development and advancement in technology has significantly improved our lifestyle. Technology has made its impact on nearly all the dimensions of life. The rate of technological advancement is increasing with time, society is looking to create and develop easier ways to live and lengthen their lives. The internet is a massive source of information that millions of people use and depend on every day.

It has been observed that the main cause of poverty in underdeveloped countries is that they suffer from the technological backwardness. A specific level of technological advancement is the necessary pre-condition for rapid growth.

Therefore, the task of technological change in underdeveloped countries is difficult because the social set up in backward pre-industrial economies is not conducive to technological improvements on any significant scale. It is observed that the absence of proper technological change retards the economic growth.

I. INTRODUCTION

Technology refers to the use of tools, machines, materials, techniques and sources of power to make work easier and more productive. While science is concerned with understanding how and why things happen, technology deals with making things happen. (Derived from Jaffe et al. (2002) The rate of technological advancement is increasing with time, society is looking to create and develop easier ways to live and lengthen their lives. The internet is a massive source of information that millions of people use and depend on every day.

Development is closely related with technology. The stage of development the human being has arrived could have been possible without the advancement in technology. The radical change and advancement in the economy, as we observe today, is the result of the modern technology.

Technology has brought about efficiency and quality in the manufacturing sector. Technological

advancement has reduced the risk involved in manufacturing enterprises. There has been tremendous improvement in the field of health the world over not only the average age of people has increased but the mortality rate has also declined considerably (London, Elsevier, 2004)

This could be possible only because of technological advancement in health sector. There is perhaps no field of human life which has not been affected by technology. Agriculture, industry, profession, health, education, art, political processes, recreation, religious activities and daily life activities all are under the influence of technology.

But, it is important to keep in mind that technological advancement has affected human life both positively as well as negatively. Not only that life has become easy and comfortable, there are also indications of several threats to life and society in the future due to use/misuse of modern technology. (Dosi, Giovanni 1982. p. 154)

II. SIGNIFICANCE STUDY OF TECHNOLOGICAL ADVANCEMENT

This research of technological advancement extends the knowledge of technology that currently exists in the contemporary world. The concept of Intranet technology is relatively new to the majority of institutions, such as the schools that have chosen to embrace the concept and implemented the technology have welcomed the educational and administrative benefits it has to offer. Therefore, research which explores the advantages of advancement of technology will help to raise awareness among the people. (R. Rosenberg, 2004) pg72)

The advancement in technology has been exceptionally fast in the 20th and 21st century. With electronic technology and machines being produced and improved all the time, it was very likely that along with the positive aspects of these new advancements, people would also consider the negative aspects and look to criticize new technology.

The advancement of new technology has been taking place since the beginning of human history. From the invention of items like the spear and knives made out of rocks and sticks to aid in the capturing and killing of animals for food, to items like the first printing press and the computer.

Every day another company brings out something more advanced in an attempt to win the consumer war against another company. This consumerism is driving the rate of advancement faster and faster each year. The development of the iPhone by Apple is an example of this. Apple brought out a phone that could literally do everything and no other company in the mobile phone market could compare to it. Not only could you make phone calls and text, but you could also watch videos, take pictures and videos, listen to music, connect to the internet, you had apps for almost anything. (Huesemann (2011)Technofix) It's the application market that really blew the other mobile phone companies out of the market at the time. You could download games, books, news, social networking sites in seconds. Of course this was a positive as people could use the phone to store data for work, education, entertainment. But the negative claims began as well, too expensive, quick battery power loss and could a device like this stop face to face communication all together to name just a few claims.

Technology will always have negative aspects because it depends on what the use of the technology is for and who is using it; Albert Einstein once said 'Technological progress is like an axe in the hands of a pathological criminal. (R.Rosenberg, 2004 pg70)

III. OBJECTIVES OF THE STUDY

The primary objective of the study is to increase people's efficiency so that they have more leisure time. Technological advancements exist in this world, in order to ease our work and aid us in all our endeavors. But this does not imply that, the sole aim of technological advancement is to ensure leisure time for people. Because, in today's competitive world, people hardly find any leisure time regarded as 'leisure' for enjoyment; because, they get caught up in some work or the other, no one really enjoys leisure time. Thus, technological development acts as a substitute for our potential, rather than improving our intellectual potential. OUP Catalogue (2000).

However, technology has multiple goals to satisfy, rather than primarily increasing people's efficiency or providing leisure time. As time goes on, the world will witness new inventions; there is absolutely no limit to which, the potential of humans can be utilized to invent

new devices. Therefore, technical advancements will continue to keep people busy, in spite of the easing the people's lives.

