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**GLOBAL ELECTRONIC COMMERCE:
IMPLICATIONS FOR INDIA**

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Foreword

Info-communication technologies are transforming the face of global commerce and are predicted to drive the engine of growth in the 21st Century. Convergence of information technology on telecommunications in the last decade has led to the development of the electronic medium as a strategic tool for conducting business. Electronic commerce is not a new phenomenon, producers and consumers already conduct a sizeable share of their daily business transactions via telephone, fax, credit cards, etc. But advent of the Internet in conducting business has revolutionised the global market place.

In early 1998, the US proposed at the World Trade Organisation (WTO) to codify the current practice of zero customs duty on electronic transmissions. In normal circumstances, the codification of the current practice would not be an area of concern among members. But the expanding reach and possibilities of the Internet have attracted world wide attention. Electronic commerce through the Internet drastically reduces transaction costs, making distances between buyers and sellers irrelevant, and facilitating access to global markets.

To ensure growth and acceptability of Global Electronic Commerce (GEC), the WTO has successfully completed negotiations on two agreements - the Information Technology Agreement (ITA) and Agreement on Basic Telecommunication Services (MTS). These agreements are the initial steps to develop a strong and electronic medium structure for conducting international business. In a larger perspective, electronic commerce affects all the major agreements of WTO, i.e. General Agreement on Tariffs and Trade (GATT), General Agreement on Trade in Services (GATS) and Trade Related aspects of Intellectual Property Rights (TRIPS). The newly established multilateral trading system under the aegis of the WTO realised its importance and has undertaken a comprehensive work programme to study all trade related issue emerging from GEC.

From the Indian perspective, GEC is a relatively new phenomenon. Rajiv Gandhi laid the foundation of the information age in India while he was the Prime Minister. His vision of "Electronic India" indicated India's competitive advantage in the next century. Inherent weaknesses, in terms of penetration ratio of info-communication systems, inadequate infrastructure and a highly stratified poverty stricken society, have retarded India's economic development. To exploit its competitive advantage, India needs to address some of the essentials of modern info-communication systems.

The objective of this paper is to identify GEC related issues and generate a nation-wide debate on their implications. This paper makes an attempt to explore the benefits and challenges associated with the development of the Internet and electronic commerce in India. It tries to identify a wide variety of issues and implications of electronic commerce with respect to the Indian economy.

This paper is a part of the Rajiv Gandhi Institute's series on international economic relations and is meant to stimulate a debate on trade-related issues.

Dr. Sekhar Raha
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Global Electronic Commerce: Implications for India*

P.D. Kaushik

Introduction

Electronic commerce is emerging as a new channel for international business in the 21st century. Rapid developments in information technology have transformed our world and affected almost every aspect of our daily life – education, health care, work, etc. The pressures of international business transactions and related interests emphasised the need for codification of current practices on electronic transmissions.¹ Presently, no country treats electronic transmissions, such as, a fax transmission or an international phone call, as importation for the purpose of the application of custom duties. The issue of *status quo* for electronic transmissions was raised at the WTO General Council Meeting by the U.S. delegation on February 19, 1998.²

The reason for developing an international consensus on global electronic commerce results from rapid growth of information technology during the last decade. The exponential growth of Internet in connecting people and markets is foreseen as a dominant means of influencing market forces. The future challenges of globalisation touch upon many traditional areas of concern to WTO members, trade in services being the foremost. The WTO has already brought

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¹ President Clinton's presentation "A Framework for Global Electronic Commerce"

² Presentation by the U.S. Ambassador Rita Derrick Hayes on "Global Electronic Commerce: Duty Free Treatment for Electronic Transmission".

the global electronic environment within its purview through the Information Technology Agreement and the Agreement on Basic Telecommunications.³

Electronic transmission commerce is a widely discussed subject. Such transmissions do not have a tariff classification in the Harmonised Commodity Description and Coding System of the WTO. Besides, the US Tariff schedule states that "telecom transmissions" are not goods subjected to the provisions of the tariff schedule.⁴ The GATT Decision 4.1 and GATT Committee on Customs Evaluation further support the internationally accepted norm on electronic transmissions. The Bangemann Report stressed need for a strengthened international coordination for developing adequate global electronic commerce framework.⁵ The General Council also declared a comprehensive work programme to examine all trade-related issues relating to global electronic commerce in its Ministerial Conference at Geneva.

