CONSTRUCTIVISM IN THE ERA OF TECHNOLOGICAL SINGULARITY

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ABSTRACT

This article aims to study the concept of Singularity, its nature and impact on human life; and focuses on the connection between Singularity and approach of Constructivism. Singularity refers to the stage where artificial intelligence exceeds human intelligence. It can also refer to the exponential development in technology that will cause a sort of great disruption. Constructivism focuses on the inter-subjective meaning of reality created due to interaction of number of players and institutions. The paper contends that the technological explosion will create a sort of crisis for the human identity which will make the dimension of construction and modulation of reality by human groups even more important. The Singularity has the potential to create the most powerful 'other' for the entire human race after the dawn of agricultural revolution. This can probably help us to transcend all the divisive barriers and identify with the common elements that connect the human race. The paper also briefly evaluates the impact of singularity on the contemporary economic structure.

KEY WORDS: *Singularity, Artificial Intelligence, Human Intelligence, Technological Disruption, Constructivism, Reality Structure, Chaos, Machine Era, Other, Unified Self.*

INTRODUCTION

The relation between Science and Politics extends back to the earliest days of human civilization. The technology is closely related with science as it is more or less an application of science to suit our needs and requirements. The rise and fall of civilizations had much to do with the process of spread and arrest of technological advancement. The technological advancement in military sector had great role in establishment of great empires. The heights of architectural engineering and Chemistry of Egyptian Civilization, the knowledge of medicine and astronomy in Gupta era in India, the tremendous development in industrial sector in Europe in modern times are just few examples of the general prosperity brought about by technological advancement. The level of prosperity and material welfare is certainly one of the most important indicators of good and happy life and almost every political establishment has tried to justify itself in the terms of improved happiness and well-being of people.

The technological development is not at all a new phenomenon. However, the rapid technological development has brought about a change in the very nature and structure of technological impact. There is exponential growth in technology. The frontiers of knowledge is extending quickly on a daily basis and the basic question now is even more about the effective human control over technology as it is about the need to further expand technology to meet our needs and solve our problems. It has been rightly pointed out that the temporal length of different period of human development in technological development has been consistently shrinking. The Paleolithic Age was of about lakh years, the Copper and Iron Age was of some thousand years while the contemporary period cannot be defined in reference to any one technology.

The concept of technological singularity refers to the overall expansion of human knowledge in the technological sector at so fast pace that it will tend to explode at some point of time. Technological Singularity is concerned with exponential growth of technological knowledge. It is mainly related with the development and expansion of artificial intelligence. The intelligence is believed to be special human capacity that has enabled to control the nature in a successful way. Artificial Intelligence is related with development of some devices and machines that will function like human beings as far as numerous cognitive functions are concerned. The advanced researches have revealed that learning of simple functions is extremely complex affair and there is need to develop an elaborate code of commands to enable the machine to function in such a way. However, the scientists have developed robots that can substitute human beings in number of daily activities.

Technological Singularity contends that the development of Artificial Intelligence will occur at such a pace that it will surpass human knowledge at some point of time in this century or so. The entire nature of control and regulation of technology will be greatly altered as the machine will have greater intelligence and knowledge than human beings.

The very concept of technological singularity has been treated as a mere tale of science fiction. It has been contended that the factual realms of human cognition is so complex that no machine will be able to replace it in long terms of time. It is true that many tales of science fiction like parallel world, time machine has not seen the light of the day. The opponents have a point that if the concept is not factually sound, there is no point in losing our time for dealing challenges of such society.

It is however submitted that the notion of science fiction is not far from reality in many cases. The development of technology is occurring at such a pace that Singularity might be achieved in the near future. The Singularity Summit has estimated that the year in which Singularity will be achieved as 2040. Another important point is that technological development is occurring at such a fast pace that many resembling features of Singularity society will be definitely attained even if Singularity is not realizable. The Automation will cause large scale replacement of workers within the next 10 years. The challenges to human employment will be multiplied in the case of large scale mechanization and automation. The potential of annihilation of large societies in terms of climate change and warfare will increase, regardless of whether singularity is achieved or not. There is need to develop a vision regarding the challenges of such society. The aim of this paper is to see the potential of constructivism in setting up and altering the basic terms of reference in such society.

In this article, I will use the extended version of the contention of proponents of Technological Singularity. The explosion of technological knowledge is occurring in other fields like Nano-Technology, Bio-Technology, and Space Technology. The impact of such development has led to greater understanding of natural phenomenon and has multiplied our ability to solve great problems in medical, agricultural, horticultural, animal husbandry and geographical fields. There is also great danger of misuse of such technology to suit the selfish, egoistic and sadistic desires of human self. The power of technological knowledge can easily be subverted to destroy the human existence.

