# ICT and Mahatma Gandhi

## I

## India's New Civilizational Encounter

Civilizations have interesting origins. More than 6000 years ago civilizations developed not only in the Indus Valley but also in Egypt and Mesopotamia and in China and Greece. The birth of Christ and six hundred years later of Muhammad added to the pantheon of path-finders: Mahavira, Buddha, Confucius, Lao Tzu, Socrates, Plato and several others (known and unknown sages, saints and teachers) and they contributed to the growth of many civilizations. Each civilization is a repository of human ideas and ideals, of dreams and encounters.

During most times, contacts between civilizations have been minimal with limited contacts among them. Civilizations largely grew independently of each other. Every major civilization, however, spoke in terms of the cosmos and had aspirations to be a universe in itself. It was only with technological progress that civilizations developed contact with each other, and thereafter dialogue among civilizations acquired some form. As a result, today every civilization views itself as a part of a larger universe. Besides, dialogue among civilizations is considered crucial for global peace and harmony.

Indian civilization is deep-rooted and far-reaching. Several millennia ago, the Indian genius made major contributions to mathematics and astronomy, medicine and metallurgy, fine arts and

philosophy, textile dyeing and architecture, religion and yoga, poetry and drama. The mere mass of the intellectual production is something truly prodigious, but somewhat more interesting is the continuing vibrancy of spirit that has had an ennobling effect.

During this long and enduring story of Indian civilization, four encounters have been seminal. These are: *first*, the coming of the Aryans and the composition of the Vedas, together with significant advances in music and medicine, mathematics and astronomy, logic and philosophy. The *next* major encounter was internal and emerged through the spirit of enquiry that was implanted in the Indian mind around the 6th century B.C. through the efforts of Lord Mahavira, the founder of Jainism, and Lord Buddha, the founder of Buddhism. The *third* encounter was between Hindu and Islamic belief systems. Then there was the interaction with the influences of the West and, more particularly, of the Industrial Revolution and the English educational system.

The freedom movement (1857-1947) carried forward this civilizational encounter and imparted new strengths and uniqueness of character to India's civilizational continuum. The anti-colonial movement under the leadership of Mahatma Gandhi, in particular after 1920, acquired epic proportions and challenged age-old practices of denial of education to certain classes of people based on untouchability and caste-practices. The essence of Mahatma Gandhi's teaching was fearlessness and truth, and action allied to these, always kept the welfare of the masses in view.

Each of these *four* civilizational encounters has deeply influenced our society, our families and our individual beings and are living parts of our consciousness and ways of living. Since the closing years of the last century, we have been called upon to embrace another great

civilizational encounter, the *fifth* one, encompassing all aspects of our living. This is, of course, popularly known as the Information and Communications Technology Revolution (ICT). The constructive role being played in this by the Indian information technology managers and management professionals is a kind of contribution that needs to be viewed as a continuation of what pioneers like Raja Ram Mohan Roy sponsored in 19th century India and was carried forward by cultural and political leaders of the freedom movement. The ongoing ICT revolution has facilitated, as never before, free movement of capital, goods, and ideas.

Briefly stated, in the 1990s, the Government of India de-regulated industry and worked for integration of markets and strengthened global financial networks. It also improved the infrastructure for connectivity. All this produced an explosion of ideas and new institutions sprang up in the country. This created a new universe of a million possibilities, not earlier anticipated.

In the first decade of the 21st century, this globalization process deeply influences the mind and perception of young Indians and is heralding new ways of looking at history and culture, science and technology, economics and management. But, most of all, it imparts fresh ideas of self-renewal and has the potential to make enormous impacts on our economy and standard of living.

The new civilizational encounter needs to be viewed in several perspectives which are special to Indian conditions: What are the major physical expressions of the ICT revolution? What kind of social inequity would arise as we move along? What impact would it make on India's culture and values? Would it lead to emergence of an exclusive 'Brahminical' class of yesteryears? Whether Mahatma Gandhi's life and

message will help or impede the onward march of the ICT revolution? Can the moral values of Mahatma Gandhi be embraced by the leaders of the ICT revolution? Or would money and market be the governing facts of life and society? Would the Indian mind cope with the challenges of the ICT revolution and take the country forward?

## II

## The Information and Communications Technology [ICT]

The Information and Communications Technology (ICT) is based on connectivity. All its expressions: hardware, software, telecommunications, computers and the Internet are characterized by the connectivity and the access to information. In fact, it is this seamless convergence of devices that deal with information that has led to the spectacular onward march of ICT today.

Historically, it was only in the 1970s that e-mail, the micro-processor and the floppy disk came into existence. But it made exponential growth. Today, each one of these has permeated into several households.

Communication satellites have emerged as an important media for meeting the telecommunications, broadcasting and mobile communication requirements. Communication satellites are used for various purposes, including news and data dissemination, emergency communication, navigation, disaster warning, telephone and radio programme distribution, tele-medicine and remote education, besides communication among individuals. Many advances have taken place in the area of digital satellite communications which have enabled reduction of ground terminal size and an increase in the number of TV

channels. Developments in satellite communication have ushered in the global communication era with the widest possible reach for broadcast.

There is a strong correlation between telephone density, Internet use and economic growth and overall development. There are numerous examples from across the developing countries clearly establishing the benefits of increased access to ICT in enhancing competitiveness as well as productivity. It makes a significant contribution to the empowerment of people. There is a strong belief that ICT can play a significant role in the removal of poverty in the shortest possible time. Take the case of a farmer: technology can assist him not only in selling his produce at a reasonable price but also in selecting the right seeds for sowing, using the appropriate fertilizers and so on. This is also true of education, healthcare and in other fields of human endeavour.

The dividing lines between nations and their success in terms of this new revolution will not be dependent on whether the country is in the East or in the West but as to whether they are fast or slow in absorbing the instruments of change generated by the ICT.

## III

## The ICT and Development Processes

The ICT is radically transforming decision-making processes and ways of thinking. In the economic domain, it has brought about fundamental changes in the realms of production and consumption. In the dominion of governance, the ICT has facilitated better access to information about public services. The introduction of e-governance in district level administration, in particular, is transforming the nature of relationships between government officials and citizens in matters

ranging from land records to health services. Fortunately, people are aware of the need to facilitate better understanding of the complex ways in which technology is being used in society as well as its vast potential.