Global Electronic Commerce - *What is global electronic commerce?*

The term electronic commerce refers to commercial transactions, involving both organisations and individuals, that are based upon the processing and transmission of digitised data, including text, sound and visual images. These transactions are carried out over open networks (like the Internet) or closed networks (like AOL or Minitel) that have a gateway onto an open network.⁶ The vast majority of products marketed electronically business-to-customer are intangibles, such as travel and ticketing services, software, entertainment (online games, music, gambling), banking, insurance and brokerage services. Other opportunities are information services, legal services, real-estate services, and increasingly health care, education and government services. However, much media attention has focussed on online merchants selling books, wine and computers.

³ Ambassador Rita Derrick Hayes's presentation on "Global Electronic Commerce", Annexure III at Geneva.

⁴ U.S. Proposal presented by the U.S. Ambassador at WTO, Geneva.

⁵ Recommendations on global electronic commerce to the European Council (1994).

⁶ The broad definition of electronic commerce used by ITU and the OECD covers commercial transactions through credit cards, telephone purchases, and electronic money transfer. A narrower definition focuses exclusively on computer network (Internet) based commerce. The focus of the discussion in this study refers to Internet, while in many instances, it applies to other instruments of electronic commerce.

No single force embodies our electronic transformation more than the Internet. The Internet has emerged as a vital link for connecting almost every point on the planet. Students, doctors, engineers, and other professionals get to access vast information through the World Wide Web (www) network system. The impact of Internet is more profound for global trade in services. Lately, new models of commercial interaction are developing with business and consumers participating at the electronic market place. The Internet shall revolutionise retail and direct marketing systems and facilitate international business transactions because it considerably reduces the economic distance between producers and consumers. Consumers make their purchases directly without involving traditional retailers, wholesalers, and in some cases, distributors. Besides, users are benefited from improved information, lower transaction costs and thus lower prices, larger choices that could include products tailored to individual requirements, and instant delivery for intangible services and products in digital form.⁷

The World Wide Web is the first computer network protocol to accommodate customisation, i.e., different users need different information. The second facet of the web is its interactivity. More importantly, interactive communication is an essential principle of modern marketing practices. Interactive communication is needed for the seller to understand the consumer's needs. Other facets to consider include:

- Timeliness
- Attention
- Market niche coverage
- Cost to consumers

Undoubtedly, there are alternative media available having a distinct competitive advantage. Broadcast media could communicate to many people, but it could not offer customisation. Sales persons could convey diverse information, but a transaction is person-to-person contact basis. Print media could convey higher volumes of information

⁷ Interactiveness of web marketing allows manufacturers to produce goods as per consumers' tastes and preference. Currently, Apple Computers are selling PCs tailored to suit individual requirements, i.e. in terms of hardware and software elements.

World Wide Web's Advantages

- *low marginal cost of providing information to an additional user;*
- *low marginal cost of providing additional information to a given user;*
- *low cost of providing timely updates of information;*
- *low fixed cost of setting up a server;*
- *low cost of providing customisation; and*
- *low cost of interactivity.*

and process transactions, but lack customisation and interactive communication. Thus, computer networks are unique among all media alternatives as they combine customisation and interactivity at low marginal costs.⁸

This has been made possible primarily due to small, compact and powerful computers; and technological innovations, such as, higher bandwidth, etc., to connect them into networks.⁹ Significant improvements in fibre-optics and digital compression technologies are supporting the high-speed transmission of multimedia data over the Internet. In the past, it was carried over phone lines and airwaves, resulting in unavailability and unreliability of information. The telephone network was oriented towards voice traffic, narrowband circuits with a range of 1Mbps; the wideband (between 1Mbps to 10 Mbps) was originally specified for carrying multiple voice channels over the same circuit. However, narrowband circuits do not offer the access speeds needed for multimedia applications. This competitive advantage of data transmission allows computers to serve both as a vehicle for broad dissemination of product information and as a vehicle to process transactions. In India, broadband technologies are still in infancy and the telecommunications network system under government control. Nevertheless, the surging demand for Internet connections has emphasised appropriate government deregulation in a variety of technological and non-technological areas.