Constructivism is an approach in international relations that believes that reality is constructed by the inter-subjective meaning developed by the interaction of different actors and institutions that have their own goals and interests. It is opposed to the realist and liberal approaches which support an objective interpretation of reality. The realists contend that the nature of international relations is basically defined by conflict while the liberal thinkers believe that there is great scope of cooperation in international politics. However, both believe reality to be somewhat imposed on the actors who have no role in shaping and moulding of reality itself. The role of Emotion in decision-making is also sidelined by the realist and liberal thinkers whose contention is that human beings are guided by rational sense. Constructivists are open to the role played by emotions and the various shapes and dimensions that emotion can adopt in the actual conduct of relations.

The relation between Constructivism and Technological Singularity is complex and related to the basic guiding forces of human society and politics. On the superficial level, both may seem to be at great odds with each other. Constructivism is acceptance of human subjectivity while Technological Singularity is celebration of objective domains of knowledge. Constructivism gives lot of space to human volition while Technological Singularity is related to process of ascendancy of machines and devices involving the marginalization of human self. However, a deeper search into the nature and dynamics of both theories reveal that there is great inter-relationship between the two theories. This is because technological singularity raises serious ironical existential question on human intelligence to survive its own gifted ability of invention and innovation. The very supremacy of human cognition is under challenge at the hands of its own object. This will call upon massive introspection about the goals and purposes of life and construction and re-construction of identities and interests to secure long term welfare. The fluidity of identity has increased a lot due to technological advancements and it will further increase as greater permutation and combination of dangers to human race is involved. The rapid pace of technological advancement has reduced the stable experience of time and there seems to be meaningless rush out of control of even the so called achievers. There is great sense of isolation among individuals as everyone is so busy in himself and the intrinsic individuality of every individual is lost in the den of objectively defined variables of performance indicators. The identity and definitional values of an identity have great role in giving a sense of

meaning and belongingness to an individual. This raises the scope of identity construction, formulation and re-formulation in the era of technological singularity.

There is a great retreat to the era before the dawn of Agricultural Revolution. This is because for the first time after the Agricultural Revolution and the birth of some great civilizations that other great worldly entity beyond human being is created that has the potential to challenge the very human race itself. Constructivism is very important as the great potential "Other" has been generated in the terms of robot and advanced devices. This has caused threats and challenges to the working human relations as there is great chance of unfortunate selection of the path of self-annihilation by the human race. It was Albert Einstein who had said, "Nuclear Technology has changed everything, but the human mind." The Technological Singularity has created a grand opportunity to define and mould the core values of human race in substantial sense as this definition and shaping is no longer merely religious or spiritual, but also political. The very question of optimum demography and dominating population is likely to change to great extent as there is scope of altering the requisite units of human simulacrum at the will of leadership. This will happen under the impact of cloning and creation of highly advanced robots.

The technological advancement has changed the dynamics of politics vis-à-vis religion. Earlier, the lack of understanding of natural phenomenon like earthquake, flood and cyclone caused the human beings to declare it as an act of god implying that it is beyond the control of human race to protect themselves from such natural calamities. The religious leaders often proclaimed that such calamity occurred due to wrath of god as the human society is indulged in number of vices. Now, there is greater control over such phenomenon as there are devices to predict such events and there is elaborate mechanism of disaster management. So, the government is asked question and is put to severe criticism if it fails to undertake suitable steps to deal with the hazardous problem. Thus, the entire analysis of a given natural phenomenon has greatly shifted to the domain of political and administrative fields, besides the focus of scientists to develop tools, machines, devices and techniques that effectively deal with such problems. The Construction was earlier done in terms of human sin and divine punishment and the solution was deemed to lie in practice of some religious mores and religious ceremonies, rites and rituals. Now, the same is constructed in terms of ecological imbalance and unscientific, ecologically unsound practices; and the solution is believed to lie in Governmental efficiency in disaster management and sound eco-friendly practices that has role for government intervention, besides community participation. The case of Ecological imbalance has become very important as the climate change has the potential to greatly damage human lives and properties. Thus, the politically constructed terms are greatly impacted by technological developments.

THE STRONG OTHER AND UNIFIED SELF

It is contended that the strength of concept of self in the common imagination of people is directly related with the strength of other. The other is defined as something which lies outside self and is relevant in forming the concept of self as the self develops and crystallizes itself in opposition to the other. The development of tools and implements in the Paleolithic age led to the gradual victory of human race over the other animals. This led to shift of balance in favour of the human race. The human beings became so powerful that the animal species were no longer able to pose any challenge to their existence. Thus, humanity became so strong that there was no formidable other. This led to process of fragmentation of human race where there was severe struggle among the human groups. The groups have been formed along various axis, the chief being tribe, race, religion, nation, caste etc.