The impact of Internet on politics (including political parties, elections, social movements, public bureaucracies and governance) is gradually unfolding itself even in developing countries like India, Mexico, South Africa and several others.[1] Much would thus depend on the civil society and government agencies in accelerating the pace of change and in facilitating the emergence of an era where information is available to everyone in terms of his or her needs and aspirations.

The ICT is no longer impersonal in character. Social networking sites have transformed the way we interact with fellow human beings. Face-to-face contact is giving way to web-based interaction. People in different walks of life ranging from politics to music, trade and commerce to media express themselves on the Internet. You know more about a person from the Google than from his neighbour or colleague. Above all, an ICT device such as the mobile phone has penetrated into rural areas and has become a principal instrument of connectivity, making a deep impact on development processes and human relationships.

The ICT is also emerging as a major source of institutional innovators in the country. The role and influence of the Internet will make a deep impact on the values, processes and outcomes of public bureaucracies as well as political leaders. Social movements in the realm of culture, ecology and human rights too would be deeply influenced by the happenings within the country and outside in their respective area of activity through the information network of the internet.

Today there are over 3.3 billion mobile phone subscribers in the world. A 2005 London Business School study concluded that for every additional 10 mobile phones per 100 people, a country's GDP rises by 0.5 per cent.[2] Once the remaining three billion people of the globe acquire cellphones, it would make a significant impact on the global economy.

Internet offers enormous possibilities in the realm of politics and diplomacy as well.

Many democracies face enormous challenges on account of a decline in voter turnout in elections and in devising effective methods to allow the public voice in decision-making by political leaders. The Internet technically offers an escape from much of these. The technology for online voting already exists. The manner in which the former President of India A.P.J. Abdul Kalam made available his e-mail address to citizens and interacted with them on the net contributed to the feeling of participation in decision-making.

Information is power and the Internet is an effective instrument of providing information to citizens. The Constitution of India guarantees to citizens freedom of speech and expression. The Universal Declaration of Human Rights goes further to explicitly provide for 'to seek, receive and impart information and ideas through any media regardless of frontiers'. The Right to Information Act in India is a further step in these directions.

The ICT revolution has made an enormous impact on diplomacy – by transforming diplomatic practices. Teams of diplomats increasingly meet electronically to discuss and amend draft texts. Pre-negotiations are carried out increasingly online. It is true diplomats still depend on their 'art, courage and eloquence' in representing their country at a

foreign court but ‘digital diplomacy’ has made effective inroads in diplomatic corridors.[3]

## IV

## The Indian Scene

Two significant revolutions began in India almost simultaneously, i.e. the Green Revolution and the IT Revolution.

Green Revolution

The Green Revolution that began in 1967-78 transformed India from a nation on the verge of starvation to one with overflowing granaries. The Green Revolution, however, was confined to Punjab, Haryana, western Uttar Pradesh, coastal Andhra, Tamil Nadu and parts of some other states. This was accompanied by socio-economic differentiation and growth of a substantial class of landless and land-poor agricultural tenants. In short, it made India self-sufficient in foodgrains but created a glaring inequality among people as well as vast disparities among regions.

The ICT revolution has a short history in India. Its beginnings, in a small way, are associated with the founding of Tata Consultancy Services (TCS) in 1968.[4]

## The Unfolding of the ICT Revolution

The ICT revolution contains such enormous power that it has the capacity to unleash new creative energies as if we can pass through the track of centuries in a brief period. For this new technological paradigm

enhances our capacity to create and disseminate information and – more substantively – to foster the transformation of information into knowledge. This also bestows an opportunity to provide vast numbers of, hitherto unempowered, people access to information, and thus enabling them to play a constructive role in the economy. It also influences social structures – as economies become increasingly services-oriented, companies shift from hierarchical structures to networking modes of production, and the "knowledge worker" emerges as an important actor in the economic management.

The ICT revolution has drawn a great deal from the industrial revolution. The innovations (associated with the steam-engine in the public imagination) that drove the Industrial Revolution was based in England. Later, it moved to the United States (with its large local market and freedom to pursue new opportunities). The computer age began in and around Boston and subsequently moved further west to Silicon Valley in California.

In terms of geography, the focus of the ICT revolution has shifted east. Today, India and China produce some of the world's best computer-science and electrical engineering graduates. India is witnessing a new wave of technology products and services. In fact, India's new reputation for world-class IT services has conferred a kind of exotic star quality on Indian IT professionals both within India and in several places in the world, including China.

## The IT Brahmins

In India, in a light-hearted banter, many ascribe the phenomenal expansion of ICT in the last two decades to the Boston and the Indian 'Brahmins'. It is true that the Boston 'Brahmins' dominated the Silicon Valley and co-opted the Indian scientists and engineers. Later, the IT city of Bangalore was built in the image of the Silicon Valley. A major factor behind this success story in India lies in the fact that it has been able to tap the existing cultural capital of the urban middle-classes well-versed in English and establish collaborative arrangements with institutes of excellence like IITs and IIMs. The IT professionals were paid highly remunerative salaries. This, in turn, has in many ways helped consolidate the domination of the Indian middle-class and has also created an image of IT as a new kind of industry based on merit.

It is true that most of the founders of the ICT firms belong to the 'Brahmanic' class, building their social capital on the strength of higher education and collaboration with the US professionals. This process is strengthened through the entry of multinationals in ICT and expanding business networks around the globe. Fortunately, the social base of the ICT tool is expanding along with the expanding base of the Indian middle class. The Dalits and the poor have minimal representation.[5] The top ICT management continues to be male-dominated but the presence of women is steadily growing. The traditional myth that 'Brahmins' are good at mathematics and science is being successfully challenged by students of other social groups in India.

Many hold the view that the IT industry has flourished in India primarily because of the absence of state control that ensured freedom to cooperate with the IT centres of excellence both in India and in the US and good timing. The bureaucratic controls could have easily stifled its growth notwithstanding the fact that some political leaders have played important roles in expanding ICT in rural areas.[6] The rise of the Indian

software industry is as much a product of an impressive repository of highly qualified English-speaking computer engineers and entrepreneurs as benign neglect in the beginning and later of active encouragement from a normally intrusive government.