⁸ The cost incurred in document transmission through fax is approximately 28 times more than the Internet e-mail. [Source: ITU, "Challenges to the Network", (1997)]

⁹ Bandwidth determines the speed at which data can flow through computer and communications systems without interference. Bandwidth requirements have increased as users send images, sound, software, video and voice over the Internet.

Electronic transactions are now common place in the business and government environment in the industrialised world. In the US alone, over 50 per cent of all companies are exchanging data electronically while engaging in accounting, controlling, production management, funds transfer, record keeping, purchasing and selling activities. Likewise, consumers also use various information technologies to buy products via credit cards, to transfer funds, to buy stocks, and to browse through electronic catalogues. The share of developing countries, especially India, in such type of commercial activities is infinitesimal, largely restricted to a relatively few specialist users. In fact, electronic commerce is expected to grow in India in various forms, such as, electronic data interchange, interactive television and home shopping, multimedia kiosks and cable-based video-on-demand services. Off shoots may be desktop video-conferencing and computer networks affecting the process of communication and overall travelling needs.

Status of Global Electronic Commerce

With electronic commerce, the world is at the threshold of a new revolution. It provides a fundamentally new mechanism of conducting commercial transactions. The uniqueness of electronic commerce is that anyone with access to Internet has access to electronic commerce. Online commerce requires hardware, software, and the ability to connect to the network, involving access by telephone, cable TV, cellular mobile networks, satellites or broadcasting networks. Equipment costs, access charges and the complexity of the evolving Internet itself are barriers to universal Internet access. Currently, regulatory structures in many countries still limit market access by infrastructure providers. However, it is changing with the liberalisation of the telecommunication sector.

International Level

Electronic transactions are becoming a common feature in the business and government environment in the industrialised world. During the past few years, industrialised economies have performed beyond most expectations, with few exceptions. A shrinking budget deficit, low interest rates, a stable macroeconomic environment, expanding international trade with few barriers, and effective private sector management are all credited with playing a role in this healthy performance. It was observed that advances in information technology,

driven by the growth of Internet have notably contributed in improving their economic performance.

Internet and Electronic Commerce

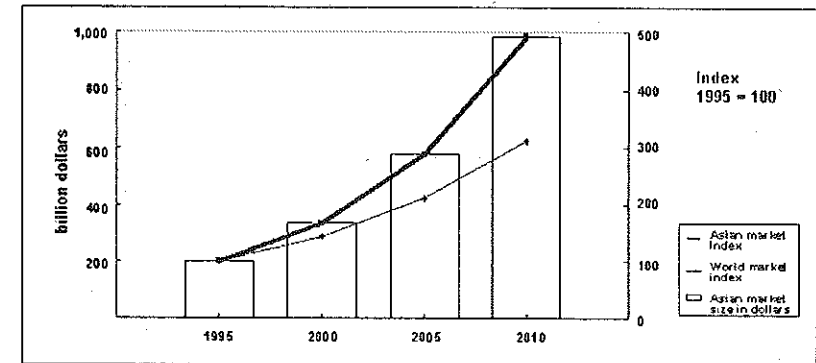
- More than 100 million people were connected to the Internet by the end of 1997, registering an average growth of 1.5 per cent over the last year.
- About 1.5 million Internet domain names have been registered by the end of 1997, as against 627,000 in 1996, registering an overall growth rate of 1.5 per cent over the last year.
- Traffic on Internet doubles after every 100 days.
- Cisco systems in 1996 hooked just over \$100 million in sales on the Internet. By the end of 1997, its Internet sales were running at a \$3.2 billion.
- In 1996, Amazon.com, the first Internet bookstore, recorded sales of less than \$16 million. In 1997, it sold \$148 million worth of books to Internet customers.
- In 1997, Dell Computers sold about \$1 million worth of computers per day on the Internet. The company has reported daily sales of \$6 million several times during the December 1997 holiday period.
- Auto-by-Tel, a web-based automotive marketplace, processed a total of 345,000 purchase requests for autos through its Web site in 1996, worth \$1.8 billion in auto sales.