The death as a definite end of life where everything comes to nothing posed great challenge to individual human being. This death became the powerful other, opposed to the vital life. Death has always remained a great mystery to the human race as there is nothing certain after death. Death became great limit for all scientific and empirical endeavors while it also became great source of philosophical enquiries and metaphysical speculations. Death was a spot where the worldly acts, crimes, commissions and omissions were constructed into larger than life image. All the human beings were deemed to be accountable for their acts in the next world. The ultimate erasure of activities with the gradual flow of time was subverted and the significance of worldly acts gained an eternal significance. The entry into heaven and hell was permanent abode of happiness and sorrow for good and bad people respectively. The blind spot after death remains to be one of the most important reasons of deep reverence and fear that religion enjoys in the minds of millions and millions of people.

The tremendous development of technology has created a powerful machine that has made great impact

on human life. The very notion of collective life and collective consciousness is under great peril. The very notion of individual self has undergone a great change after the Industrial Revolution. The individual is able to indulge in the technological gadgets so much that he has little need of real face to face interaction with other people. The nature of communication has changed a lot with the entry of virtual space.

The growth of Artificial Intelligence has raised new doubts about the supremacy of human intelligence. This has invited fresh questions regarding the nature, scope and limits of human knowledge. If the robot is able to become a grand substitute of human beings in terms of labour and work, then the very framework of mutual support which provides base to human solidarity will be in question. There will be new questions related to unemployment as great automation will lead to large scale replacement of workers. If the machines are able to provide services at low cost, the emotion-free system of market forces will increasingly use machines, leaving workers at the cruel fate of invisible hand. This asks for the change in constructed notion of consumer, producer, worker and entrepreneur in the Machine era. This is because there is only an individual human being who has been so divided on the basis of his functions. The relevance of such classification will be questioned as the human capacity of production has been greatly substituted by machines.

There will be need to construct an integrated version of human self as opposed to machines. This will cause for fresh appraisal of his emotional capacity, adaptive potential and his strength in social coordination. The entire human history will have to develop new focus laying emphasis on the common threads connecting the entire race and the champions of divisive trends will lose their universal appeal. The massive collection of information tends to prevent a simplified version of history as every grand narrative will be challenged on the basis of several contradictory facts.

CONSTRUCTIVISM AND PLURALISM

Constructivism is an approach that becomes very important when there is scope for multiple interpretations and paths. When there is only one interpretation or solution, then the scope of shaping and moulding it in different ways becomes a guarantee for failure. This normally happens in case of application of mathematical concepts in daily life. The era of technological singularity has opened new vistas of framing human identity in numerous ways. One can stick to the traditional identities or can follow the new

affiliations or even mixture of the two. Every great and powerful idea has a great connection to the external reality in which it appeared. The reality extends to social, economic, political and cultural situations of the time. At the same time, it has strong universal appeal. Thus, there are elements in every idea that able to transcend time and space, while there are ingredients that are destined to retire into the oblivion.

The traditional idea has the durability aspect in favour of it. It has great impact on the collective psyche of the people. Further, it becomes a matter of faith for the followers and so the traditional thought becomes immune to severe attack of rationality. The impersonal element in tradition also makes it a great vehicle in carrying forward the values to the new generation.

The modern idea is powerful in the sense that it is more closely connected to the problems of a given age. The idea has also been less corrupted as compared to the traditional idea which often undergoes through process of inclusion of malpractices within it. The modern idea has greater ability of adjustment as there is greater rational critique of it.

The hybrid path seems to be the strongest path in contemporary times. This is because of great multiplication of ideas and greater flow of them due to improved means of communication. The challenges of modern times reduce the potential of one thought to solve all the problems. Almost every theory has some elements which are acceptable even to the opponents.

Constructivism will enable us to critically appreciate the different paths adopted by different theorists. Constructivism is open to the importance of material reality. So, it will make solid effort to understand the complex, multi-dimensional material reality in the era of technological singularity. The scope of artificial intelligence in solving numerous human problems in medical, agricultural, industrial sector besides domestic help will be evaluated. There is need for greater interaction between science and humanities. This will be ensured by following high level norms of scientific journalism which will enable scholars of humanity to understand the actual level of technological development to great extent. The threats and challenges posed by scientific development also needs a critical appraisal. The power of destruction has been multiplied and there is far greater scope of interfering with the ecological equilibrium and altering the DNA and other molecular details to the gross disadvantage of the human race. This is an age of technological explosion. It is impossible for any research scholar of humanities to

have complete knowledge about all the major technological breakthroughs. It is however possible that one has working knowledge about the major developments.

The other aspect of Constructivism is related with the ideational aspects of reality. It is this aspect which brings it closer to normative science. The construction of reality is not simple process of imbibing the external knowledge. It is the product of interaction of different players and institutions. The multiplication of institutions has been described by Hedley Bull as **Neo-Medievalism**. The involvement of players has tremendously expanded in the age of technological explosion because the growth of communication devices and internet has provided increased number of platforms for anyone to gain access to knowledge and spread it to other people quickly, conveniently and at low cost. The entire nature of information transaction has become easier in terms of lower cost and time saving.

