

## 21<sup>st</sup> C New Technologies Towards Creating A Haven or Hell

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### Abstract

The 21<sup>st</sup> C has been marked by immense technological, economic and social transformations. Earlier, innovations resulted in mass production, consumption, and interventions by government. Today the common man can afford technology.

The 21<sup>st</sup> C highly competitive IT sector's slogan is *faster, cheaper, smaller*. Information technologies are connecting every nook and corner of the world. Information Technology is leading to the development of major new technologies such as cloud computing, automated knowledge work tools, 3 D printing, and advanced robotics. People can now work from home, and thereby decide where and how they live and work. On the one hand, IT and IT enabled Progressive IT systems will certainly result in more environmentally sustainable products through a less wasteful production process; on the other they will seriously impact the demographic equilibrium, unless business leaders and policy makers put in place effective counter measures.

Such progress is bound to affect the way business is done. Intermediaries are soon becoming extinct, and businesses are now passing on the benefits to the customers. Tomorrow's Information Technologies will drastically improve communication and simulation capabilities, and will replicate historical and physical situations thus resulting in learning by "doing", and moving at one's own pace.

But increasing technology has increased the risk of natural & man made disasters that could create difficult to control destructive situations. It is not easy to adopt new attitudes, and accept alternative approaches to risk management. Entirely new business models are being invented in order to profitably use the new conditions created by progress. The consumer today is becoming the producer. It will take time and concerted efforts on the part of individuals, businesses and policy makers to sustain and develop such a radically different culture.

The author concludes that individuals, acting on their own and also collectively in the form of public opinion will have to be responsible on a

continuous basis; this will ensure that emerging new technologies are harnessed for the common good and for sustainable development.

This research is primarily based on secondary sources, and can be developed by a primary investigation of the methods employed by the corporates, the governments and the non-government bodies to face the challenges and the risks arising out of the technologies emerging in the 21<sup>st</sup> century.

**Keywords: IT driven progress, fast, cheap, small, risks, new business models, continuous individual responsibility, creative and innovative, transparent**

### **Introduction**

A range of newly emerging advanced technologies has already begun to impact in a major way the 21<sup>st</sup> C workplace and the society in general. Today, technological inventions seem to be introduced with greater frequency. The trend will continue. Technology and its effects on the present day workplace will rapidly change lifestyle, work patterns, as also values and way of thinking. It has accelerated globalization. Big as well as small companies today have customers all over the world. Businesses can establish satellite offices anywhere in the world with the help of Internet (Levinson, Meredith, Oct. 15, 2001). Increasing competition for providing Internet facilities to developing nations is resulting in growth in areas earlier lacking in business opportunities due to absence of communication devices (Berger, S., 2006). Computers and information technology have become essential today, and the trend will continue. We must study how these technologies and their consequent repercussions will promote development and retention of sustainable businesses and communities.

### **Literature Review/Background**

The primary fall out of technology is efficiency. Businesses today deliver products and services more fast and efficiently; this results in higher

profits. Some technologies result in totally new products and services (Singh, N. (2007)). Business leaders have to realize that the USPs, on the basis of which they have strategized, might disappear or be strengthened by emerging technologies in ten years' time. They have to judge whether the new technologies might yield new customers or compel them to think of ways to retain their existing ones or whether there is a need to invent new strategies (Toffler, A. & Toffler, H., 2006). Companies today go in for customized programs offered by functional and technology consultants that meet the specific needs of their business.

Policy makers and societies need to take decisions regarding investments in new education patterns and infrastructure, and judge how path breaking economic change will transform their current relative advantages (Hausmann, R. and B. Klinger, 2006). Governments have to work for an environment that will enable citizens to prosper even as new technologies disrupt their daily existence. Lawmakers and regulators must manage new biological capabilities and protect citizens' rights and privacy.

Demographic shifts, expansion of labour force, urbanization, or new capital formation patterns can dramatically change economies and societies. By leveraging networking technology, teams of workers will remain in contact around the clock. Shifting demographics will result in workers of the future who will be younger and older than before. They will live in different countries and have unorthodox work arrangements. Highly mobile, they will not be loyal to one company or career as the New Economy puts a premium on the literate, the empowered, and the master of technology (Henson, Row, (2001). Technology has been responsible for growth and transformation in economies. It results in economies creating more value with less input. At the same time, new technology makes old skills and strategies irrelevant and can prove to be disruptive (Appelbaum, E. and R. Schettkat, 1994). Policy makers, business leaders, and society all will have to confront change in the organization of businesses, job definitions, use of technology for communication, and, our comprehension and manipulation of living things. Established norms will have to be forgotten, and new ones formed.