Source: *Emerging Digital Technologies* (1998)

It is difficult to provide exact figures on Internet usage world-wide, however, different sources point to 1997 as the year when Internet usage crossed the 50 million mark. In fact, it is established from past experience that where advances in telecommunications and computing occurred concomitantly, currently their focus has converged on the Internet. The USA and Canada have emerged as major business centers for utilising electronic means to conduct commercial transactions. Online Interactive, a Seattle based company, resells its software through Internet. Ameritech Corp. is an online service which provides management and disclosure of public finance documents over the Internet. Likewise, the EC region has also commenced online commercial transactions. Siemens Components Inc., a part of 2.9 billion Siemens Semiconductor Group, Munich, procures and supplies equipment and components through its new online catalogue available at its website.¹⁰ Asia is also not far behind.

¹⁰ Example quoted in the newsletter "Electronic Development and Commerce", May 1998.

Size of Asia's Info-communications Market



Source: MITI, 1998

Japan is emerging as a major player in global electronic commerce in Asia. MITI reports an exponential increase in electronic transactions in conducting local commercial activities. Singapore, one of the newly industrialised economies, has emerged as the first country in the world to introduce online payment systems - VISA Secure Electronic Transaction. It has also emerged as the electronic commerce hub for ASEAN countries. Other Asian countries, such as China, etc., have also realised the importance of electronic commerce and are adopting suitable measures to ensure their participation on equal terms.¹¹

News from around the world is now available on the Internet, usually free of charge. More than 27,000 newspapers have online businesses, of which over 60 per cent are US-based. Almost all top 50 magazines in the US have their Web presence. More than 800 TV stations across the US have Web sites. Ultimate TV.com lists 151 US cable channels including a host of others related to weather, etc. In fact, consumer demand and more effective distribution systems are driving the rapid emergence of information services on the Internet. There is also an expected shift in advertising revenues from traditional media to the Internet.¹²

Forrester Research B.V. in its research findings projected that

¹¹ Annual Report-1997, MITI.

¹² "The Emerging Digital Technology" (1998).

European Union would see growth in online population from 4 per cent currently, to 13 per cent by 2001. It stressed that business trade would dominate Internet commerce by taking over 80 per cent of the \$64 billion market. However, major growth is expected in the Northern American region where 40 per cent of the population will be online within the same time frame. The US market alone amounts to about \$206 billion, of which trade through Internet will be about 80 per cent. In other words, the electronic commerce market shall be three times more significant to the economy in the US than in Europe.¹³ The reasons cited in the report are:

- a) Europe is late to the game.
- b) It has slow-growing online constituency.
- c) Consumers rarely prefer to buy online.
- d) Technological mismatching in terms of Internet appliances.
- e) Telecommunication costs are approximately five times higher in Europe.

Nevertheless, these findings validate the views of developing regions, especially on their negligible participation in global electronic commerce. The situation in developing countries is far worse than Europe. Thus, their fear is justified. The regional imbalances, such as fragmented markets, unhelpful government intervention, high operational costs, risk-averse investors, etc., further add to their woes.

National Level

Developing countries have also commenced policy discussions at the international level with the support of UNCTAD. India is on the threshold of emerging as a key player in global electronic commerce, especially in terms of second largest reservoir of technical human resources. Besides, the resultant impact of electronic medium is evident in the developing region, especially India. The Internet has existed in India for the last 10 years in the form of ERNET. Internet users have grown phenomenally in the past 3 years and shall touch a figure of more than 5 lakhs by the end of this decade. Besides, Indian computer software exports have experienced a phenomenal growth from \$ 26 million in 1985 to \$ 329 million during 1993-94.¹⁴

¹³ "Why Europe Lags Behind", *Business Week*, as cited in the Emerging Digital Age (1998).

¹⁴ Electronics and Software Export Promotion Council, 1994.