Each individual has a separate reality structure in his mind. The Reality Structure tends to be unique in case of every individual. This comprises of number of ideas and norms preferences that he develops over a given period of time. This is influenced by his interaction with external reality and his inherent subjectivity and bias. The Reality Structure is dynamic and it tends to change with greater inputs of different type of information and experiences. This has increased the complexity of actual working of institutions as the total number of interaction among several actors has tremendously increased leading to greater expectations and emotional display. The role of constructivism lies in its ability to explain the process by which reality gets proper shape and the numerous set of reality structures get reduced to smaller set of reality structures and each structure is able to attract support of large number of people.

The Chaos is one of the definite results of numerous structures, each pulling and pushing in different directions without any defined motive. Chaos is condition of minimal optimum as any creative idea is likely to be unfulfilled in such conditions. Chaos is often a point where rascal elements have their way as no well developed idea is successful enough in preventing it. This leads to desire of shift from chaos to order. This movement is not new to this age as the works of Plato and Aristotle were also reaction against chaos generated by philosophical ideas of Sophists. The creation of order requires clubbing together of similar reality structure into one set. This reduces the total number of reality structures. The process is not smooth as there are great variations among elements of any given set and also similarities among elements of different sets. There is always great level of adjustment among different sets. The Construction of Reality must occur in such a way that the different mindsets and cognitive structures can exist in a sort of harmony. The cost of discord is much more in a technologically advanced than in a technologically backward society.

CONSTRUCTIVISM AND THE ECONOMIC ASPECT

Constructivism is very important in defining the economic construct. The entire theory of modern economics developed after the Industrial Revolution. They were very important in defining the concept of economic man and the entire discussion was centered on individual desires and propensities that were assumed to be time-space neutral. Some significant changes happened with collapse of classical structure in period of Great Depression ushering in Keynesian Revolution; the emphasis on Planning in Socialist countries; the rise of Development Economics with the independence of large number of countries in Asia and Africa, but the basic concepts have held their ground. The technological singularity has the power to displace the productive potential of every individual. With the loss of productive supremacy, the entire system will be under pressure to provide employment to the people. Productivity is the base on which workers get income and then they consume goods and services. Their saving is channelized into investment. Without productivity, the chain of economic activity will collapse. The principle of moral neutrality and invisible hand will lose appeal in case of utter helplessness of workers. There will be great demand to re-structure the entire chain of resource allocation in such a way that the large numbers of people are able to live normal life. There will be shift to resource distribution as opposed to production and profit maximization under such conditions.

The pressure on environment will cause greater emphasis on the rational consumption of resources in a sustainable manner. The availability of basic resources in abundance will shift the focus from production to consumption. The demographic balance requires to be properly set up in such conditions as the larger per capita consumption coupled with increased population will deteriorate environment in irreversible direction. Thus, the power of Constructivism lies in the establishment of mutually agreed norms and principles that set up key terms which determine the behavior and functioning of

entire society. Construction of such term is influenced by the dynamics of socio-economic reality, the role of powerful individual and group and the tacit consent of the society at large. The consent comes only when the society is able to sustain and adapt itself under the opportunities and limits provided by the actual implications of such terms.

The International Relations is greatly shaped by the economic terms and agreements. The entire phenomenon of Imperialism was rooted in the economic exploitation of poor countries that were compelled to sell raw material at low costs and import finished goods at higher prices. The rise of new Artificial Intelligence based devices will cause great upheaval as large number of semi-skilled and unskilled workers will lose their jobs in under-developed countries. The magnitude of problem is likely to be immense and hence the poor worker cannot be left to whims and caprices of the construct of invisible hand. This will require great degree of external assistance and supply of essential goods and services to the entire population by government; otherwise there will be great casualty in the short run. The concept of universal man needs to be strongly constructed into the identity of man free from shackles of economic chain as far as living a simple life with dignity is concerned. The ghost of social Darwinism must be warded off, lest it causes havoc to the innocent aspiration of millions and millions of people.

CONCLUSION

In this paper, I have tried to analyze the relationship between rapid pace of technological development and human perception of external reality. There is an attempt to evaluate the problem from different angles like discourse of self and other; concept and practice of pluralism and economic impact of disruption. There are great challenges posed to the human society by singularity, but there is also hope of resurrecting the strong identity of human self transcending the barriers that have divided humanity throughout history. There is need of greater analysis of technological singularity through the framework of social science approaches, particularly Constructivism, by the social scientists. It will reveal the new challenges posed by rapid technological development and help us to know its impact on social, political and economic structure.

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