The ICT has added new categories of jobs in India which earlier were unknown. The signages in busy marketplaces and advertisements in newspapers have undergone massive transformation to reflect these new realities. The ICT has also contributed to enrichment of traditional jobs by way of augmentation in the speed of disposal and retrieval of materials. The Indian middle class is a major beneficiary of this revolution. To some, ICT has "become the new great white hope of the Indian middle class".[7]

India has a number of advantages – fine young minds, spirited entrepreneurs, assimilative tendencies among common people, a strong tradition of working with *mandalas, suktis* and *mantras* and a natural comfort with ambiguity. Our earlier investment in higher education and institutions of excellence such as the IITs and IIMs has paid handsome dividends in terms of a highly skilled workforce, well-equipped to meet the challenges of the forces of globalization and integration of markets.

India is a knowledge process centre and Indian entrepreneurs and skilled persons are engaged in highly skilled jobs ranging from engineering design to financial and legal services. This boom in brain-intensive manufacturing is one of the products of the ICT revolution. The pioneering work in pharmaceuticals and automobile sectors are shining examples of this phenomenon. The 'knowledge worker' has become an important component of the Indian elite such as 'lawyers' and 'doctors' of the 19th and 20th centuries.[8]

**Distressing Features**

There are several growth constraints and distressing features as well: The social background of IT professionals in India reveals that children of disadvantaged parents are still to get adequate representation. In a recent survey conducted in Bangalore, it was found that 80 per cent of the fathers of IT professionals had graduate degrees or above, while only three respondents (out of 132) had fathers with less than SSLC level education. In addition, 56 per cent of respondents' mothers were graduates or above.[9]

The main bottleneck is that of infrastructure. Slow Internet connectivity, high cost of broadband connections and a large number of unlettered population characterize the Indian scene. As a result, India has a microscopic base of subscribers. The need is to make broadband reach the customer as a service rather than a product. This will shift the complexity of operations and risk of obsolescence to the service provider and leave the customer with an instrument that is simple and user-friendly.

One has to draw lessons from the private sector – public sector partnership in the spread of telecommunications. Not very long ago it took 4–5 years to get a telephone connection outside major cities. Today one is chased for a telephone connection as soon as one raises a hand in this regard. The Internet service provision, cellular phones, paging, cable TV networks, set-top boxes, Dish TV, tele-informatic kiosks are some of the important areas where the private and public sectors have together revolutionized the life and activity of the citizen.

India's current leadership in the software industry is dependent upon our ability to provide low cost programmes and services. Another feature of importance relates to the evolution of English as a *lingua*

*franca* of business. This has given India a major advantage in its emergence as a strong factor in new economy industries. However, in the current global environment, this advantage may not last for more than a generation or two because in several parts of the developing world, children are now increasingly learning English.

**Business Process Outsourcing (BPO)**

In terms of the laws of the market, people go to buy what India has better than any country in the world: IT services and increasingly, business process outsourcing (BPO). Pursuant to this, a sizeable number of call centres have emerged in different urban centres in the country. But this also has certain negative aspects.

In my interactions with boys and girls at the call centres of the 'customer service' industry in India, I was appalled at the workplace rigidities that make life highly monotonous and boring. Call centre companies to whom many corporations outsource their 'customer relations management', these boys and girls are required to follow a script displayed on their computer screens and converse in a typical American accent. The computer screen also spells out the exact conversation, word by word, that they must follow in their dealings with customers. Monitoring devices track every facet of their work; minutes spent per call; minutes spent between calls, minutes spent going to the bathroom and so on. The concept of a productive and satisfying career becomes meaningless in a setting in which employees have neither skills of which they might be proud nor an audience of familiar fellow workers and customers that might recognize their value.

Another matter of concern relates to the constantly shifting nature of the job. In order to solve a problem, one would be required to get deeply involved in the issue. But much is lost as several of these projects

end as abruptly as they began affecting a large number of workers. Of course, this is not true of the elite cadre of senior managers, consultants, and engineers.

Expressions of distress have also been heard from the famed land of the ICT revolution – Bangalore. In a report appearing in the December 17, 2007 issue of *Outlook*, the correspondent in her survey found damage to the environment.[10] There is more than loss of green cover. India's celebrated scientist C.N.R. Rao observed that several IT scientists are not producing works of intellectual value and are doing jobs that are much below their intellectual capabilities. He laments:

*Our society has created a bunch of icons and role models who are distorting not just the future of this city but of all India, and of our sense of values. Our people have lost respect for scholarship. Money and commerce have taken over. If IT is going to take away our basic values, then you can burn Bangalore and burn IT.*[11]

There is an antithetical point of view as well. The authors of a research project entitled *Information Technology Professionals and the New-Rich Middle Class in Chennai* talk of self-confidence on the part of a growing number of IT professionals. Based on a research conducted in Chennai, C.J. Fuller and Haripriya Narasimhan in their paper entitled 'Regionalism, Nationalism and Globalization in India' in the Department of Anthropology at the London School of Economics drew the following conclusions:

*We have not heard IT professionals in Chennai complain that they are cheap labour whose work is taken for granted. In fact, almost the opposite is true; IT professionals need not choose, once and for all,*

*between being resident and non-resident Indians, because they can fairly easily go away and then return. Furthermore, at least in their own eyes, they are not selfish materialists with a secessionist understanding of India, but modern professionals whose well-paid work in a new global industry enables them to lead better lives with their own families according to their own traditions in their own country. They are not Nehruvian nationalists, but, perhaps paradoxically, the professionals who are crucially responsible for building a global economy based on information technology may become more committed to living their lives in India than many of their predecessors in India's aspirational middle class.*[12]

We must not blind ourselves to several other disturbing aspects of the ICT revolution: Cyber crimes, cyber sex, intrusion into private lives, misleading information on the web and so on. In fact, the members of Indian Parliament are deeply concerned about increasing cyber crimes and the need to have a comprehensive law. Towards this, the Information Technology Bill, 2006, has been expanded with a view to have a "comprehensive, self-enabling and people friendly IT law."[13]

We must also realize that economic growth and technology alone cannot successfully answer hard questions of distribution and social justice, preservation of environment, and political unity and rule of law.

One of the features of the ICT revolution is the growing dominance of a technocratic middle class with high salaries. They are competent engineers and several of them are outstanding managers. But they are indifferent to political processes and social concerns. At an individual level, however, there are several laudable exceptions. On the

whole, a technical mentality oblivious of human values has a dangerous potential for a country like ours.

Mahatma Gandhi, more than others, warned us against evils associated with machines.

## V

## Mahatma Gandhi and ICT

There are two divergent views about Mahatma Gandhi's attitude towards 'machines' and 'modernization'.

