Chapter-V

Information Technology and Knowledge Economy:
Role of Service Sector in India

5.1: Introduction

Indian economy is one of the world’s largest economies. India has made substantial economic and social development during the recent past. It has been observed earlier that Indian economy is yet to overcome climatic shock. In what follows growth performance of Indian economy has considerably improved after globalization move. The nation could push forward her GDP growth rate – not infrequently around 8 percent which is in conformity with an average of 8 percent growth projections (India, Planning Commission, 2002a). In the social front Indian performance is not satisfactory. Sustained acceleration in economic growth is needed to provide an opportunity for India’s growing population and its even faster-growing workforce. Jobless growth is general resolution. Hopefully we shall be able to overcome the problem of employment generation. No less significant is increasing regional disparity which has made finance commission even more significant to address the problem of regional asymmetry. At this juncture we may recall the political maturity of Indian constitution formulator – socio political knowledge of our predecessors.

Intellectual ability of Indian or political wisdom has not always translated into action and consequent changes in development. In what follows, present time is favourable for India to push forward her knowledge economy for improving human face. The nation has already experienced soft transition to the knowledge economy—an economy that creates, disseminates, and uses knowledge to enhance its capability of growth and human development. The knowledge economy is often taken to mean only high-technology industries or information and communication technologies (ICTs). It would be more appropriate, however, to use the concept more broadly to cover how any economy harnesses and uses new and existing knowledge to improve
the productivity of agriculture, industry, and services and increase quality of human life.

India has the potentiality for increasing productivity by shifting labor from low productivity and subsistence activities in agriculture, informal industry, and informal service activities to more productive modern sectors, as well as to new knowledge-based activities—and in so doing, to reduce poverty and touch every member of society. India should continue to leverage its strengths to become a leader in knowledge creation and use. To get the greatest benefits from the knowledge revolution, the country needs to press on with the economic reform agenda that it put into motion more than a decade ago and continue to implement the various policy and institutional changes required to accelerate growth.

India has many of the key ingredients for making this transition. It has a critical mass of skilled, English-speaking knowledge workers, especially in the sciences. It has a well-functioning democracy(!). Irony is that, in India – as a nation being respected across the globe for her intellectual and human resource quality is suffering from dynastic syndrome. In breeding of politician has become a regular phenomenon even in political parties not in opposition. It is obviously undesirable manifestation of globally acclaimed knowledge society of India. In what follows, despite the negative externalities of our knowledge society. India economic possibility is enviable to many nations in the present world.

Domestic market of India is one of the world’s largest and expanding in every direction. The economy has a large and impressive Diaspora, creating valuable knowledge linkages and networks. The list goes on: macroeconomic stability, a dynamic private sector, institutions of a free market economy, a well-developed financial sector, and a broad and diversified science and technology (S&T) infrastructure. In addition, the development of the ICT sector in recent years has been remarkable. India has created profitable niches in information technology (IT) and is becoming a global provider of software services. Building on these strengths, India can harness the benefits of the knowledge revolution to improve its economic performance and boost the welfare of its people.
India’s readiness to speed up the knowledge economy crucially depends on constraints and emerging possibilities confronting India on four critical pillars of the knowledge economy:

- Strengthening the economic and institutional regime
- Developing educated and skilled workers
- Creating an efficient innovation system
- Building a dynamic information infrastructure.

The above understanding or resolution is most conventional which ignores the sociopolitical environment of corruption. In our estimation / opinion nepotism, corruption and inadequacy of judiciary and human rights in short social sector is the fifth pillar of knowledge economy. Glass ceiling – gender discrimination at professional hierarchy and self annihilation or abandoning scientific research by Indian scientists is colossal wastage of knowledge potential of India. The story of Dr Subhas Chakroborty the inventor of artificial fertilization or test tube bay is well known. India lost the patent right and opportunity to earn foreign currency.

We however restrain and abide by the conventional path. To create and sustain an effective knowledge economy, India must undertake systemic integration of reforms in the four domains to strengthen its competitive advantage.

India should continue to focus its efforts on further reforming its overall economic and institutional environment and improve its overall trade and investment climate. Addressing all these issues is urgently required to improve performance across the economy. Further India has to initiate steps to leverage its strengths and opportunities on a global scale; it needs to undertake significant reforms and investments in building education and skills, strengthening its innovation system, and immediate concentrated effort for bolstering its information infrastructure. The following are some of the key issues that India needs to address in each of the four pillars to spur growth and innovation to augment economic and social welfare. We have here also concentrated on participation of elderly person in the society. In the new age, chronological constraint is much diluted – due to growth of Internet. A comparative analysis is therefore is worthy to investigate participation of elderly between India and USA.
5.2: Developing Educated and Skilled Workers

Education is the fundamental enabler of the knowledge economy. Well-educated and skilled people are essential for creating, sharing, disseminating, and using knowledge effectively. The knowledge economy of the twenty-first century demands a set of new competencies, which includes not only ICT skills, but also such soft skills as problem solving, analytical skills, group learning, working in a team-based environment, and effective communication. Once required only of managers, these skills are now important for all workers. Fostering such skills requires an education system that is flexible (discussed earlier in Chapter 4 and is further elaborated in Chapter 9 on Human resource).