Technologically, Indian experience at the macro-level with respect to IT has more or less obeyed Moore's Law, Metcalfe's Law and Gilder's Law.¹⁵

The expansion of the telecommunication sector has opened new opportunities for Indian goods and services. A few potential areas are business and technical consulting, accounting, architectural design, legal advice and travel services. It is envisaged that Internet shall also revolutionise retail and direct marketing within the domestic market. These challenges emphasise building a trade facilitation environment. The global information infrastructure has the potential to revolutionise commerce in these and other areas by dramatically lowering transaction costs and facilitating new types of commercial transactions. India has a large and well-diversified base of SMEs (Small and Medium Enterprises). Global electronic commerce provides our SMEs an opportunity to approach potential customers worldwide through a low cost alternative. In fact, business through electronic transmission is a 'great equaliser' by allowing firms to compete on equal footing.¹⁶

The Ninth Plan (1997-2002) envisages that by the beginning of the 21st century, various companies and technological alternatives will battle it out in the market place. However, the core technical issue will depend on the way computers and networks shall process and access information across multiple platforms in the future. This issue shall significantly influence the trade pattern, especially for products and services that could be transmitted digitally. If we can not participate efficiently and actively in electronic commerce, we are bound to widen the trade gap in the future. Therefore, it is equally important for India and other developing countries to make a concerted effort to avoid further widening of the gap separating developed and developing nations. Indubitably, the proposal of codification has multifaceted benefits for Indian business in expanding their export basket and market.

However, a serious shortcoming for India in global electronic commerce is the weak infrastructure facility. The essential requirements for an Internet connection are a telephone connection and a computer system. The level of telecom infrastructure is highly diverse in India. There is a wide rural-urban gap. The rural population constitutes about

¹⁵ The processor power is described as Moore's Law, the power of networks is described as Metcalfe's Law and the communication system is governed by Gilder's Law.

¹⁶ "Government Procurement and Electronic Commerce", News Report, June 1998 at WTO website.

70 per cent of the total population. This section of the population is devoid of the basic amenities, such as, drinking water, health care facilities, etc. The HDR reports an average of less than 10 telephone lines per 100 persons for India.¹⁷ This figure is highly skewed in favour of the urban population. Thus, the wide quantitative variation is further aggravated by qualitative limitations in terms of quality and reliability. Besides, it is indicated that personal computer ratio per 100 inhabitants for the middle income countries is 2.3 against 18 for developed countries. This difference reflects the basic weakness of our electronic transmission system.

The overlaying and projecting the future of electronic commerce activities and implications is indeed astonishing to fathom, especially the future potential of commerce and economic performance. Besides, one could only surmise the potential implications of electronic commerce. The emerging consensus on global electronic commerce world-wide has led to serious introspection in the Indian context. The multitudinal dimension of electronic commerce has exhibited a significant influence on a wide variety of policy issues and domestic marketing environment. Likewise, the implications of electronic commerce are quite significant for India, including Indian industry and domestic organisations. The range of implications stretches from economic and fiscal issues to socio-cultural issues at the macro level. Concomitantly, it is perceived that Indian industry shall not remain untouched from the implications of global electronic commerce. Besides, domestic organisations shall need to re-orient their operational strategies to actively participate in electronic commerce. But in all respects, it is clear that electronic commerce is in, and the combination of the Internet and EDI is the next step in building competitive advantage.

Implications at National Level

Global electronic commerce is a form of technology driven international business transaction. Telecommunication has emerged as one of the prime movers of the modern economy. Commerce through electronic transmission is primarily based on domestic telecom facilities. The Rakesh Mohan Committee observed that India has the 14th largest telecom network in the world, but it suffers from an abysmally low penetration rate of 1.3 per 100 population against the world average of over 10.

¹⁷ The Human Development Report-1994, reports these figures for middle income countries.

Need of the Hour

- Raise substantially the penetration ratio, to cover larger cross-section of the population;
- Satisfy the more demanding audio, video and data communication needs of the business community in all major business districts in the country; and
- Make more provision for easy upgradation of the network to meet the future communication needs.

Source: *Rakesh Mohan Committee Report, 1996.*

It also projects that India shall become the sixth largest network by 2001. In absolute terms, this would mean basic services demand shall reach 30 million telecom lines by 2001 and 64 million lines by 2006, leading to wide variety of inter-sectoral implications, both positive and negative. The implications could be more pronounced in the event of codification of the US proposal on electronic commerce at the WTO.