There is a group of people who believe that Mahatma Gandhi was opposed to all machines and that he wanted us to lead the life of a villager in a romantic village of the pre-industrial era. The protagonists of this view often refer to the concluding portion of the chapter on 'machine' in his well-known work Hind Swaraj – a book that Gandhi wrote in ten days between November 13-22, 1909 on board the ship Kildonan Castle, on his return trip from England to South Africa.[14] The relevant portion reads:

*Don't therefore forget the main thing. It is necessary to realize that machinery is bad. We shall then be able gradually to do away with it. Nature has not provided any way whereby we may reach a desired goal all of a sudden. If, instead of welcoming machinery as a boon, we would look upon it as an evil, it would ultimately go.*[15]

There are others who feel that observations made periodically by Mahatma Gandhi about machines need to be seen in civilizational and people's livelihood terms.

**Gandhi, Tagore, Nehru and Schumacher**

The Indian elite was highly critical of Mahatma Gandhi's attitude towards technology and his reliance on traditions. Gopal Krishna Gokhale (1866 - 1915) whom Gandhi looked upon as his political guru called *Hind Swaraj* 'the work of a fool' and prophesied that 'Gandhi would destroy it after he spent a year in India.[16] But Gandhi did not do anything of the kind and went ahead with making further experiments with truth.

From among a large corpus of critics and admirers of Gandhi's thoughts and ideas, I am deliberately selecting comments of three people: (i) Rabindranath Tagore (1861-1941), poet and thinker and a friend of Mahatma Gandhi; (ii) Jawaharlal Nehru (1889-1964), a close associate and a fascinating writer; and (iii) Ernest Fritz Schumacher (1911-1977), a socialist economist who was attracted to Mahatma Gandhi in his quest for understanding global economic forces and the place of the individual therein.

Rabindranath Tagore openly criticized Mahatma Gandhi when the latter announced that the devastating earthquake that struck Bihar in 1934 was 'a divine chastisement sent by God for our sins' and for his statement that 'there is a vital connection between the Bihar calamity and untouchability'.[17] Tagore, who was equally critical of untouchability, called Gandhi's interpretation irrational and felt that it was necessary to rid people of this kind of unscientific view of a natural phenomenon. Mahatma Gandhi, however, did not subscribe to Tagore's views. Instead, he argued that visitations like droughts, floods,

earthquakes and the like, though they seem to have only physical origins, were, for him, somehow connected with man's morals. Accordingly, he instinctively felt that this earthquake was the visitation of the sin of untouchability.

Mahatma Gandhi, however, did not accept such a logic even in similar circumstances. For example, during one of his tours, the inhabitants of a village told him that his auspicious presence had made the village well miraculously filled with water. 'You are fools,' he reproved them, 'beyond a doubt it was an accident. I have no more influence with God than you have. Suppose a crow sits on a palm tree at the moment when the tree falls to the ground, will you imagine that the weight of the bird brought down the tree?'[18] Whenever Gandhi was charged with inconsistency, he used to retort that he was consistent with truth and not with the past. It is true that Gandhi kept modifying, correcting and enlarging his ideas in the light of fresh experience.

Rabindranath Tagore also criticized Gandhi for rejecting machinery and ignoring its potential for alleviating the economic lot of people. Gandhi, however, maintained:

*I do want growth, I do want self-determination, I do want freedom, but I want all these for the soul. I doubt if the steel age is an advance on the flint age. I am indifferent. It is the evolution of the soul to which the intellect and all our faculties have to be devoted.*[19]

Mahatma Gandhi's view of progress went beyond economics. He always saw a sharp conflict between material and spiritual progress:

*I hold that economic progress in the sense I have put it is antagonistic to real progress. Hence the ancient ideal has been the limitation of*

*activities promoting wealth. This does not put an end to all material ambition. We should still have, as we have always had, in our midst people who make the pursuit of wealth their aim in life. But we have always recognized that it is a fall from the ideal …. I have heard many of our countrymen say that we will gain American wealth but avoid its methods. I venture to suggest that such an attempt, if it were made, is foredoomed to failure. We cannot be "wise, temperate and furious" in a moment.*[20]

Jawaharlal Nehru (1889-1964), a close associate and follower of Mahatma Gandhi provided a forceful critique of Mahatma Gandhi's concept of economy and technology.[21] Jawaharlal Nehru did not approve of Gandhi's praise of poverty and suffering. Nor did he appreciate the ascetic life as a social ideal. To Nehru the desire to get away from the mind of man to primitive conditions where the mind does not count, seemed to him quite incomprehensible.[22]

On the other hand, for Mahatma Gandhi progress and civilization consist not in the multiplication of wants, of higher standards of living, but "in the deliberate and voluntary restriction of wants, which promises real happiness."

Gandhi had a prescience that in the relationship between man and machine, man was likely to lose. "Jawaharlal Nehru wants 'industrialization'," Gandhi told an American businessman in 1940, "because he thinks that if it is socialized, it would be free from the evils of capitalism. My own view is that the evils are inherent in industrialism and no amount of socialism can eradicate them." The tremendous growth of technology since Gandhi's time has revealed that large-scale industrialization has an unavoidable concomitant: alienation

of man, which is not essentially related to the nature of the political system.

Ernest Friedrich (Fritz) Schumacher, the author of the famous book Small is Beautiful challenged the notion of 'one size fits all' by proclaiming that economists have assumed too easily that what works best in an advanced country must be best for economic development everywhere. Reflecting on Khadi in his paper titled 'Levels of Technology', he lauded the concept of intermediate technology. He writes:

*Many of the paradoxes of economics result from precisely this divergence between private cost accounting and true social cost. That is why Khadi appears very expensive, while mill cloth appears cheap. Yet as long as Khadi is produced (preponderantly) by labour which would otherwise do nothing at all, it is, for the economy as a whole, the cheapest cloth of all – a fact very clearly appreciated by Gandhi.*[23]

In highlighting the need to regulate the excesses of modern technology, Schumacher echoed Gandhian values by asserting that present-day economics, while claiming to be ethically neutral, in fact propagates a philosophy of unlimited expansionism without any regard to the true and genuine needs of man which are limited.[24] In the Gandhian scheme of things, non-violent production meant employing modes of production which both respected ecological principles and attempted to work with nature rather than 'attempting to force their way through natural systems'.