5.3: Knowledge Economy and Indian Business Sector

Today the economy of every country is highly information technology driven. Information technology has become the backbone of infrastructure of all big and medium sized industries of our country. The following sectors like manufacturing, service, construction, healthcare, engineering, retail, aviation, railway, media etc are highly depended on information and communication technology.

Information and Communication Technology (ICT) encompasses systems and services to all such industries that gather, store, recover, maintain, manage, transmit, process, interpret, present and protect (in house and in transit) information which are very essential for their sustainability. ICT is embodied in large-scale and complex systems such as telecommunications networks and the World Wide Web, in devices such as mobile telephones and PCs, and in services such as banking, digital television and e-Government. It provides necessary tools and infrastructures for many branches of science and design including environmental science, bioscience and automotive design. ICT is the backbone of the digital economy. It drives forward productivity across all economic sectors and enables business transformation.

5.4: Automated Machines Controlled by Computers

Computer Numerical control (CNC) refers to the automation of machine tools that are operated by abstractly programmed commands encoded on a storage medium, as opposed to controlled manually via hand wheels or levers, or mechanically
automated via cams alone. These machines are nothing but robots. The first CNC machines were built in the 1940s and 1950s, based on existing tools that were modified with motors that moved the controls to follow points fed into the system on punched tape. These early servomechanisms were rapidly augmented with analog and digital computers that have revolutionized the machining processes.

In modern CNC systems, end-to-end component design is highly automated using computer-aided design (CAD) and computer-aided manufacturing (CAM) programs. The programs produce a computer file that is interpreted to extract the commands needed to operate a particular machine via a postprocessor, and then loaded into the CNC machines for production. Since any particular component might require the use of a number of different tools—drills, saws, etc., modern machines often combine multiple tools into a single "cell". In other cases, a number of different machines are used with an external controller and human or robotic operators that move the component from machine to machine. In either case, the complex series of steps needed to produce any part is highly automated and produces a part that closely matches the original CAD design. Today’s manufacturing and engineering operations are fully run by CNC machines. Experience of corporate houses in India is favourable in adopting the modern tools. If we take the examples of TATA Motors for automobile manufacturing or we consider the company like Boeing for manufacturing airplanes or we take the example of SAIL for producing steels, for each case CNC is essential now a days.

ICT creates wealth by allowing firms to:

a. Extend their reach and capacity
b. Reduce costs by streamlining their processes
c. Increase sales by offering higher quality and more competitive products and services.
d. Save processing time as well as cycle time.

Information technology can help organizations reduce the cost of products and services and, if designed correctly, assist with differentiation and focus strategies, too. For example, Corporate houses are using IT for overall cost leadership strategies. Information technologies can help bottom-line and top-line strategies. The focus of a
bottom-line strategy is to improve efficiency by reducing overall costs. A top-line strategy focuses on generating new revenues by offering new products and services to customers or increasing revenues by selling existing products and services to new customers. For example, e-commerce businesses are adapting business models to reduce distribution costs significantly.

Many organizations use enterprise systems, such as supply chain management, customer relationship management, enterprise resource planning, and collaboration software, to reduce costs and improve customer service.

5.5: Information and Communication Technology (ICT) in India

The rapid emergence of the Information and Communication Technology (ICT) sector has placed India on the global stage during the last one and a half decades. The sector has acted as a catalyst for growth across the Indian economy, including areas such as real estate, automobiles, travel and tourism, railway and mortgage banking industries. Employing over 2.5 million people directly, and over eight million indirectly through the sector, the ICT industry is rapidly expanding across all domains, primarily driven by software services.

With more attractive and investor-friendly Foreign Direct Investment (FDI) policies, India has become one of the favourite destinations for ICT investment portfolios. The introduction of liberalized foreign direct investment policies by the Indian government allows 100 per cent investment in the Indian ICT sector. The Government has initiated numerous measures to facilitate licensing, thereby making investment procedures easier.