Economic Issues

In the post-liberalisation period, Indian economy has undergone a remarkable transition. In fact, some of the policy initiatives have a direct bearing on global electronic commerce. The liberalisation of international trade in various sectors to promote competition and efficiency by removing the high degree of protection enjoyed by the domestic industry had a positive impact on the Indian economy. A report by the OECD predicts that electronic commerce will grow from US \$ 500 million till date to US \$ 5 billion by 2001. It also projects that the Asian region shall experience the highest growth rate in the next ten years.

The likely scenario for electronic commerce paints a promising future for the Indian economy. By the next millenium, some of the likely issues to emerge are:

Projected Market Share of Electronic Commerce

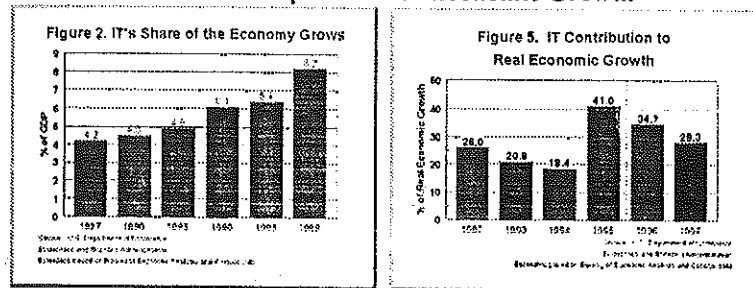
	1995	2000	2005	2010
World market (billion dollars)	1,825	2,645	3,874	5,663
Asian market (billion dollars)	200	338	578	987
World market index	100	145	212	310
Asian market index	100	169	289	493

Note Asia comprises Korea, China, Taiwan, Hong Kong, Singapore, Malaysia, Thailand, Vietnam, Myanmar, Philippines, Indonesia, India, Australia, and New Zealand.

Economic Growth

The economic growth in the post-WTO agreement period has been noteworthy. It has experienced an all time high growth rate of 6.6 per cent in GDP during 1995-96. The major factor responsible for India's recent performance is industrial production, especially the manufacturing sector. The phenomenal growth of consumer durables has contributed to industrial recovery in the late 90's. One of the major contributors to this growth being the IT sector. This trend further stresses that expansion of global electronic commerce could positively influence the production and consumption pattern, leading to improved growth in economic terms. The expansion of this sector and acquisition of durable assets by consumers signify economic prosperity. Currently, Internet connections in India are growing at an exponential pace. Keeping in mind the current annual growth rate of 20 per cent, tremendous growth is expected in the electronics and telecommunication industries. The essentialities of electronic commerce include a computer, telephone connection and an Internet modem. Thus, it is envisaged that expansion of electronic commerce could further lead to growth in industrial production. It was observed that growth in IT has significantly contributed to the real economic growth of the US. Studies have also pointed out that sustained economic growth of the US in the past decade could be primarily attributed to growth in the info-communication sector.

Relationship of IT with Economic Growth



Source: Emerging Digital Age, 1998.

Thus, it could be inferred that thrust to info-communication sector could positively influence the economic growth in India in view of the emerging opportunities of globalisation. Further, it would result in a concomitant sector-specific growth due to expansion of electronic

commerce in India. Besides, the impact of electronic commerce is predominant on the service sector than other contributors of GDP. This is primarily due to the flow of related goods and services through electronic transmissions. The services sector has a unique position in a country's economy. The services sector includes computer software, entertainment products (motion pictures, videos, games, sound recordings), information services (databases, online newspapers), technical information, product licenses, financial services, and professional services (business and technical consulting, accounting, legal and medical advice, architectural design, travel services, etc.). The growth in electronic commerce could be directly linked to the expansion of these services due to lesser transaction costs and time. It is observed that online- transactions of such goods and services have been growing at a rapid pace in the developed countries, such as, the USA, Canada, European Community, etc.

