Impact and Effect of Technology towards Global Challenges

Dr. Sambit Kumar Mishra
Professor & Head (R&D), Gandhi Institute for Education & Technology, Bubaneswar, INDIA

ABSTRACT

The main objective of this article is to make complete perception of a sustainable and present society through technology during the transition. It is understood that the technology usually supports and enhances a better path for society. It is also seen that majority of the world population still lives in poverty with inadequate food, housing, and energy along with sufferings which may be easily cured if the environment is made clean, transparent along with fresh water and availability of general medicines and latest technologies. It has been observed that a significant number of former developing countries are now on the threshold of development, helped by technology transfer and technological innovations that have benefited large parts of their populations. A better life usually requires that the basic needs of individuals should be met and aspirations for freedom, belonging, and self-realization are fulfilled as much as possible. It does not necessarily mean the maximization of material production and consumption. The technology should encompass essentially three meanings: tools and instruments to enhance human ability to shape nature and solve problems. This article also focuses on the ethics associated with current research in technology education and challenges that emerged for technology education.

Keywords: Self realization, threshold, aspirations for freedom, sustainability during transition

I. INTRODUCTION

In early days, civilization was only linked with developing tools for agriculture, irrigation and water management etc. Gradually knowledge engineering as well as technology becomes more focused on understanding of how to make and use tools and instruments that becomes encoded and transmissible. It is well understood that technology is the development of modern scientific knowledge which is based on observations, pure hypotheses. The transition from technology as tool to knowledge was visualized around the first industrial revolution. It is also understood that the global change involves significantly more components than only climate. Changes in the Earth System referred to the suite of interacting physical, chemical, biological and human processes, may have significant consequences, without involving any major changes in climate. The system may be viewed in terms of the five phases, i.e., Data extraction, Information extraction, Knowledge extraction, Modeling and Decision making.

In case of data extraction, it is to extract the relevant data from the earth observation imagery. The relevant satellite sensor parameters, after radiometric, geometric and standardization procedures have been applied, need to be extracted from the numerous satellite systems providing data on a daily basis and have to be transmitted, stored in large data bases, to enable data query and exploitation services. In case of information extraction, it includes geo-statistical analysis, object-oriented image classification, graphical information analysis, data mining and especially the study of dynamic global change studies using change detection technologies. In case of knowledge extraction, it is involved with extraction of knowledge or real understanding of the information extracted from the global observation data.

In case of modeling, it is based on these objective laws and some reference boundary conditions that is possible through virtual reality modeling to predict future development trends for global change and in decision making, it is required to present the outputs of the models to the decision makers to enable them to select the best of the multiple options available from the models.

II. REVIEW OF LITERATURE

Kuhn, T. S et.al[1] in their paper have focused on the Structure of Scientific Revolutions, in which they
argued that theories and facts have only meaning within a dominant “paradigm”, laid the groundwork for challenging logical positivism.

Latour, B. et al[2] in their paper have mentioned that, the idea that science reflects reality or even absolute truth may be challenged in many ways, from critics of its reductionism to critics who emphasize that scientific facts are as much socially constructed as a reflection of natural laws.

Rajan et.al [3] in their paper have focused towards a truly democratic governance system, which is not captured by business, military, or bureaucratic interests. Such a governance system may operate on all levels of society, from global to local, in accordance with the subsidiarity principle. Information and communication technologies (ICT) will be instrumental to make governments more transparent and less prone to corruption, truly balancing long- and short-term interests of all sections of the population.

Kates et.al[4] in their paper have focused on Global Citizens Movement (GCM) and a progressive change in dominant societal values that had raised awareness among consumers that their lifestyles were not only unsustainable, but also unhealthy and stressful, which prevents them from feeling happy and fulfilled.

Stutz J et.al [5] in their paper have discussed that now a day consumers become less interested in consuming as such to fulfill their needs and more in participating in decision-making about issues that are relevant for their own and their children’s lives. In this way, they have become citizen-consumers. Citizen-consumers have been empowered to express their demands for products and services in such a way that they reach a balance between personal interests and the public good.