The revenue aggregate of Indian IT-BPO industry is expected to cross US$ 100 billion during FY2012, according to NASSCOM. Aggregate IT software and services revenue (excluding hardware) is estimated to reach US$ 88 billion during the same period.

Further, export revenues (including Hardware) estimated to reach US$ 69.1 billion in FY2012 growing by over 16 per cent, while domestic revenues (including Hardware) to reach at about US$ 31.7 billion, growing by over 9 per cent. As a
proportion of national Gross Domestic Product (GDP), the sector revenues have increased from 1.2 per cent in FY1998 to an estimated 7.5 per cent in FY2012.

Diversified field of utilization of IT

In modern times service sector plays an important role in the development of the nation IT is the backbone of service providing industries – transport and banking and fiancé along with health are three prominent once.

Information Technology is used in every sphere of Indian economy. The scope is widening with the development of IT infrastructure – both physical and human. IT sector has already penetrated even in the rural agriculture economy of the country. Significant role that IT plays in the external sector is discussed in the subsequent chapter – chapter 6. Application of IT in rural economy of India and Industrial sector are taken up in Chapters 7 and 8 respectively. Utilization of modern computer facility in service sector has special significance. It itself is an integral component of service sector. It is pertinent to mention at this juncture that modern health care system is extensively utilizing computer technology to influence the health status of our country.

Banking and Financial Services

The BFSI segment accounts for the largest share of the domestic IT market. The major areas in which banks have undertaken IT related investments include computerization of branches, VSAT based networking among branches, installation of ATM networks, systems related to handling of credit/debit cards and facilities for Internet banking. An interesting trend, which we are beginning to witness, is the implementation of technology for improved customer service and thereby greater customer satisfaction apart from other significant benefits in terms of increased productivity. Another sector that has seen high IT related investments has been insurance. The increase has been driven primarily by the increase in the number of players as a result of opening up of the sector.
Usage of IT in Banking and Financial Sectors (BFSI)

The usage of information technology (IT), broadly referring to computers and peripheral equipment, has seen tremendous growth in service industries in the recent past. The most obvious example is perhaps the banking industry, where through the introduction of IT related products in internet banking, electronic payments, security investments, information exchanges (Berger, 2003), banks now can provide more diverse services to customers with less manpower. Seeing this pattern of growth, it seems obvious that IT can bring about equivalent contribution to profits.

Some research work says that IT can reduce banks’ operational costs (the cost advantage). For example, internet helps banks to conduct standardized, low value-added transactions (e.g. bill payments, balance inquiries, account transfer) through the online channel, while focusing their resources into specialized, high-value added transactions (e.g. small business lending, personal trust services, investment banking) through branches. Second, IT can facilitate transactions among customers within the same network (the network effect) (Farrell and Saloner, 1985; Katz and Shapiro, 1985; Economides and Salop, 1992).

Let us consider the case of automated teller machines (ATMs) by banks. If ATMs are largely available over geographically dispersed areas, the benefit from using an ATM will increase since customers will be able to access their bank accounts from any geographic location they want. This would imply that the value of an ATM network increases with the number of available ATM locations, and the value of a bank’s network to a customer will be determined in part by the final network size of the bank. Indeed, Saloner and Shepard (1995), using data for United States commercial banks for the period 1971-1979, showed that the concern of network effect is important in the ATM adoption of United States commercial banks. Milne (2006) has also focuses the similar view.

In view of these two effects above, it should be surprising to know that the evidence, however, shows some inconsistency in concluding the contribution of IT to banks’ profit. Indeed, compared to manufacturing industries or agriculture, banking industries present higher diversification in providing customer services. In this case, a differentiated model with network effects would probably describe the market better.
than the production function approach, which describes each bank’s profit (output) as a specific production function of inputs. Notice that most empirical studies have constructed their testing on productivity or growth. In addition, while most production approaches only present a mixture of IT influences on both demand and supply sides, a differentiated model can distinguish a network effect from the demand side (in banking services) from a cost reduction effect.

Usage of IT in Telecom Sector

Deregulation, mergers and acquisitions, and intense competition have thrown up multi-faceted challenges for the Telecom & Internet Service Provider communities. To sustain themselves in the highly competitive market, the players need to invest in infrastructure, improve quality of service, network efficiency and billing solutions.

ICT in RURAL TELECOM

Telecommunication has been one of the prime services which an economy needs for rapid growth, development and modernization of its various sectors. It has been observed that telecommunication infrastructure development and economic development of a nation often proceed together.

Application of ICT in rural Telecom

• Data networking, electronic mail and Internet access.

- The use of electronic mail and access to the Internet is now growing faster than the explosive growth of facsimile transmission in the past ten years

• Distance learning, telemedicine and videoconferencing.