The 21st C with its new fast paced technology has both opportunities as well as threats. Leaders can use to advantage the opportunities offered by new technologies, if they start preparing now.

## Objectives

The paper analyses the changes brought in by 21<sup>st</sup> C technologies as to whether they obstruct our progress towards a sustainable environment or whether they lead to further development. It attempts to see whether these technologies can be used for improvement of human existence rather than allowing them to destroy mankind.

## Research Methodology

The paper critically surveys secondary sources. The study may at a later date be developed by a primary investigation of the strategies employed by corporate to face the changes and the risks of the 21<sup>st</sup> C IT progress.

### 1. New Technologies Resulting in Material Welfare

The third phase of the digital revolution that began in the post-World War II period is represented by the 21<sup>st</sup> C. The first phase involved the development of computers, which were worked upon to make them faster, more compact and cheaper. The second phase was characterized by the introduction of the Internet that revolutionized the technology of information transfer. The third phase commenced in the first decade of the 21<sup>st</sup> Century with the pervasion of IT enabled technologies in the fields of manufacturing, service sector, knowledge work, curative medicine and agriculture (Hausmann, R. and B. Klinger, 2006).

The collective impact of these three phases of evolution is colossal. It presents a fascinating picture.

#### a. *Compressing of Huge Chunks of Data:*

As pointed out in a report by McKinsey Global Institute, today an I-phone 4 costing \$ 400 has the same computational capabilities that a super computer of 1975 had. Further the super computer was bulky and as big as a house. Today, recording, processing and storage of data has become very cost effective with a good chunk of the benefits getting passed on to the final customer.

Today, all computers are now controlled through "chips" or transistors of various materials other than silicon. The CPU (central processing unit) and the memory chips consist of switches, gathered from miniscule transistors. Fingernail size chips contain billions of these transistors. Today, with ever decreasing switch sizes, more computer directions can be packed into the same space, so that it is very powerful yet consumes less electricity. Today with technology we can expect personal computing devices to become very tiny in the near future (Dahlman, C. J. and A.

Utz, 2005). Today, many computer technologies are already wearable. Computers are being tested that can be worn, for example, as ear battery or wrist watch. People can now weave chips, sensors, wiring and processors into their clothing thus making technology highly portable. Technologies more recent than optical computing like bio-computers and quantum computers are being developed. Quantum computers will help solve currently unsolvable problems. Future technical developments thus imply the creation of a world in the near future that is now beyond our comprehension.

- b. Rapid Data Transfer Leading To Formation of Global Village:** Rapid technological progress has enabled extremely rapid systems of data transfer, resulting in marvellous innovations such as Fly by Wire aircraft, real time control of spacecraft and on line management of businesses in the far flung corners of the world. Introduction of Mobile Internet in the last decade of the 20<sup>th</sup> century has hastened this transformation. According to the McKinsey report, 30% of internet access in the US is now through Mobile Internet devices such as Smart Phones. Speed of ideas, technologies and competitive pressures as also co-operation for reducing conflict and environmental pollution, will shape future socio-technological paths. Internet technology provides free and open access to a very powerful tool namely a Common Standard. The internet enables collaboration and extension, not isolation and restriction. Governments and international organizations are working towards making the internet a widely shared and equal platform that will boost e-commerce and free flowing information. Improved internet and rapid data transfer will lead to the formation of the global village. Location specific advantages will tend to disappear and the need to post people to a particular address in the world will reduce considerably. Every job opening will have global competition.
- c. Robots Replacing Humans in Manufacturing:** Robots have been used in manufacturing since the late 1970's, but they were then clumsy, bolted to the floor and were meant for working on specific and (to humans) ergonomically uncomfortable and tiresome jobs such as Long Seam welding, Multiple Spot welding and Spray Painting. The advanced Robot of 21<sup>st</sup> century is however

light weight, capable of a much larger variety of actions and can easily perform a number of tasks currently performed by humans (Toffler, A. & Toffler, H., 1970).. Besides that, it doesn't get a salary, works continuously without overtime, doesn't get tired and does not make mistakes. The desire to replace humans with robots is therefore understandable.