Mahatma Gandhi also needs to be understood in terms of his ideas of beauty and goodness. To him beauty is strongly linked to goodness. Given this approach, nature is related to God. Mahatma Gandhi rightly posed that 'if we may make new discoveries and inventions in the phenomenal world, must we declare our bankruptcy in the spiritual domain?'"[25]

In view of the enormous influence of Mahatma Gandhi's thoughts and ideas on the Indian people and their consciousness, an analysis is called for to understand the true meaning of his message in the context of the 21st century.

There is an impressive corpus of literature on Mahatma Gandhi's life and works. Mahatma Gandhi himself bequeathed to us a large body of written notes besides his two books, i.e. *Hind Swaraj and An Autobiography*. It may be recalled that he kept writing on small pieces of paper, including used envelopes as well as on regular size ones. He dictated regularly to his staff and frequently addressed small and large meetings in different places, notes in respect of which were kept by his Secretary. He did not maintain a library of his works and also did not revert to what he had said or written earlier for the sake of establishing consistency or contradiction. This was almost like Buddha. For Gandhi too was guided by his inner light and responded to changing circumstances, and evolved a plan of action accordingly. Today his writings, speeches, correspondences and conversations run into 100 volumes under the title *The Collected Works of Mahatma Gandhi.* Further, literature on Gandhi's ideas and ideals and their relevance to our time continue to grow in volume.

It also needs to be emphasized that Mahatma Gandhi respected both science and scientific inventions as a form of truth. In his

autobiography, *The Story of My Experiments with Truth*, he used the word 'experiment' with considerable deliberation. He claimed nothing more for his postulates

*than does a scientist who, though he conducts his experiments with the utmost accuracy, forethought and minuteness, never claims any finality about his conclusions, but keeps an open mind regarding them.*[26]

At a more practical level, Gandhi saw machinery in livelihood terms. He held machinery responsible for deprivation of jobs of millions of Indians. Mahatma Gandhi, however, knew that technology can make a positive contribution as well, provided its use was informed by a moral vision of the human good and not as an instrument of exploitation by the rich of the poor. It is well-known that Gandhi used railways, telegraphs, steamer services, automobiles and so on. Gandhi, who empowered millions of women and men by popularizing the spinning wheel – the *charkha* – was in praise of the Singer Sewing Machine for it relieved the drudgery of women. He wrote:

*Take the case of the Singer Sewing Machine. It is one of the few useful things ever invented, and there is a romance about the device itself. Singer saw his wife labouring over the tedious process of sewing and seaming with her own hands, and simply out of his love for her he devised the sewing machine, in order to save her from unnecessary labour.*[27]

Mahatma Gandhi's thinking about machinery underwent gradual change. In short, Gandhi supported machines that empowered common people. Mahatma Gandhi was concerned with the de-humanization generated by the machine and inequality that it created by concentrating

wealth in the hands of a few. In 1936, responding to a Japanese correspondent, who asked whether Gandhi was against this machine age he responded, to say that is to caricature my views. *I am not against the machine as such, but I am totally opposed to it when it masters us …..*[28]

The affluence of a small population is pushing the entire world to fight over resources, ecological destruction, alienation and conflict. Mahatma Gandhi saw a distinction between 'production by the masses' and 'mass production'. It is the 'mass production' craze by a rich few facilitated by modern technology that is causing untold miseries. Mahatma Gandhi's dream therefore was the development of a kind of technology that would be simple, low-cost, environment-friendly and compatible with man's need for creativity and satisfaction. To Gandhi the mind is a restless bird; the more it gets the more it wants; and it still remains unsatisfied.

Mahatma Gandhi could foresee that the relentless pursuit of technology growth would fuel greed and cause untold miseries. In a world that faces problems of diseases, drugs, terrorism and consumerism, Gandhi wanted restraint over human avarice. As he records:

*What I object to, is the craze for machinery, not machinery as such. The craze is for what they call labour saving machinery. Men go on 'saving labour' till thousands are without work and thrown on the open streets to die of starvation. ….. Today machinery merely helps a few to ride on the back of millions. The impetus behind it all is not the philanthropy to save labour, but greed.*[29]

Mahatma Gandhi's idea was not to dispense with all machinery but to control its use. It was man, and not the machine, that should be the master and should dictate the terms. He did not oppose every scientific invention. His response was:

*I would prize every invention of science made for the benefit of all. There is a difference between one invention and another. I should not care for poisonous gases capable of killing masses of men at a time. I also have no consideration for machinery which is meant either to enrich a few at the expense of the many, or without reason to displace the labour of the people. The machine should not be allowed to cripple the limbs of man.*[30]

Mahatma Gandhi was the first among our contemporary thinkers and leaders to see the danger of the mastery of man with the help of technology over nature. In his view, the Industrial Revolution brought the machine to the centre of things. It brought into being a new mode of life, decisively influencing people's outlook on nature and human behaviour. According to this outlook, nature was taken to be an autonomous entity operating according to its own laws, something to be mastered and possessed at will for the satisfaction of human needs, desires and political ambition. The satisfaction of the desire for economic prosperity came to be identified as the main object of politics. It was in this context that Gandhi saw the imperial design in dividing the world between the industrialized and non-industrialized or between the civilized and the non-civilized. It was this attitude that supported the pernicious theory of the civilizing mission of the colonial powers. It also led to indiscriminate plundering of nature and the process continues.

Mahatma Gandhi was one of the first to warn us that assembly line production made workers slaves rather than masters of the machines. The endless multiplication of wants made consumers subservient to their desires. As technology continues to grow, we witness a phenomenon of increased global trade, rise in consumption and pollution but with fewer jobs. Increased production is premised on increased consumption; there is negative synergy between them. The present pursuit of exploitation of nature is unsustainable. Gandhi, in a now famous saying, told his secretary that the "Earth provides enough to satisfy every man's need but not for every man's greed".[31] The more consumption of natural resources, in global warming, etc. have shown the limits of growth. Gandhi asked for machines that empowered rather than enslaved workers, and that created rather than eliminated work.

In the 21st century, we are undergoing a great crisis on account of climate change and destruction of species. The threat is as serious as nuclear proliferation and use of military machines. The consequences of runaway technology confronts us in terms of inequality of wealth and living standards. Gandhi, therefore, believed that no system would work if that excludes a large number of people from earning a living wage. He also emphasised that when a person is made to work in an environment which compromises with his dignity, his work becomes a mere drudgery.