- Telemedicine can improve access to specialty care in some areas, particularly in rural areas which they lack consultants in other fields of medicine.

Importance & Benefits of ICT in rural telecom

• Economic growth
- Market information for buying and selling.
- Transport efficiency and regional development.
- Coordination of international activity, business, tourism and international organization.

• Improved agriculture
  - Farmers obtaining market information from urban areas.
  - Knowing scientific methods of agriculture from researches centers.

• Stemming out-migration to urban areas

• Education
  - Growth of interactive applications, ranging from audio videoconferencing

• Health care
  - Consultation by giving advice to rural workers.
  - Data collection and record keeping.
  - Training of health care workers.

Usage of IT in Health Care Sectors

Healthcare is one of the fastest-growing verticals in India. The Indian healthcare sector has started focusing on serving customers better, keeping in mind the need to balance a robust and profitable business operation and meeting broader social objectives. The main focus areas have been to improve service to the end-customer, the patient and to increase patient safety. IT has played an important role in providing better systems, thereby streamlining information processes of an organisation, ironing out inefficiencies that grow due to lack of information, increase the quality of healthcare delivery to patients and reduce costs.

Usage of IT in Aviation Industry

Globalization of the social economy will further increase during the 21st century. The mission of international air transportation will become more important, and all airports around the world will have a significant role to play. Furthermore, it is
predicted that air transportation demand in the world will double over the next 15 years.

In the meantime, since the September 11, 2001 terrorist attacks on the United States, the environment surrounding the aviation industry has become very severe and has caused adverse impact to the entire aviation industry. Security at airports has been reinforced in all aspects, significantly deteriorated on-time performance, caused mass congestion at the airport, and caused a drastic increase in aviation management and operational costs.

Owing to these issues, the aviation industry in recent years has seen a need to improve both convenience to passengers and security measures, and at the same time improve on-time performance in the most economical manner.

In connection with this trend, the International Air Transport Association (IATA) has been promoting the Simplifying Passenger Travel project to facilitate the process of international travel for next-generation air transportation. Information and communication technologies (ICTs) have an especially significant role to play here, for it is only with the strategic, widespread, intensive, and innovative use of ICT in future airport development policies and programs that the ambitious agenda of passenger convenience and airport security becomes much more possible to achieve. But this involves the need not only to unleash the potential of ICT per se, but also the need to ensure that an enabling environment and capacities that can facilitate its aviation applications are in place.

**ICT applications in Aviation Industry**

- **Air Passenger Needs**

  1. **Travel Planning**

      Through any 3G mobile phone, one can use the in-built videoconferencing facility with his business partners or friends to discuss a travel plan. Once an itinerary has been agreed, one can access the Web site of travel agents and ask for quotes from different airlines regarding routes and accommodation types. Through e-mail and/or short message service (SMS) messages from the travel agent, the traveler can use his
PC, mobile phone, or personal digital assistant (PDA) to find out a plan most suitable to him.

2. Commencement of Traveling

On the day before departure, the traveler may need to buy some gifts, and he can access one of the virtual shops at the airport and pick it up on the day of departure. Assume that a traveler wants to travel hands-free; a delivery company would be asked by the airline to contact him for the purpose of picking up his baggage for delivery to the airport. In order to check the airline and flight number from the e-ticket, the driver could check the traveler’s mobile phone by means of his portable identity (ID) terminal. When the driver does this, the ID terminal automatically sends the baggage information to the airline’s computer system. Upon arrival at the airport, the baggage will then be transferred to the baggage handling system for security inspection and subsequently delivered to the aircraft.

3. Departing for Airport and E-Check In

On the day of departure, when the traveler arrives at the rail station, he can pass through the rail ticket gates simply by holding his mobile phone in contact with the designated scanner so that the built-in IC chips could be scanned. When it is time for boarding, the group would expect to check in quickly through the automatic check-in kiosks, which are installed with one of the International Civil Aviation Organization (ICAO)-endorsed biometrics for passenger identification and passport control.

4. Arrival at the Destination Airport

When the destination airport is installed with an advance passenger information (API) system, the API data (collected from a passenger’s machine-readable e-passport) will be sent by the airline to destination airport, enabling the customs/immigration officials at the airport to organize their clearance process in advance of the arrival of the flight.

With this system, the customs/immigration officials at the destination airport are able to focus on previously selected passengers, significantly reducing the wait
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time for the majority of passengers and enhancing the quality of the clearance process regarding the inspection of suspected aliens or illegal immigrants.

Upon arrival at the destination airport, one may want to learn about the tourist promotion programs; this can be obtained via the electronic translation facility provided at the airport.