- d. Technology Impacting Service Sector:** Technology developments in the 20<sup>th</sup> century did not have much impact on the Service Industry whether it was customer service by Consumer Product Industry, Insurance, Banking and Super Markets. Consumer Products Industry continued to offload their customer interface work to Call Centres located in the third world countries, Insurance and Banking continued to provide manned service for customer interface and Super Market counters were still manned by humans checking the items bought and for preparation of bills and collecting payment.

With more and more sophisticated IT enabled services, this picture is rapidly changing. Routine and relatively non-complicated service sector jobs will increasingly be replaced by robots thus drastically reducing costs. Already, super markets in the US are replacing human with robots on the cash counters on a trial basis, and a whole spectrum of call centre services is gradually being controlled by sophisticated computers that can handle the nuances of dealing with questions posed by human beings. In short, a lot of service sector jobs earlier performed by humans are set to be taken over by IT enabled equipment.

- e. Technology for Knowledge work:** Already, Computer aided Design (CAD) and Computer aided Manufacturing (CAM) has replaced to a considerable extent the human effort earlier required for these activities (Evans, B., 2010, April 14). This trend will pick up momentum in the 21<sup>st</sup> century. Work like translations is today being done by computers. IT enabled equipment is used for graphics design. Already, trades like sign board painting have become extinct and this trend is likely to continue. Computers today prepare medical prescriptions and even legal submissions. Very little knowledge work will be beyond the scope of IT enabled equipment in the 21<sup>st</sup> Century.

**f. Technology and Curative Medicine:**

Towards the end of the 20<sup>th</sup> century itself, medical tests and laboratory analysis of samples were being executed by IT enabled equipment. This trend is likely to get further accentuated in the 21<sup>st</sup> century, when even diagnosis of diseases and determination of curative care is likely to be performed by computers. In the 20<sup>th</sup> C, the approach to human health was on the basis of the industrial mass production and consumption model; the hospital was like a factory and the patients were like passive consumers. This model was very costly and not always effective. In the 21<sup>st</sup> C, breakthroughs in understanding genetic and biological processes along with powerful computers capable of monitoring, storing and assessing huge amounts of bio-data could lead to speedy pinpointing of hereditary and environmental factors affecting the health of people. Thus it will be possible for the common man to prevent health risks. Technological advances and well planned regulatory systems, that presently control data related to health could help patients become active controllers instead of passive consumers.

**g. Technology for Progress in Agriculture:**

IT enabled services have already been instrumental in genetic modification of crops and determination of the optimum methods of cultivation of crops. Coupled with large scale mechanization already evident in the agricultural sector, the 21<sup>st</sup> century will witness both reductions of the skill levels required as well as the head count required for delivery.

**h. Technology for Exploration and exploitation of natural resources:**

IT enabled equipment is enabling highly sophisticated exploration techniques as also highly mechanized extraction of the resources identified.

**i. Technology Resulting in Disintegration of individual organization's learning conventions:**

21<sup>st</sup> C technologies have transformed the individual organization's age-old internally accepted norms about what its members need to learn in what manner for facing new and radically different environmental conditions.

**2. Threats and Challenges Arising Out of the New Technologies**

**a. Possibility of widespread unemployment:**

While introduction of more efficient technologies is improving the output in each of these sectors in terms of quality, the employment potential in these areas is

set to receive a severe setback. This is because skillsets which once helped secure employment to individuals, may become outdated.

A prominent feature of 21<sup>st</sup> C emerging technologies is that IT enabled technologies such as advanced robotics will eliminate a wide range of low to medium skill jobs in the manufacturing industry. Already, the US is experimenting with the replacement of humans with robots for jobs such as check-out counters in the supermarkets. Probably in the coming few years, call centre operations which are currently outsourced to developing countries will be replaced by robotic services. Already, because of advanced technologies, unemployment in the world is on the rise. 2013 saw the highest number recorded for unemployed in the world, at 202 Million (Economist, The, 2006).

**b. Technology Widening Gap between the Haves and Have-nots:**

Globally, income disparities between the privileged few and the vast multitude of ordinary people is sharply increasing. Interestingly, the divide between the haves and have-nots is growing fastest in developed countries. Research by OXFAM shows that the income disparities are growing at the fastest pace in the U.S (Kniivilä, M., 2007). This is because the 21<sup>st</sup> century technologies are orientating in the developed world.