White, A. L et.al[6] in their paper have given importance to communication media which are dominated by commercial advertisements promoting the fruits of technological innovation in the form of desirable consumer products that are absolutely necessary for a good life and for “well-being”. The media could become another driver for a transition to sustainability, if it could address issues of sustainability in an integrated and holistic way, understanding the mass culture, but trying to strengthen its sustainability. Communication about really sustainable forms of need fulfillments would be the way to do it. Although how mass communication could be disentangled from the grip of powerful corporations is unclear, the key is probably to reform business itself to create a better balance between business and other actors in society.

Holmgren et.al [7] I their paper have discussed that arcadia is in essence the advanced future form of a rural society. Economies are mainly self-reliant, enterprises are small and locally owned, direct democracy and community engagement are the norm, and the love of nature is one of the dominant values. In such a society, ecological agriculture and perma culture are predominant, with a close relationship between consumers and producers through local cooperative organizations, as well as strong linkages with academic and business research institutes that follow ecological agricultural principles and methods. ICT also enables bonds with other communities, both local and at great distances, which share similar values. New conservation methods vastly enhance trade in agricultural products.

III. IMPACT ON TECHNOLOGICAL DEVELOPMENTS

The idea that science reflects reality or even absolute truth has been challenged in many ways, from critics of its reductionism to critics. The theories and facts challenged in structure of scientific revolutions have only meaning within a dominant paradigm.

Energy is a key aspect of sustainable development. The present energy system is mainly based on fossil fuels. This trend is unsustainable for a number of reasons: threats of man-made climate change by greenhouse gas emissions, the rapid depletion of fossil fuels, rising energy prices due to increasing demand, geopolitical uncertainty, and threat of instability in oil-rich countries. Solutions will be found in massive energy efficiency; development of renewable energy based on sun, wind, biomass, and tides; and improvements in energy storage technologies, such as batteries and flywheels. Health care is obviously of central importance for every person on the planet, and takes quite different forms in so-called “developing” and “developed” countries. This can be accomplished through a combination of poverty alleviation, sanitation, safe drinking water, prophylaxis, vaccination, and Western and traditional medicines. Agriculture in a sustainable society will provide plentiful food supplies at prices local populations can afford, at a level of quality that promotes health, and without damage to the environment or reduction of biodiversity. To achieve this goal will require a prudent combination of new technologies and ecological sensitivity.

IV. OBSERVATION WITH SUITABLE IMPLEMENTATION

It has already been initiated intelligent information system to visualize and monitor the integrative systems, satellite communication systems. In the global scenario, approximately six satellite series are in operational namely recoverable remote sensing, communication and broadcasting satellites, meteorological satellites, scientific probing and technological experimental satellites, earth observing satellites and navigation and positioning satellites. An ocean satellite series is in progress for implementation, the model of an ‘Environmental and disaster monitoring satellite
‘constellation’ has been prepared. Data sharing is being enhanced with CBERS and MODIS data providing more stable and updated data for ensuring digital data construction.

V. DISCUSSION & FUTURE DIRECTION

A global symbolic representation of the built environment should be made available. The global human settlement layer should be a multi-scale volumetric information layer describing artificial spaces where people live, work etc. Physical components such as buildings, roads and open spaces should be accurately described at each scale from single rooms or apartments, to rural villages, towns or mega cities etc. The widespread use of Lidar and digital photography should be enabled the creation of this global layer in 3D, so that all built environments should be explored moving from the inside of buildings to the whole metropolis. Digital histories of buildings and cities should allow navigation through time (4D), and new planning proposals should be regularly debated based on realistic models portraying the evolution of the city in the future. Also about many things including interoperable sensors, Radio Frequency Identification, tagged objects and products, livestock should be connected to digital earth, which will provide a wide range of cloud-based infrastructures, services and solution-oriented capabilities.

VI. CONCLUSION

Information and communication technologies are now oriented mainly to fostering transparency and democratization in governance and business, to citizen participation in decision-making in all aspects of life, to communicating widely the results of modern science and technology among the population, and to diffuse widely sustainable practices, services, and technologies. These transformations are mainly gradual but sometimes unexpected shocks helped accelerate transitions in the “right” directions and transition processes to a more sustainable use. The main motivation is to create awareness that technology will not automatically lead us into a sustainable future and is really difficult to influence dominant technological trajectories.

REFERENCES