IV. REVIEW OF LITERATURE

Literature review provides knowledge and guideline to researchers. The purpose of this review is to identify what is currently advancement is taking place in technological world. Source material has been gathered from existing work in the fields of technology. The idea of technological change carries multiple connotations.

A. Technical Progress and Economic Development

Technological advancement and economic growth are truly related to each other. The level of technology is also an important determinant of economic growth. The rapid rate of growth can be achieved through high level of technology. (Dosi, Giovanni 1982. "Schumpeter observed that innovation or technological progress is the only determinant of economic progress, but if the level of technology becomes constant the process of growth stops. Thus, it is the technological progress which keeps the economy moving. Inventions and innovations have been largely responsible for rapid economic growth in developed countries.

The growth of net national income in developed countries cannot be claimed to have been due to capital alone, (Kindleberger London, Elsevier, 2004) observed that major part of this increased productivity is due to technological changes. Robert Solow estimated that technological change accounted for about 2/3 of growth of the U.S. economy; after allowing for growth in the labour force and capital stock.



Technological change is one of the most important determinants of the shape and evolution of the economy. Technological change has improved working conditions, permitted the reduction of working hours and provided the increased flow of products.

In fact, the technology can be regarded as primary source in economic development and the various technological changes contribute significantly in the development of underdeveloped countries. 1996; Keresztes and Shaw

Technical progress helps intensive utilization of the available resources. It leads to diversification of resource utilization. Increased and diversified output contributes to the growth of national income and economic development.

B. Use of Potential Resources:

Technical advancement facilitates the discovery and utilization of potential resources of the country. Thus, technological progress helps the growth of substitute resources for imports. As a result, domestic production is increased with domestic resources themselves. For example, in India, oil could be exploited due to technical progress.

C. Helpful for Export Promotion:

Technical advancement is very much helpful for export promotion. It facilitates diversification of output in under developed countries. As a result, these countries become capable of exporting non-conventional goods, such as engineering products and various other finished products. Greenall and Loizides, 2001, New technology helps to increase the level of output and therefore the capacity to export. Because of diversified output, dependence upon the developed ones is considerably reduced. Accordingly, terms of trade start improving in favour of the developing countries and these countries start getting fair compensation for their exports.

D. Contribution to Import Substitution:

An underdeveloped country utilizes technological progress in the field of import substitution. As a result, lot of foreign exchange is saved for the import of essential raw materials and capital goods. Thus, the process of technological progress continues hand in hand with the process of capital formation within the country.

E. Growth of Infra-structure:

Technological advancement helps the growth of infra-structure of the economy. They include the basic facilities like transport, Communication, power and irrigation. They play pioneer role for the development. Thus technical progress contributes to the growth of the economy by way of developing its infra-structure.

F. Increase in the Efficiency of Human Resources:

Technical advancement helps to increase the efficiency of human resources. Labour is given training for the use of techniques of production. It improves

their efficiency. Increase in the efficiency of workers, in turn, facilitates more innovative ideas of production. Cost of production and prices are reduced which are very much useful for developing countries.

G. Helpful Industrialization:

The growth of industrialization depends upon the growth and application of new technology. Technological progress has been the chief determinant of industrial revolution in the European nations. In less developed countries, establishment of basic industries requires modern- technology.



Technological progress has the direct bearing upon the process of industrialization. It helps the progress of all such parameters which are vital to the growth of industrialization. Germany and Japan are good examples of technological progress in the world.

H. Change in Social and Economic Structure:

It has been observed that technological progress has made remarkable change in the social and economic structure of underdeveloped countries. Man becomes curious to acquire new ideas so as to raise his income level and the level of living. The outlook of the man becomes more progressive. Contacts with the developed countries generate 'Demonstration Effect' which in turn help shedding conventions and rituals.

A new social order is established. More of efficient labour and capital are needed for the application of new technology. For its arrangement new economic institutions are established. All this brings about structural changes in the economy.

I. Increase in Capital Formation:

Technical progress leads to the growth of output and productivity. Götz, Georg. 1997. As a result, per capita income is increased. On the one hand, consumption of the household raises, while, entrepreneurs start saving, generating more and more

surplus. They are encouraged to make more and more investment in the economy. It helps to generate capital formation and the rate of growth automatically increases.

J. Availability of Foreign Capital:

Generally underdeveloped countries face the problem of capital and domestic capital is already scarce. Thus, foreign-capital is invested in such developing countries generally on the condition that technological changes “are introduced in the process of production. In such a situation technology and external investment become the cause and effect for each other.