• Aviation Security Needs

1. Identity Verification

2. In air travel there is an increasing need for accurate and efficient verification of passenger identity. Technologies which allow for stronger access control and strengthened document integrity will be welcome by most airports.

In recent years, there has been a steady increase in the testing and piloting of biometrics. Biometrics are unique, measurable characteristics or traits of a human being for automatically recognizing or verifying identity.

The stability and uniqueness of the fingerprint are well established and Facial recognition technology utilizes distinctive features of the human face in order to perform a biometrics match. Even though two individuals may look alike, the unique physiological patterns of their facial features will be different.

2. Better Resource Utilization

Some countries started implementing trusted passenger programs to expedite the security screening of passengers who participate in such programs, thereby allowing security screening personnel to focus on those passengers who should be subject to more extensive screening.

Usage of IT in Retail Sector

The significant increase in activity in the retail sector has resulted in a growth in IT investments in this sector. Indian retailers have been spending more and more on setting up IT systems and, importantly, plan to hike up their investments in this area in the future. Retailers are also looking beyond basic expenses to higher levels of IT
functionalities. Applications that are very commonly used by retailers include SCM, CRM and e-business solutions.

Government spending on IT is expected to witness a significant increase, owing to initiatives by both the Central and State governments. The government will use web-enabling services, consulting for planning and implementation, apart from the hardware and software needed to build the e-governance platform.

**Domestic Outsourcing-The BPO sectors**

Domestic business process outsourcing (BPO) industry is emerging to be very important. The ability to transform business and add value is likely to project this pre-nascent industry to success. While IT outsourcing is a starting point in the domestic BPO segment, there is large potential in other areas like finance and accounting as well as many other activities. Bharti’s deal with IBM and the more recent managed networks deal with Nokia, the Bank of India-HP deal, the Dabur-Accenture deal etc, point that the Indian market has matured and domestic outsourcing provides a huge opportunity for vendors.

According to the National Association of Software and Services Companies (NASSCOM) out of the total exports, outsourcing services such as software programs, billing, customer management and accounting, grew to $US5.2 billion or 44 per cent of the worldwide total. The outsourcing industry also crossed a milestone in employment. The industry scaled record levels of employment during the 2008 with the employee base crossing the one-million mark. Despite the anti-outsourcing laws planned in the US and other regions India attracts foreign companies. The strong growth validates the economics of offshore outsourcing. India’s offshore value proposition remains the strongest. Positive market indications and strong records strongly support the optimism of the industry in achieving its aspired target of $60 billion in software and services exports and $73-75 billion in overall software and services revenue by fiscal 2010. Direct employment is expected to reach two million people in 2010. The 2010 target would mean an increasing contribution of the sector to the socio economic development of the country. According to NASSCOM, IT-BPO will employ about 2.5 to three million professionals directly in the sector, account for direct investment of about $10 to 15 billion and contribute seven to eight per cent of the national GDP by 2010. The Software Industry, which is a main component of the
Information technology, has brought tremendous success for the emerging economy. India's young aged manpower is the key behind this success story.

**Usage of ICT in media**

ICT has had several effects on journalism, with some of them seen as advantages while others as disadvantages. Computer and the modem, along with many other ICT hardware and software innovations and services, have placed us at a high point of a very significant stage of development in the history of human communication, often called, ‘the information society’, and have transformed the way many men and women work in the media and entertainment industries”. This points to the fact that ICT has brought about significant changes in the journalism.

ICT has led to the generation of more and well researched news. With the coming of mobile phones, you can call your news sources at anytime and get news and moreover well-balanced and researched news. When it comes to the Internet, news and program backgronders are always available.

Think of any topic you are working, from health, education, lifestyle, to environment, you cannot fail to get information to help you enrich your story especially with those hard to get facts. The Internet has surely transformed the newsroom to greater heights. It is important to note that this comes as a result of globalization and it is also a cause of globalization in one way.

ICT has made reporters, editors and other news contributors closer. It has created a ‘network ’that leaves reporters and editors in close contacts at any one time. The editor can at any one time call the reporter who is situated in any place, as long as there is telephone network there, and get a story from him/her. Likewise, reporters file stories at any given time via the Internet. Mobile and satellite telephones and general improvement of landlines, have made it possible for newspapers to get stories from a reporter stationed anywhere. No matter where a reporter is stationed, he/she is always connected and close to the newsroom.

This in turn is cheap because not much money is wasted on transportation fares of the reporter from the field and back to his duty station. Mwila in his interview with RAP 21, drives this point home when he states, “Once fully adopted and adapted, the ICT will transform the newsrooms into cabled and networked centres
with all journalists discharging stories on to a network, editors picking them before sending them to the page designers or casters in the case of electronic media.”