Gandhi's opposition to large-scale industrialization was also rooted in the need for preserving India's civilizational strength. Indians have developed certain qualities of character and temperament, and if they mechanically copy the Western economic model the people of India will lose their distinctive character. The Indian economy, therefore, must go with the basic features of its ageless civilization.

Gandhi knew that massive industrialization would produce cheap goods but it would also cause unemployment, destruction of ecology and disturbance to the equilibrium between man and nature. It would also enhance the level of consumerism and centralization of economic and political power.

Mahatma Gandhi's emphasis on making ethical means the central core of economic theory and practice needs a fresh look in this ICT era. We have technology that has enabled the production of countless goods for human consumption and the process continues. Side by side, this phenomenon has contributed to enlargement of human greed. As demand grows, the problem of unfulfilled desires of consumption is becoming one of unfulfilled needs generating several tensions at individual, family as well as national levels. In the process the political leadership as well as the market forces have neglected the right of livelihood.

It should be mentioned that Mahatma Gandhi's ideas of putting a restraint on consumption, live more simply, to use technology that does not adversely affect the livelihood of the poor or makes them slaves of machines have not been implemented in India or elsewhere. But devastating effects of climate change and its impact on urban and rural economies all over the world have raised serious doubts about modern industrialism and consumerism.

It is wrong to conclude that Mahatma Gandhi wanted us to have pastoral bliss that would have been possible in villages only. Such a view ignores the socio-political transformation that Gandhi brought about in India whose fruits are being enjoyed by several Indians. He ensured eradication of untouchability, the government to be run by those democratically elected based on universal adult suffrage, permanent civil

service to be selected on merit, including those covered by affirmative action norms and livelihood security for all (a task that still remains unfulfilled).

One wonders how Bapu, were he in our midst, would have reacted to the pervasive influence of information communications technology. To me it seems that he would have supported the mobile telephones and the Internet. He would have appreciated the manner in which it has empowered the common people both in rural and urban areas. Mahatma Gandhi would have insisted on making available to the people the best of skills and practices, and economic programmes that are compatible with ecology and local resources.[32] He would have given us new light as how to cope with cyber crimes, intrusion in private lives, health hazards to users and other dehumanizing effects. He would have liked us to find our own answers to the problems that this revolution is creating. For Mahatma Gandhi never wanted anyone to go back to the primitive era but taught us to move forward.

On 9/11 we celebrated the 101st anniversary day of the Satyagraha at Birla House, New Delhi (the place where Bapu was assassinated on January 30, 1948). In our conversation, Sukanya, great granddaughter of the Mahatma, asserted that Bapu would have wholeheartedly supported computers but would have certainly raised his voice the moment he felt that machines had started dominating humans. I also feel that he would have left this decision to the individual instead of imposing his judgement over others. He would have made us think and work to preserve our civilizational strengths as we modernize our patterns of living and society. He would never have supported a return to the pre-technology era and would certainly have taken pride in the manner in which we have participated in the ICT revolution and our accomplishments.

## In Light of Gandhi

It is true that post-independent India has moved away from Gandhi in substantive ways. And yet it is also true that no other Indian makes the kind of impact on the Indian people that Gandhi does. In more ways than one, Gandhi defined India's political, social, cultural and moral imagination. Gandhi is alive among the people, and you come across people both in urban centres and in rural areas for whom his life and message are yardsticks of their life and work.

Mahatma Gandhi in a manner of speaking retains his hold over India's youth in as much as among contemporary icons he remains a role model of an overwhelming number of school and college-going students. NGO leaders and political activists too swear by his name. All major agitations in contemporary India ranging from the foreign nationals issue in Assam to the Narmada dam case, and Nandigram land acquisition subject invoked Gandhi's name and leaders moved on the streets with his portrait/placard in hand. Rebellions too have been waged against him. Naxalites and extremists among Dalits have vandalized/broken his statue in different parts of India. Mahatma Gandhi remains a living feature in the consciousness of the Indian people.

Many would ascribe growth of civil society organizations and decentralization of authority to villagers to Gandhian influence on policy makers. The celebration of pluralism in India and empowerment of women are significant guarantors of both democracy and Gandhian values. It is also a fact of India's political life that compromises are

being made. Elections have become very expensive and candidates mobilize resources from people who give them unaccounted cash. This strengthens the nexus between political leaders, businessmen and criminals. Even the decent ones among political leaders believe in the idea that the use of black money in election campaigns would not necessarily lead to the denial of a transparent public order. One tends to agree with Bernard Imhasly, a journalist, that while Mahatma Gandhi 'managed to crystallize his life into a transparent message, India remains a contradictory country with a cacophony of voices – alluring, exciting and exasperating'.[33]

## VI

## Concluding Remarks

My colleagues on the Board of Directors of the World Bank, and the two in particular, Pierre Duquesne, Executive Director and his deputy Emmanuel Moulin representing France, would often tell me that the ICT revolution is going to help Indians immensely in view of their contemplative temper and inheritance in mathematics as well as a firm tradition of indigenous problem-solving approaches. We would also discuss that in many ways, we are living in the axial age. New norms are needed to be formulated to guide human behaviour in this era of rapid movement of goods, capital, and ideas. We would also agree that each civilization will take advantage of fresh opportunities in terms of its own genius.

In the 20th century, Japan, China and other South-East Asian countries showed an extraordinary capacity to transform themselves into world economic powerhouses. In and after 1947, India had an enlightened political leadership, a highly capable Civil Service, impressive professionalism in its armed forces and outstanding business leaders. Yet, we could not transform our economy into a global economic power. This has been aptly expressed by the noted historian J.M. Roberts in his book entitled *Twentieth Century* referring to our failure as "one of the surprises of the second half of the 20th century".[34]

Can the ICT revolution propel India as a global economic power? Have Indians some special gifts that would make them masters of the knowledge era?

## Cultural Patrimony and Beyond

It is true that India has an impressive history of continuing accomplishments in mathematics and logic – the two disciplines which are of special relevance to ICT. The period during 400 BC to 400 AD in India was marked by great intellectual activity and progress in religion, philosophy, poetry, grammar, logic, mathematics, astronomy and chemistry.[35] The mathematical genius found its finest expression in the personality of Aryabhata (AD 476-500) of Patliputra. His monumental work *Aryabhatiya* makes a contribution to mathematics in the area of the notation system, the decimal system and the use of zero.[36] The innovative works in mathematics have been carried forward by Indian astronomers and mathematicians such as Brahmagupta in the 6th century, Mahavira in the 9th century and Bhaskara in the 12th century.