New technology is also used in the new enterprises established with foreign collaboration. In this way, foreign capital is available with the underdeveloped countries which can be used for domestic technological advancement.

K. Agricultural Development:

With the advancement of technology, agricultural sector is also developed. New agricultural strategies which include new high yielding varieties of seeds, fertilizer and other methods of production are sine qua non to technical advancement. (Belindo, J. (1997) As a result, there is tremendous increase in agricultural production. In India, green revolution is a good example of technological progress.

Today, the economy has become global. More and more countries are participating in the global economic system. India too has joined the global economy. In the year 1991 the country introduced New Economic Policy with three major agenda: liberalization, privatization and globalization. It has opened its national boundaries for free movement of capital, knowledge and goods. By doing so India entered into a new economic regime.

Fig 1 : Befor (Poor irrigation methods)



Fig 2 : After (advanced irrigation methods)



Technological advancement has led to revolutionary progress in industrial development. OUP Catalogue 2000. The technology has improved the quality of manufactured goods, increased the efficiency of industrial production and tremendously diversified and multiplied industrial and occupational opportunities.

Enormous growth has taken place in the service sector also in terms of emergence of unconventional jobs. (Broad, Boyer and Chataway (2006) consider, the economy has become highly competitive in which people have been subjected to a work culture, which does not allow space for those who do not keep pace with the technological advancement.

It has been observed that the main cause of poverty in underdeveloped countries is that they suffer from the technological backwardness. A specific level of technological advancement is the necessary precondition for rapid growth.

Therefore, the task of technological change in underdeveloped countries is difficult because the social set up in backward pre-industrial economies is not conducive to technological improvements on any significant scale..(R.Rosenberg London, Elsevier, 2004). It is observed that the absence of proper technological change retards the economic growth.

The technology is the most powerful means of wresting power from nature in all possible ways. It strengthens the facilities of man. Prof. Frankel assumes that the, “Technological change is not a mere improvement in the technical know-how. It means much more than this. It should be preceded by sociological change also, a willingness and desire on the part of community to modify their social, political and administrative institutions so as to make them fit with new techniques of production and faster tempo of economic activity.” Technology, according to(J. P.

Dewhursts), in fact, can be thought of as the change in the production process of material and human skills.

Process of Technological Change:

Technological changes devise new goods and techniques of production. The development of new technical knowledge can be defined as the growth of the new technique that can produce goods and services at lesser cost of production.

V. THE PROCESS OF TECHNICAL ADVANCEMENT

The first stage is the advancement in scientific knowledge; the second is that of the application of this knowledge to some useful purposes and third is the commercialization of invention which is called innovation. (see Richardson, 1997) This has a great significance in the process of development. Schumpeter has distinguished between invention and innovation. Invention implies the discovery of new technique while innovation is practical application of invention in production for market.

It may be called commercialization that originates from scientific advancement. Invention is scientific fact while innovation is economic fact. (McManamon 1996). Inventions are carried on by the inventor's large capital investments at every stage as it needs not only a scientific attitude but an attitude of the community and an entrepreneurial skill of high order with the ability to understand the possibilities of employing scientific incentives for commercial purposes.

VI. TECHNOLOGICAL CHANGE AS A SOCIAL PROCESS

Underpinning the idea of technological change as a social process is general agreement on the importance of social context and communication. (February 2005, Lawsuit). According to this, technological change is seen as a social process involving producers and adopters and others (such as government) who are profoundly affected by cultural setting, political institutions and marketing strategies.



In free market economies, the maximization of profits is a powerful driver of technological change, generally; only those technologies are developed and reach the market that promise to maximize profits for the owners of incoming producing capital. Joost.vp on 26 August 2008.

Any technologies that fail to meet this criterion even though they may satisfy very important societal needs are not developed. Therefore, technological change is a social process strongly biased by the financial interests of capital. There are currently no well established democratic processes, such as voting on the social or environmental desirability of a new technology prior to development and marketing that would allow average citizens to direct the course of technological change.

VII. IMPACT OF TECHNOLOGICAL CHANGE ON SOCIETY

Science and technology are essential ingredients of modern life. They transcend local boundaries and touches lives of everyone. Evolution of mankind can be seen in terms of technological evolution as well., 2002; Macaulay, Harris, The technological factors represent the conditions created by men that have a profound influence on his life. Technology is product of civilization. According to Karl Marx even the formation of social relations and mental conceptions and attitudes are dependent upon technology.

A. Technology and Industrialization:

Technology has contributed to the growth of industries or to the process of industrialization. Industrialization is a term covering in general terms the growth in a society hitherto mainly agrarian of modern industry with all its circumstances and problems, economic and social.