ICT has made communication process participatory. It is no longer only the journalist who is involved in this field, but the audience too. The local people affected are also part and parcel of the communication process. With ICT, diffusion, two-step flow and extension approaches of communication no longer hold. Communication is bottom-up. Listeners are able to pick their phones and call in the radio stationers immediately and in form communicators about anything happening in their area. Reporters later investigate on such issues.

In other words, ICT has helped to bring closer communicators and receivers to the extent that feedback is swift. This in turn makes communication process participatory, useful and development focused as it centers on the audience. Servaes and Malikhao (2005;91), argue that, “Participatory, which necessitates reasoning and moreover trust will help reduce the social distance between communicators and receivers, between teachers and learners, between leaders and followers as well as facilitate a more equitable exchange of ideals” this draws attention to the fact that ICT has made exchange of ideas between communicators and receivers easy hence making the communication process people centered.

5.6: Aged People and the Usage of Internet

Demographic trend across the world is increasing share of elderly group in population cohort. Elderly groups are marginalized in every society. Computer technology – internet in particular is helping this section of people to improve their quality of life. In the knowledge society they are emerging as self help group to overcome the age inflicted problems and difficulty. Computer technology and the Internet have a tremendous potential to broaden the lives and increase the independence of aged people. Those who have difficulty leaving their homes can now log in and order groceries, shop for appliances, research health questions, participate in online discussions, catch up with friends, or make new ones.

Transnational variation is expected. However inadequacy of information has restricted our investigation. A comparative study between the developed USA and our country is made to understand the future trend.
Variation in use: age intervening

Experience suggests that more than half of the American population goes online and the computers and technology are traditionally seen as the domain of the young. But is this true? Generally it has been seen that children go on line both for educational and entertainment purposes. But the people who have attained the age of sixty years use internet for multiple purposes. It has been seen worldwide that those who are 24 years of age and younger have very high percentages of their age groups in Internet on line. This age group does tend to be techno savvy and its members use the Internet for research, entertainment, and communicating with friends through different social networks through face book, orkut, and twitter etc. But those who are 25 years and more than that have the most dynamic growth rates in computer world.

The study conducted in USA focuses that the people who are 50 and older are the fastest growing segment in computer world. But what is the scenario in India? Are the Indian aged people surfing Internet and getting the advantages of Internet? Is there any organization to make the old people aware about Internet usage? The aged people can pass their time well in the Internet. It will also be productive. The exact scenario needs to be investigated.

Internet Use and the Benefits

Like millions of people, the aged people throughout the world use internet intensely in sending and receiving e-mail, online banking, shopping, reading news and books, online publications, and blogs, preparing speeches, including power point presentations, checking financial investments, organizing photos, using social media, ordering prescription items, and preparing and submitting tax return using the online pay system of income tax Department. The farmers can gather weather update and agriculture data useful for predicting better production decision.

We begin our discussion with a set of questions related to the use of Internet by the aged people. Are the Indian old people surfing internet and getting the advantages of internet? Is there any organization to make the old people aware about internet usage? Can the aged people pass their time well in internet? It will be productive also. But the exact scenario needs to be found out.

These days – like millions of other people – the people who are old aged can use internet as sending and receiving e-mail; online banking; shopping; reading news,
online publication, and blogs; preparing speeches, including Power Point presentations; checking financial investments; organizing, photos, using social media, ordering prescription items; and preparing and submitting tax return using the online pay system of income tax dept. The farmers can get weather update and agriculture data which are very useful for the better production. So internet can be a very useful hand for the aged people. They can reduce their boredom. And the use of internet is very easy for everyone. Even an uneducated person can use internet just clicking the mouse on some objects.

**General Population vs. Internet Population – USA experience**

A study was done by the US Dept of Commerce regarding the age wise percentage of online users in USA and some interesting results were found out which is mentioned in table 5.1.

Table 5.1 shows that out of total 44 percent of aged population in USA 34 percent uses internet and it is a huge number.

**Table 5.1: A Comparative Study between General Population and Online Users**

<table>
<thead>
<tr>
<th>Age</th>
<th>All U.S. Adults (%)</th>
<th>Online User (%)</th>
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<tbody>
<tr>
<td>18-24</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>25-34</td>
<td>20</td>
<td>23</td>
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<tr>
<td>35-44</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>45-54</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>55-64</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>65 and over</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>All</td>
<td>100</td>
<td>100</td>
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During the year of 1996 to 2000, the share of the online population whose age was 35 and above had increased from 52 per cent to 62 percent; the share for 18-34 year-olds has fallen from 48 percent to 38 percent. According to A Nation Online,
while 18-35 years olds tend to use the Web more for entertainment but those who are 35 and above have a different agenda. Online banking, shopping, and gathering health information all ranked high on the list of their frequent activities (and keeping in contact with loved ones through e-mail, of course – this is every group’s favourite activity).