Mathematics was known as *ganita* which literally means 'the science of calculation'. Today *ganita* is no longer in currency but during my school days in rural Bihar this term was better known among students and teachers than its English version *mathematics.*

Similarly, logic was developed in ancient India from the tradition of Vadavidya, a discipline dealing with the categories of debate over various religious, philosophical, moral and scientific issues. The most outstanding contribution to logic was made by Aksapada Gautama in 150 AD. His pioneering work *Nyayasutras* lays down a method of philosophical argumentation. This tradition was advanced by the Buddhist logician, Dinnaga in the 5th century (400-480 AD), Dharmakirti in the 7th century (600-660 AD), and the Navya-nyaya school of Gangesa in the 14th century.[37]

In the context of ICT, the chief tool for change, undoubtedly, is the Internet which has helped bring about wholesale transformation in the edifice of our economics dominated civilization. Evidently, the new era is marked by its reliance on human capital and it is clear that in the coming years, creativity will be an engine of growth and prosperity.[38]

It is widely believed that it is only through the use of the Internet technology that social barriers can be overcome. India was for long dominated by the Brahminical culture, the higher levels of knowledge popularly known as sacred knowledge was only in the hands of the Brahminical class, and the rest of the society was denied access to it. It is true that the entire society was integrated through the network of rituals that regulated birth, marriage and death ceremonies. Any denial of use of the Internet to the masses would perhaps conform to a similar practice where connectivity through mobile telephones would be available to everyone but vital information that is the preserve of the

Internet system – linked to a land line telephone – would be confined to those belonging to a higher economic, social and educational strata. It is, therefore, vital that we move in the direction of creating habitats where access to the Internet is not dependent on a landline telephone and elsewhere we should lower the cost of such telephone connectivity.

In this context, we must remember that equal access to computers can only be totally successful if we are willing to attack the larger problems of inequality of housing, education and healthcare with all our economic resources and cultural and political will. More than 200 million Indians live in abject poverty and over 300 million children are illiterates. Also disturbing are the growing regional disparities within the country.

We are becoming a far more heterogeneous society than ever before because economic growth has not been an even process. Some parts of the country are growing at over 10 per cent, while several others at 5 per cent and below. Even at the time of liberalization of the economy different states were at different levels. There is no denying that the ICT revolution would contribute to inequities further. Bangalore, Chennai, Delhi, Hyderabad, Pune, Mumbai, and Chandigarh have gone ahead in prosperity, leaving other cities and towns far behind.

The most serious constraint is the limited affordability of ICT goods and services owing to the low income levels of the people. Governments always face one form of financial stringency or the other. Private capital is shy and limited and often deterred by outdated legislation and policies that block investment in new and converging technologies like ICT.

**Facets of Civilizational Encounter and Future Outlook**

India needs to carry forward this new civilizational dialogue at the people's level. The present level of comfort in confining ICT to the middle class needs to be jettisoned. The task is to make ICT available to the public where people from all walks of life participate in this civilizational process and use this technology as a part of their economic and cultural freedom. This is only possible when there is full participation and awareness of its strengths and distressing aspects. Once every village in India has electricity, telecom and Internet facility coupled with distant education, its potential to grow into high productivity centres of industry and technology could be accomplished.

In the last decade of the 20th century one could clearly see that the market has replaced the military as the predominant factor in determining the status of a nation-state in the world. I had then contended that culture has emerged as the third factor after market and military strength.[39] Although after 9/11 the military has gained some prominence, there is no shift from that order: market, military and culture.

The new civilizational encounter has the potential of strengthening not only the market which it does in ample measure but also the military and culture. Unfortunately, ICT is seen in economic and trade terms in India and not in civilizational terms.

There is very little conscious effort to Indianize or spiritualize the new civilizational encounter. The captains of ICT, industry and trade, forces of democracy and governance, ecology and culture are not grappling with the distressing aspects of the ICT revolution. Social sensibilities and values of simple living and joint family norms need to guide the new civilizational encounter in order that human dignity is not compromised or sacrificed in the name of modernization or

globalization. We have the capacity to give a positive dimension. And to ensure it, we need to overhaul the whole education system in a manner that helps to generate new ideas and analytical thinking. We must provide an environment in which the dynamism of our people, their latent energy, their resourcefulness and their determination to move forward get support from the government, market and civil society.

The fundamental principle of the new worldview has to be guided by respect for nature. We have to realize that man's pursuit of complete mastery over nature would be a losing situation for both man and nature. The exuberant and wasteful lifestyle of the few when it becomes the goal of everyone, then there will be hardly any tomorrow. The Gandhian world-view is realistic when it calls for love of nature and its objects: trees, animals, birds, waterbodies, people, communities and children. A simple life also becomes a freer life.

Social transformation, technology and political and developmental processes need to be viewed in a holistic fashion rather than in compartments in order to take full advantage of the new civilizational encounter that ICT has generated. It is true that technology on its own will not bring social reform or political will but it can make changes easier and more effective. Technology that is currently expressed through 'e-government' provides more transparency and heightens citizens' participation in governance. It also gives citizens and 'self-help' groups more power to scrutinize government programmes to review public expenditure and to make elected and permanent officials more accountable. Unfortunately, political class and permanent bureaucracy seem to be lagging behind the onward march of this new civilizational encounter.

The rapid modernization that the forces of ICT and globalization have generated in India affect the behaviour of Indians - in education, economics and politics. Changes are taking place in some parts of India rapidly. But I do not visualize that this will alter India's basic values of a simple life, family system, caste, ethnic and religious affiliations, attachment to folklores and folktales and music and dance patterns – not so substantially as to alter the basic Indian personality. The age-old India's civilizational strengths of innovation, absorption, adaptation and respect for diversity of views, including the forces generated by the contemporary freedom struggle under Mahatma Gandhi's leadership and the ongoing democratic experience would keep the distinct Indian personality intact.

## NOTES

1. See Andrew Chadorick, Internet Politics: States, Citizens, and New Communication Technologies, OUP, New York, 2006 for analysis of events in USA and UK and other industrialized countries.