B. Technology and Urbanization:

In many countries the growth of industries has contributed to the growth of cities. Urbanization denotes a diffusion of the influence of urban centers to a rural hinterland. Urbanization can be described as a process of becoming urban moving to cities changing from agriculture to other pursuits common to cities and corresponding change of behavior patterns. Hence only when a large proportion of inhabitants in an area come to cities urbanization is said to occur. Urbanization has become a world phenomenon today.

C. Technology and Modernization:

Modernization is a process that indicates the adoption of the modern ways of life and values. It refers to an attempt on the part of the people particularly those who are custom-bound to adapt themselves to the

present-time, conditions, needs, styles and ways in general. It indicates a change in people's food habits, dress habits, speaking styles, tastes, choices, preferences, ideas, values, recreational activities and so on. People in the process of getting modernized give more importance to science and technology. Götz, Georg. 1997.

D. Technology and Unemployment:

The problem of unemployment is a concomitant feature of the rapid technological advancement. Machines not only provide employment opportunities for men but they also take away the jobs of men through labor saving devices. This results in technological unemployment.

E. Changes in social institutions:

Technology has profoundly altered our modes of life. Technology has not spared the social institutions of its effects. The institutions of family, religion, morality, marriage, state, property have been altered. Modern technology in taking away industry from the household has radically changed the family organization. Many functions of the family have been taken away by other agencies. Marriage is losing its sanctity. (Blanchard A. & Horan, T. (1998). Virtual communities and social capital It is treated as a civil contract than a sacred bond. Marriages are becoming more and more unstable. Instances of divorce, desertion and separation are increasing. Technology has elevated the status of women but it has also contributed to the stresses and strains in the relations between men and women at home. Religion is losing hold over the members.

VIII. RESEARCH METHODOLOGY

In present study used qualitative research method and scientific methodology technique, because it is an appropriate technique for drawing information from large technical world with limited time and cost. The research design adopted in this study is descriptive and analytical in nature. Advancing Research Methods with New Technologies examines the applicability and usefulness of new technologies, as society transforms and is transformed by new technology, so there are new ways in which qualitative researchers collect and analyses data and new forms of data to collect authentic information. February 2005, Lawsuit: There are many way of research techniques and data collection methods to bring about the desired objective of this type of study. The difficulty would be deciding which method the data should be collected. The method of data collection to be adopted in this study is observation, Interview, experiment and Web browsing.

For the purpose of quantitative analysis, data were

collected through well-organized interview schedule consisted of both close end and open ended questions regarding the research objectives. The questions of the interview schedule were discussed with supervisory committee and the experts of the relevant field in order to ensure the content validity of the interview schedule.

IX. ANALYSIS AND INTERPRETATION

Advances in technology have enabled a level of sophisticated analysis, we truly live in the Information Age and take full advantage of the new tools available to review and analyze historical trends and experiences and project for future activity. The findings of multiple regression analysis reveal that the technological advancement has enhanced the quality of life and the standard of living of people. R. Rosenberg, London, Elsevier, 2004 The radical developments in communication, transportation, entertainment and domestic conveniences have made human living quite smooth and comfortable.

Quantity and quality of scientific and technical personnel and other resources available for technology development Based on historical experience it is a reasonable assumption that the more and better scientists and engineers there are in a field of technology, the more likely it is that technological advances will occur, and/or that the speed of innovation will be faster, barring the exception that there can be too many people on a project for efficient communications. (Derived from Jaffe et al. (2002), The proposition that there is a direct correlation between expected technical progress and the number of qualified personnel presupposes, of course, that a corresponding quantity and quality of tools and other material requirements needed to support their work is also available. R&D, Innovation, and Technological Progress: A Test of the Schumpeterian Framework without Scale Effects (Zachariadis 2002) is an example of a research findings that support the assumption of a positive link between the quantity of properly supported technologists and technological progress, in subsequent discussion, will represent the combination of quantity and quality of resources available for technology development.

X. CONCLUSION

Technological change, technological development, technological achievement, or technological progress is the overall process of invention, innovation and diffusion of technology or processes. Our personal life is highly dependent on the technology that people have developed. Technology has advanced with years and it has changed the way we purchase products, the way we

live, the way we communicate, the way we travel, the way we learn and so many changes have been brought about by these continuous technological advancements. As people's demands and life style change, the demand for advancing the type of technology we use is high. Almost everything we use has been innovated to better standards, technological advancements have helped businesses and organizations save time and cost of production, which has been an advantage to all business.