**Impact of Age on Internet Usage in USA**

The age group between 18-30 are called ‘Generation Y’, the age group between 31-42 are called ‘Generation X’, the age group between 43-61 are called ‘Baby Boomers’, the age group between 62-71 are called ‘Matures and above 71 are called After Work. A survey was done by University of Illinois, USA that a handsome number of aged people are highly depended on internet. From table-5.2, we can clearly understand the rate of internet usage by the aged and old people in USA. There is 79 percent ‘Baby Boomers’ whose age is in between 43-61 and 56 percent of the mature people whose age between 62-71 uses internet. And it is very interesting.

**Table-5.2: Demographic Profile of US Adults Who Use the Internet, June September, 2007**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>78%</td>
</tr>
<tr>
<td>Female</td>
<td>75%</td>
</tr>
<tr>
<td>Age</td>
<td>91%</td>
</tr>
<tr>
<td>18-30 (GEN Y)</td>
<td>90%</td>
</tr>
<tr>
<td>31-42 (GEN X)</td>
<td>79%</td>
</tr>
<tr>
<td>43-61 (Baby boomers)</td>
<td>56%</td>
</tr>
<tr>
<td>62-71 (Matures)</td>
<td>29%</td>
</tr>
<tr>
<td>71+ (After work)</td>
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</table>

| Family Annual Income  | 61%     |
| $40000+               | 91%     |

| Education             | 41%     |
| Less than high school diploma | 69%     |
| High School Diploma   | 86%     |
| College               | 93%     |

| Geographic location   | 76%     |
| Urban                 | 80%     |
| Suburban              | 66%     |

*Note: (Sample Size: 2796, English Speaking only)*

*Source: Graduate School of Library and Information Science, University of Illinois, 2007.*
India’s internet community grew by a spectacular 42 percent in 2009 from a year ago, spurred by a rash of cheaper devices and affordable broadband plans that helped sidestep problems such as buttoned – up PC sales and a shrinking spread of cyber cafes. Available information suggests that by 2009, total number of internet users grew to 71 million in India. The exclusive and confidential annual survey by market research agency IMRB and Internet and Mobile Association of India, traced users who have used the internet at some point in time, give some indication of the number of Indians who have gone online at least once in their lifetime.

According to the survey four out of five computer users and English-speaking person in urban India are now hooked to the Web, The survey was conducted among 19,000 households, 68,000 individuals and 500 cyber cafes. The study says India’s active user base – comprising people who access the internet at least once a month – grew by 18 percent to 51 million in 2009.

However, the survey also offers salient data that are a counter against getting carried away by the other glowing trends. The number of users who possess an internet connection remains remarkably low at 14.6 million. Also, internet penetration is still meager compared to that of countries such as the US. China has over 360 million internet users followed by US at 227 million and Japan at 95 million. Number of Internet users in Asia is 5, 29, 701, and 704. Though Asia has only 16 percent of populations of the world, 37.6 percent of total internet users are Asian which is great. Of them around 60 million are from India. India is 3rd in Asia (1st is China (220 million) and 2nd is Japan (87.5 million)) and 4th in world (1st is China (220 million), 2nd is USA (216 million) and 3rd is Japan (87.5 million)) as per as internet users are concerned.