2. See Sunday Times of India, New Delhi, April 13,2008, p.24.

3. ICT has acquired special significance in India's relations with China. In diplomatic dialogues to the list of references to the ancient ties that centred on Buddhism as well as on trade and commerce routes is added software. For example, no discussion at the head of the government levels is without a reference to the Baima Si Temple – a monument that makes Buddhism's arrival in China from India in the first century – and software. (Tarun Khanna, Billions of Entrepreneurs – How China and India are Reshaping Their Futures – And Yours, Viking, Penguin Books India, New Delhi, 2007, pp.281-83).

4. See N.R. Narayana Murthy's article 'Making India a Significant IT Player in this Millennium' in the book India: Another Millennium edited by Romila Thapar, Viking, Penguin Books India (P) Limited, New Delhi 2000, pp.212-240.

5. See Carol Upadhya, 'A New Transnational Capital Class? Capital Flows, Business Networks and Entrepreneurs in the Indian Software Industry' in Economic and Political Weekly, Bombay, November 27, 2004, pp.5141-5151.

6. Among several political leaders, chief Ministers of Andhra Pradesh (Chandrababu Naidu) and Karnataka (S.M. Krishna) Played significant roles in taking the ICT revolution to the villages. A number of professionals and a few civil servants too contributed immensely and

are carrying forward the commendable work of bringing computers to rural households.

7. This is reflected in EPW's editorial entitled "IT and the Economy" in Economic and Political Weekly 36(16) of April 21, 2001.

8. See Chidanand Rajghatta, The Horse that Flew: How India's Silicon Gurus Spread their Wings, Harper Collins, New Delhi200, p.23.

9. For a detailed analysis see Carol Upadhya's article entitled 'Employment, Exclusion and 'Merit' in the Indian IT Industry' in Economic and Political Weekly, May 19, 200, pp. 1863-1868.

10. See Outlook dated December 17, 2007, p.108.

11. Ibid.

12. See article of C.J. Fuller and Haripriya Narasimhan titled "Information Technology Professionals and the New rich Middle Class

in Chennai" (Madras) in Modern Asian Studies Volume 41, Part 1, January 2007 Cambridge University Press, UK, pp. 121-150.

13. See the Fiftieth Report of the Standing Committee on Information Technology (2007-08) of the Fourteenth Lok Sabha, Lok Sabha Secretariat, New Delhi, August 2007, p.77.

14. See M.K. Gandhi, Hind Swaraj and Other Writings edited by Anthony J. Parel, University of Calgary, Canada, Cambridge University Press, distributed in South Asia by Foundation Books, New Delhi, 1997. Mahatma Gandhi authored Hind Swaraj on the stationery of the ship Kildonan Castle. The writing proceeded at such a furious pace that when the right hand got tired, Gandhi continued with the left: 40 of the 275 manuscript pages were written by the left hand. And he wrote under inspiration as in the entire manuscript only 16 lines have been scratched out and only a few words change here and there. Parel's edition also carries Supplementary Writings of M.K. Gandhi.

15. Ibid., p.111.

16. See Ashis Nandy, Death of the Mahatma in The Times of India, New Delhi of January 30, 2008. Also see V.S. Naipaul, A Writer's People: Ways of Looking and Feeling, Picador, London, 2007, pp. 170-71. Naipaul refers to "the nonsense and anti-modern simplicities" of Hind Swaraj.

17. See Apendix 2 titled 'The Bihar Earthquake' in Krishna Dutta and Andrew Robinson (ed) selected letters Rabindranth Tagore, Cambridge University Press, Cambridge, UK, 1997, pp. 536-538 for text of the correspondence between Gandhi and Tagore.

18. See B.R. Nanda, Mahatma Gandhi – A Biography, Oxford University Press, New Delhi, 1958, pp.518.

19. Young India, October 13, 1921.

20. See G.A. Natesan (ed.), Speeches and Writings of Mahatma Gandhi, G.A. Natesan and Company, Madras, 1933, p.353.

21. For a detailed analysis of differing views of Mahatma Gandhi and Jawaharlal Nehru, see Lloyd I. Rudolph and Susanne Hoeber Rudolph's book, Postmodern Gandhi and Other Essays, Oxford University Press, New Delhi, 2006, pp. 21-31.

22. Jawaharlal Nehru, Towards Freedom, John Day, New York, 1941, pp.314-315.

23. See E.F. Schumacher, 'Levels of Technology: A Key problem for Underdeveloped Countries', in E.F. Schumacher (ed.), Roots of Economic Growth, Gandhian Institute of Studies, Varanasi, 1962, pp.42-3.

24. E.F. Schumacher, 'Non-Violent Economics', Observer, August 21, 1960.

25. Young India, May 6, 1926.

26. See M.K. Gandhi, An Autobiography or The Story of My Experiments with Truth, Navajivan Publishing House, Ahmedabad, 1927, pp. X-XI.

27. Supplementary Writings, p.166, in Parel's edition referred to earlier.

28. Ibid., p. 168.

29. Ibid., p. 166.

30. See Understanding the Mechanics of Life with Gandhi at http://www.mkgandhi.org/short/ev46..htun...10/12/2007 pp 1 to 2.

31.Quoted in Pyarelal, Mahatma Gandhi, Volume X: The Last Phase. Part II (Ahmedabad; Navajivan 1958) p. 552.

32. See E.F. Schumacher, Small is Beautiful: A Study of Economics as if People Mattered, Blow and Briggs Ltd, London, 1973, p. 143.

33. Bernard Imhasly, Goodbye to Gandhi: Travels in the New India, Viking, Penguin Books India, New Delhi, 2007, p. 195.

34. J.M. Roberts, Twentieth Century: A History of the World 1901-2000, Viking, New York, 1999, p. 729.

35. See Bibhutibhusan Datta and Avadhesh Narayan Singh, History of Hindu Mathematics, Asia Publishing House, Bombay, 1962, pp. 2-3.

36. See R.S. Sharma, India's Ancient Past, Oxford Unviersity Press, New Delhi, 2005, p. 311.

37. See Bimal Krishna Matilal, the Character of Logic in India, Oxford University Press, New Delhi, 1999, Chapter I (pp. 1-31).

38. See Pavan K. Varma, Being India: The Truth about Why the Twenty-First Century will be India's, Viking, Penguin Books India, New Delhi, 2004, pp. 104-111.

39. See Balmiki Prasad Singh, India's Culture: The State, the Arts and Beyond, Oxford University Press, New Delhi, 1998, pp.xi-xii.

40. Ibid., pp. 1-8.