**c. Technology Increasing the financial power of the multinational corporations:**

A very disturbing feature of 21<sup>st</sup> C technologies, is that their development, use, and dissemination is almost completely controlled now by MNCs (Lall, S., 2003). The avowed objective of these corporations is to maximize the earnings for their shareholders, even though most of them accept the principles of Corporate Social Responsibility (Pavitt, K. and P. Patel 1998),

**d. No Provision of a safety net for those less gifted:**

The late 20<sup>th</sup> C regarded Communism as the God that failed. A lot of empirical evidence supported this belief, since the free market economies were seen to be doing much better than the command economies of the socialist world. In fact, the socialist economies, one by one made a transition to the Free Market model. Minimum government became the mantra for success. However, the advent of the 21<sup>st</sup> century technologies, which are aiming at the low skill jobs across the entire spectrum of employment, makes it clear that now there is less and less of safety net for those

who are not gifted, i.e. those persons whose skills cannot as yet be duplicated by IT enabled equipment (Toffler, A. & Toffler, H., 1980). This trend is likely to get accentuated if the penchant for less government continues (Baldwin, R., 2006).

- e. **Creation of new threats through technology:** The 21<sup>st</sup> C technologies could pose threats to the natural and human environment. Either by accident or through malevolence, the advances and diffusion of genetic engineering could give rise to unintended, unanticipated diseases, ecological vulnerabilities, and weapons of mass destruction. Dependence on computers, networks and the software that runs them could leave critical parts of society's life-support systems, like nuclear power plants, medical systems, and security and sewage treatment facilities, open to both inadvertent yet catastrophic crashes and intentionally debilitating attacks. The spread of information technology makes it easier to violate basic privacy or civil rights and to engage incriminal practices ranging from fraud and theft to illegal collusion. There is also the possibility of greater vulnerability to system-wide breakdowns in, for example, the air-traffic control infrastructure. Lastly, the long-term development and diffusion of radically innovative technologies such as human cloning or computer-based intelligence (or even life-forms) could challenge existing ethical and cultural standards, and become unbearable to people's tolerance of the unknown and foreign. The shock induced by certain technological breakthroughs could end up generating serious social unrest (Akrich, M., 1992).

### 3. Corrective Measures That Can Be Taken

On the whole, the collective impact of the new technologies emerging in the 21<sup>st</sup> century is highly positive, considering the material benefits that will be brought to mankind as a whole. However, it is also necessary to take cognizance of the challenges and threats that these new technologies will create, and the measures that should be taken by individuals, businesses, academic institutions and policy makers in order to neutralize them. It is also important to ensure that the new technologies are used for the sustainable development for the inhabitants of this planet. The following corrective actions can possibly be taken:

- a. **Up hauling the educational system:** These digital tools are essential for more effectively predicting and planning for educational needs. It is necessary to double computer capacity, expand computer communication systems and thereby increase the pace of change through greater social interaction. The digital age has expanded data as also unpredictability. All this in turn has made everyone realize the **need and capacity for education**, and for **mankind to transform and grow through learning**. Digital advances have resulted in exponential change permeating world culture.

The CIO of Google estimated that only around five exabytes of information came into existence since the inception of the world and 2003. Since 2003, however, mankind creates 5 exabytes in two days itself (Evans, 2010). Today, it is imperative to **develop an educational system that grows because of such change** and does away the shock caused by it. Through parallel and grid computing, many projects have been started to solve problems by utilizing the idle time on innumerable computers connected by the Internet. Public schools, which generally do not have any or proper internet resources, must understand the disadvantages that their students will face in such a world. Developing countries will have to expand the quality and access of primary as well as secondary and tertiary education (Altenburg, T., Schmitz, H., and Stamm, A., 2006). Government should see education and training as integrated systems for life-long learning. This is because ICT in education is not a technique for educational development but also a way of socio-economic development of the nation.

- b. **Collaboration through networking under guided supervision:** The tremendous growth in the quantity and quality of information and its instant accessibility through technologies like smartphones and portable computers has resulted in massive cultural change (Smyth G., 2008). The arrival of speedy computer networking has resulted in the use of the **team approach** for processing a task quickly. Educators need to apply team working skills with the aid of the new networking tools of an increasingly connected world, and create new systems that will energize education and promote community and economic

progress (Nooriafshar M., 2008). The creation of teams through internet will result in in-depth and fast interaction in learning. Schools dislike teaching students internet applications or permitting them the use of internet tools like email, Instant Messenger chat, newsgroups, etc. So students operate these applications at home without educational supervision. This knowledge is essential for current economic growth, and yet educators regard it as harmful for academic progress. But, this internet based interaction is essential in the 21<sup>st</sup> C. Further, the global nature of the Internet has created teams that cut across the globe. Collaboration is imperative for creativity and such creative digital collaboration promotes change. This is also often seen as harmful for academic learning. But interaction knowledge is increasingly becoming an essential skillset.