Table 5.3: Trend in Internet Usage in India, from 1998 to 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet Users</th>
<th>Population</th>
<th>% over population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>1,400,000</td>
<td>1,094,870,677</td>
<td>0.10 %</td>
</tr>
<tr>
<td>1999</td>
<td>2,800,000</td>
<td>1,094,870,677</td>
<td>0.30 %</td>
</tr>
<tr>
<td>2000</td>
<td>5,500,000</td>
<td>1,094,870,677</td>
<td>0.50 %</td>
</tr>
<tr>
<td>2001</td>
<td>7,000,000</td>
<td>1,094,870,677</td>
<td>0.70 %</td>
</tr>
<tr>
<td>2002</td>
<td>16,500,000</td>
<td>1,094,870,677</td>
<td>1.60 %</td>
</tr>
<tr>
<td>2003</td>
<td>22,500,000</td>
<td>1,094,870,677</td>
<td>2.10 %</td>
</tr>
<tr>
<td>2004</td>
<td>39,200,000</td>
<td>1,094,870,677</td>
<td>3.60 %</td>
</tr>
<tr>
<td>2005</td>
<td>50,600,000</td>
<td>1,112,225,812</td>
<td>4.50 %</td>
</tr>
<tr>
<td>2006</td>
<td>40,000,000</td>
<td>1,112,225,812</td>
<td>3.60 %</td>
</tr>
<tr>
<td>2007</td>
<td>42,000,000</td>
<td>1,129,667,528</td>
<td>3.70 %</td>
</tr>
<tr>
<td>2009</td>
<td>81,000,000</td>
<td>1,156,897,766</td>
<td>7.00 %</td>
</tr>
<tr>
<td>2010</td>
<td>81,000,000</td>
<td>1,173,108,018</td>
<td>6.90 %</td>
</tr>
</tbody>
</table>
Table-5.3 shows that a significant growth of internet users from 2007 to 2010. India has 13 percent of internet users in Asia and 7.36 percent that of the world. But the sorrowful fact is low 5.3 percent of people in India use internet. The reason of this is most of the people in India don’t know computer. 70 percent of people who know computer have used internet which is a healthy sign.

We also observe some intercity variation in internet users. Mumbai has the maximum number of internet users (3.24 million) in India followed by Delhi (2.66 million). The top ten cities where people use internets are Mumbai Delhi, Bangalore, Kolkata, Chennai, Pune, Hyderabad, Ahmedabad, Surat and Nagpur in that order. The total number of internet users of those 10 cities are 37 percent of the total number of internet users in India.

**Site preference and browsing**

Sites preference of users and browsing practice highlights some significant phenomenon. Most of the users use net for emailing (95 percent) which is obvious. Next is job searching (73 percent) showing crisis of getting job in India followed by chatting sites (62 percent), social networking sites (51 percent) and quite interesting mathematical sites (48 percent).

The top ten sites internet users browse in India are the following:

1. Yahoo
2. Google India
3. Google
4. Orkut
5. Rediff
6. YouTube
7. Blogger.com
8. Windows Live
9. Rapid Share
10. Wikipedia
Old Aged People and Internet Usage in India

Internet ownership has seen growth of 32 percent during the survey period. It is a delightful fact, there are some concerning factors too. Those are:

- Only 5.3 percent people use internet in India which is very low.
- Most of the users are male (85 percent). The female percentage should increase.
- Maximum number of users is from top 10 cities (37 percent). So the internet usage in urban areas is very less.
- And they very low rate (approximately 15 percent of the total internet users) of aged people who use internet unlike USA.

The low rate of internet usage among the aged people in India is not unexpected due to illiteracy and lack of access. Hopefully the situation will improve with greater penetration among the rural masses. Serious concern because if we need a developed India needs measures to improve internet awareness among old aged people.

The age group between 19-40 years is major section (85 percent) using internet in India. 85 percent of internet users in India are male which not a healthy picture. It is not surprising that among working women, only 11 percent use internet. The ratio is almost half (6 percent) in case of non-working women and even worst in case housewives (2 percent). The scenario is much better in case of young men (33 percent). Also 15 percent older men, 14 percent school going kids and 21 percent college students use internet in India, 46 percent of net users are graduate, 26 percent are post-graduate. Among these, 2/3rd of user use internet 2-3 times a week. 62 percent uses internet from office as in most of the offices, it’s free.

Age is very important factor and all older people want to make later life a more fulfilling and enjoyable experience. Therefore internet can help the ageing population very much.
There are many older people who are very interested in understanding and participating in new technologies such as the Internet, the web, email, Desk Top publishing etc.

Their motivations may be varied; it might be a feeling of needing to keep up with their grandchildren, to stay in touch with families and friends, to keep “grey cells” active, to take forward skills that have been picked up in earlier employment of just curiosity. Whatever the drivers, there are more and more older people who are signing onto internet.

The time has come in India that we need to activate older people – with a basic knowledge of computers and the internet and increase their confidence, offering them the change to move on if they wish, to more in depth, certificated training, and possibly, a return to paid employment of a greater involvement in voluntary or free time activity.

For more weak elderly people we need to enable them to take a much greater part in the life of their community. They will be encouraged to identify areas of particular interest to them so that appropriate web sites can be ‘surfed’ – which may be the desire to investigate a particular medical condition, find out more about a legal or historical matter, or simply to research their family history etc.

The old aged people can be more productive for a nation and be happy if they could start their new life with internet.
References


Internet and Mobile Association of India, Internet in India: 2006, p. 16 http://www.iamai.in/research_index.php


Older People and Communications Technology, Communications Consumer Panel 2006 cited in Age Concern and Help the Aged Our Voice (2009).