Modern technology has surely made a great effect on the whole globe, mainly via the worldwide connectivity promoted by the internet, smartphone technology, and the handheld advancements, as human beings are progressing. Right from the invention of fire to the global contact networking, human beings have endeavored hard to advance their lifestyle quality and raise their standard of living. Technology is constantly evolving the way humans spend their lives. Right from the way they eat to how they communicated, work and entertain themselves, technology has become the most important part of every person's life across the globe.

REFERENCES

- [1] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg70
- [2] February 2005, Lawsuit: 'Grand Theft Auto' Led Teen to Kill. Fox News Available from: <http://www.foxnews.com/story/0,2933,147722,00.html>
- [3] February 2005, Lawsuit: 'Grand Theft Auto' Led Teen to Kill. Fox News Available from: <http://www.foxnews.com/story/0,2933,147722,00.html>
- [4] R.Rosenberg, The social impact of computers (London, Elsevier, 2004)
- [5] R.Rosenberg, The social impact of computers (London, Elsevier, 2004)
- [6] R.Rosenberg, The social impact of computers (London, Elsevier, 2004)
- [7] February 2005, Lawsuit: 'Grand Theft Auto' Led Teen to Kill. Fox News Available from: <http://www.foxnews.com/story/0,2933,147722,00.html>
- [8] Appadurai, A. (Ed.). (1988). The social life of things: Commodities in Cultural perspective (1st paperback ed.). Cambridge [Cambridgegeshire] and New York: Cambridge University Press.
- [9] Ascher, M. (2002). Mathematics elsewhere: An exploration of ideas across Cultures. Princeton, NJ: Princeton University Press.
- [10] Belindo, J. (1997). AIROS Down Under. In The Vision Maker 11(4): 4.
- [11] Berkes, F., Johan Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological Knowledge, as adaptive management, Ecological Applications, Oct 10(5): 1251-
- [12] Blanchard, A., & Horan, T. (1998). Virtual communities and social capital, Social Science Computer Review, 16(3): 293-307.
- [13] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg72
- [14] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg72
- [15] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg77
- [16] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg77
- [17] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg77
- [18] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg77
- [19] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg77
- [20] R.Rosenberg, The social impact of computers (London, Elsevier, 2004) pg8
- [21] Derived from Jaffe et al. (2002) Environmental Policy and technological Change and Schumpeter (1942) Capitalism, Socialisme and Democracy by Joost.vp on 26 August 2008
- [22] **Jump up**^ Ruttan, Vernon W. "Technology, growth, and development: an induced innovation perspective." OUP Catalogue (2000).
- [23] **Jump up**^ Jaffe, Adam B., Richard G. Newell, and Robert N. Stavins. "Technological change and the environment." Handbook of environmental economics. Vol. 1. Elsevier, 2003. 461-516.
- [24] **Jump up**^ Acemoglu, Daron. "Directed technical change." The Review of Economic Studies 69.4 (2002): 781-809.
- [25] **Jump up**^ Huesemann, Michael H., and Joyce A. Huesemann (2011). Technofix: Why Technology Won't Save Us or the Environment, Chapter 11, "Profit Motive: The Main Driver of Technological Development",
- [26] Dosi, Giovanni, and Sidney Winter. 2000. "Interpreting Economic Change: Evolution, Structures and Games", Laboratory of Economics and Management, LEM Working Paper Series. July 2000 p. 7.
- [27] Dosi, Giovanni 1982. "Technological Paradigms and Technological Trajectories", Research Policy 11, North-Holland Publishing Company. p. 154
- [28] Dosi, Giovanni 1982. "Technological Paradigms and Technological Trajectories", Research Policy 11, North-Holland Publishing Company. p. 157
- [29] Fagerberg, Jan. 2002. "A Layman's Guide to Evolutionary Economics", [Online] available from http://folk.uio.no/janf/downloadp/02fagerberg_evolution.pdf; accessed June 2005; internet.
- [30] Götz, Georg. 1997. "Monopolistic competition and the diffusion of new technology". Draft June 1997 <http://homepage.univie.ac.at/Georg.Goetz/adopt.pdf> ; accessed June 2005, p. 2.
- [31] Götz, Georg. 1997. "Monopolistic competition and the diffusion of new technology". Draft June 1997 <http://homepage.univie.ac.at/Georg.Goetz/adopt.pdf> ; accessed June 2005, p. 2.
- [32] Götz, Georg. 1997. "Monopolistic competition and the diffusion of new technology". Draft June 1997 <http://homepage.univie.ac.at/Georg.Goetz/adopt.pdf>; accessed June 2005; p. 30.