- c. **Need to teach critical thinking skills:** In the 21<sup>st</sup> century it is becoming essential to manage information (ideas). The 21<sup>st</sup> century is being transformed by information. At the same time, a lot of information induced gaps are surfacing that are challenging society, educators and classroom learning (Houghton, 2011). Information management covers storing, communicating, and computing. There are very few analytical minds that can understand this data (Staff of Science, 2011), and fewer still who can explain it to others and use it for global improvement. Students therefore need to be taught to use higher order thinking skills for optimally utilizing this data. Students also need to learn to express ideas through a wide variety of Web based media which are two-way systems of communication and storage as against the traditional systems like books, newspapers and journals. Schools need to inculcate questioning and critical thinking skills so that students will be in a position to face the digital world (Oliver R., 2008)..
- d. **Controlling MNCs through Public Policy:** One key effect of globalization is the growing importance of MNCs who are today responsible for a major chunk of R & D in the 21<sup>st</sup> C. They impart knowledge directly through their operations in foreign countries wherein they bring new processes or

products/services or business strategies that are imitated by the domestic companies of that country. They also train employees who in turn may disseminate the knowledge when they leave that company. They pressurize domestic firms to improve their processes. This increasing participation of MNCs in generating knowledge and producing and distributing goods has encouraged developing nations now to attract and use FDI effectively. Countries that do not offer intrinsic advantages like profitable avenues through supply to their markets or their availability as export platforms for other nations will have to access relevant foreign knowledge (e.g. copying, reverse technology, and arm's length transactions) through other means. So they are forced to merge with the MNC controlled global supply chains. But getting an entry into such chains is very difficult. Production runs are long, and suppliers have to observe quality and timeliness. Very few businesses from developing countries have created globally their own brand names that enable them to sell their products worldwide.

- e. **Managing Cultural Change:** Our agricultural, industrial and cyberspace tools are increasingly being modified by computer technology. So our cultural systems will soon absorb computer technology into our thoughts values, and psyche in a manner similar to the absorption of writing into human culture. Also, the speed of the changes results in a delayed appearance of the intended impact of a technology than generally expected (Toffler, 1970). For example, it was many years after corporations had adopted the use of hourly computer for their employees' use that its positive economic impact was seen. Today information technology is essential for economic growth.
- f. **Requirement of a safety net for the underprivileged:** Another challenge of the 21<sup>st</sup> C technologies is that of bringing knowledge to those who need it the most. Technology for private goods is transferred in different ways like FDI, technical assistance, licensing, capital goods embodying technology, reverse engineering, and foreign study. Uncomplicated communication, with the help of internet, makes accessible technical

information in both printed as well as soft form. Proprietary technology is usually available on a contractual basis. But even this may be accessed depending on how much the Intellectual Property Rights (IPR) is enforced, as also the reverse engineering capacity of users. A lot of useful technology is accessible to the public or is owned by governments who can make it public. These new technologies can be best harnessed when the users have access to supporting industries and finance. So there is need for a strong regulatory environment to facilitate the enforcement of contracts. Thus new technologies can be best utilized by putting in place superior economic and institutional systems.

The creation and dissemination of knowledge is being accelerated by the information revolution and advances in science. The digitization and codification of technology permits simulation and speeds up the creation of new goods and services. Innovation also involves better organization and management techniques, and also using better business models. E.g. Walmart monitored consumer demand from points of sale through electronic cash registers, by linking that information to central ordering directly to producers worldwide. They thus eliminated intermediaries in production and distribution.

Developing countries, that are not capable of manufacturing products, don't get the benefits of merchandise trade. So it is necessary for developing countries to tap into the ever growing stock of global knowledge. Advanced countries need to invest more in their own R & D for keeping abreast of newer technological advances. They are demanding a legal license to protect their advantage through a strict enforcement of Intellectual Property Rights (IPR). This will hinder developing countries from accessing technology, even if they adopt measures like lowering of trade barriers and economic liberalization. India has actively entered the global arena since 2000. Government's liberalization policies and the ensuing stiff competition from MNCs made domestic companies realize the need to introduce efficient and cost effective

products and services and also increase their R & D budgets. Developing countries will be forced to create their own centres of excellence to ensure a place in the sun for themselves. Technologies will need to be adapted to suit local conditions.

- g. Devising systems with inbuilt protection mechanisms:** Further, while computers have become indispensable, we have still not managed to debug them completely. The complexity of computer networks can result in human mistakes (Levinson, 2001).. Their complexity and their accessibility by many users make them vulnerable to viruses and other deliberately misbehaving code which can create problems in important work or leak sensitive data. Designers must build systems that are prepared for imperfection and handle it well. Software failures due to easily avoidable coding errors have cost companies and governments dearly (Levinson, 2001). Software failures of computers in other machines, like X-ray equipment, weapons, passenger jets and cars, have also led to deaths. Computer systems used in hazardous scenarios must incorporate fail safe interrupts that protect users until the computer can be repaired.
- h. Implementation of innovative and cost effective production processes:** The production process has physically disintegrated with the digitalization of information and the consequent reduction in transportation and communication costs. Thus different parts of an end product are manufactured in different countries and the product is then assembled in yet another country only to be sold worldwide. This has made it necessary to also tap in to global supply chains. The former business principle of manufacturing a product close to the end consumer has disintegrated. Consequently, production of labour intensive goods is being handed over to developing countries with lower labour costs. Developed countries seek to remain ahead in the competition by focussing on the skill and technology intensive sectors (Kurzweil, 2001).
- i. Creation of a vision for the organization:** A vision is a set of goals shared by persons within an

organization or amongst groups of organizations. Visions influence the decisions to adopt certain technological options and to discontinue others in order to promote development and progress. They orient, co-ordinate and motivate. They help individuals shape their views and come to decisions. They create basic understanding amongst individuals in an organization and amongst organizations that ultimately lead to co-operation. They also motivate individuals to take action

#### 4. Conclusions

**Overview of the changes in the Near Future:** Information Technology has paved the way for the development of other technologies that could yield more benefits to the final consumer, but at the same time could possibly adversely impact employment and heighten social inequities. Mankind also has to learn to prosper in the face of growing change, diversity and unpredictability. Yet this adaptation to change has never been easy. This is not because of lack of information. Abundant information about severe threats also fails to positively change many persons. To achieve sustainable development therefore, one must not only accept change but also be willing to learn something new in order to stay adaptive. The new technologies have impacted life psychologically, intellectually, and also economically. They are a threat to jobs at the bottom of the skill ladder and at the same time create new and better paying jobs at the top of the ladder (Kurzweil, 2001). This ultimately sustains efforts to change.

Communication technologies have reduced transportation costs, expanded and globalized trade, and created a "real time world" wherein whatever happens in one region is instantly reported worldwide. On account of this increased globalization and instantaneous communication, developing nations must develop greater capabilities for responding quickly to new threats and opportunities.

The Internet has necessitated the creation of new business models. Online stores are negatively impacting standard business models. The knowledge boom created by the 21<sup>st</sup> C technologies has brought down prices, and this will affect all business plans. In today's economy, it is vital to create new products and services very quickly.

#### 5. The Road Ahead

It is clear that while 21<sup>st</sup> C technological advances could possibly enhance the spectrum of material comfort available to mankind, they are also likely to accentuate inequities, create widespread unemployment and finally lead to problems that

will make the survival of the less gifted difficult, whether it be an individual, groups or even nations. A world view based upon popular 20<sup>th</sup> C ideas, namely laissez faire economies, minimum government and free capitalism is only likely to intensify these problems. Policy makers definitely need to intervene, both for retraining the work force and also for ensuring a minimum safety net for the less gifted. Socialism and Communism can no longer be viewed as Gods that failed, but will need to be partially revived albeit in the 21<sup>st</sup> century to ensure that a large section of humanity is not pushed towards its destruction. Besides the Government, all those who are working for the public good, including education institutions, charitable and Non-Government organizations, will have to work towards creating a safety net for the less privileged. Co-operation, empathy, and collective decision making are needed today. But it is not just telework that will truly decentralize decision-making and co-ordination. It is not something that will just save office space and reduce commuting. It is essential today to introduce new mechanisms that can provide inexpensive but reliable information. Rapid technological development and diffusion will happen only if both employees as well as consumers are creative spontaneous and transparent. Without these checks and balances, the 21<sup>st</sup> century technology may very well destroy the human race.

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#### Author Profile



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