Electronic commerce envisages increasing the participation of private sector in the Indian economy. Currently, telecommunication and information technology infrastructure are largely in the domain of the public enterprises. The consumers find telecommunication services to be expensive, bandwidth too limited, and related services to be unreliable and unavailable. For the expansion of electronic commerce, these discrepancies need to be eliminated. An appropriate alternative is to encourage private sector investment by privatising government controlled telecommunications organisations. Besides, promoting and preserving competition by introducing competition to monopoly phone markets, ensuring Internet connection at fair prices, and opening markets to foreign investments and private participation. The experience of major players in electronic commerce highlights

- For electronic commerce to flourish, the private sector must continue to lead.
- Innovation, expanded services, broader participation, and lower prices will arise in a market driven arena, not in an environment that operates as a regulated industry.

Overall (+ve) Impact

Inflation

Our country has a distinct characteristic of exhibiting conservative policy on interest and exchange rates. In fact, inflation, interest and exchange rates are intertwined. It is a common experience that domestic

interest rates on borrowings are significantly higher than internationally prevailing rates. Electronic commerce could significantly revolutionise the Indian financial market. This anomaly is likely to result in substantial inflows and consequent expansion of money supply in the domestic market.¹⁸

The accountable inflow of capital in India is based on higher interest rates on domestic borrowings. On the other side, flow of capital through electronic transmissions makes the financial transaction more susceptible to hawala deals. In all likelihood, the electronic commerce could have a negative impact on inflation. Electronic commerce is a safe medium for transacting and channeling capital across international borders. In fact, exorbitantly large amount of capital could be transferred across one or many countries by a click of a button. Therefore, electronic commerce could be a safe haven for hawala traders. Currently, the inflation has been contained successfully with rates fluctuating between 4-7 per cent. However, in the absence of adequate regulatory mechanism for electronic commerce, the situation projects a bleak future for the economy in terms of inflation. Its impact on inflation shall be more profound if India's participation in global electronic commerce is marginal and highly skewed in favour of imports.

Overall (-ve) Impact

International Trade

Global electronic commerce is considered as a vital link to the international market. The exports and imports together as a proportion of GDP have grown from 15 per cent in 1990-91 to 23 per cent in 1995-96. The lowering of trade barriers on a worldwide basis has facilitated international trade significantly. India's trade picked up with both imports and exports growing at an average rate of 20 per cent in dollar terms during the period 1993-96. The invisible account net receipts have increased by about US \$ 2 billion during 1994-96. This could be attributed to the growth in the remittance income through official channels following exchange rate liberalisation and revival of foreign tourist interest in India. Besides, continued software services export growth has also contributed significantly to the national exchequer. Currently, the share of service exports from India vis-a-vis global trade

¹⁸ Foreign inflows add to the money supply unless RBI withdraws equal amount of rupees from circulation.

in services is negligible, about 0.5 per cent. Main contribution is coming from software exports.

The trade opportunities opened up by electronic commerce are plenty. Till now, the goods and services crossed international boundaries in actual terms, resulting in inordinate delays and higher transaction costs due to voluminous paper work and related approvals. Electronic commerce could eliminate these invisible trade barriers at marginal operating costs. India needs to identify the areas in which it can utilise these opportunities to develop a comparative advantage, and increase its participation in world trade. Primarily, the service sector could benefit from trade through electronic means, encompassing activities such as banking and financial services, construction, engineering and architectural services, computer services, information services, communication services and travel - and tourism - related services. The movement of software packages and engineering designs through electronic transmissions significantly reduces transaction costs and delivery time, enabling domestic service exporters to obtain an advantage of time and cost.

However, significant changes are required to influence the factors influencing trade in services for increasing India's participation in electronic commerce. The realisation of future opportunities are based on:

- a) Technology upgradation;
- b) Sophisticated taste and preferences of consumers;
- c) Opening of new markets;
- d) Developing globalisation strategies for service exports; and
- e) Increasing service-based inputs and innovations.

The related policies shall be experiencing significant changes commensurate to the adopted frameworks of trade in services on a worldwide basis. The US, Japan, France, Canada and Singapore have explicitly developed a comprehensive framework on global electronic commerce. Thus, trade in services shall be experiencing dramatic changes in the coming years, foremost being the lowering of transactions cost and delivery time.

Trade creation is also possible in specialised areas, such as, construction and engineering. Indian expertise in these sectors could be provided to other developing countries at lower costs and with easier accessibility through electronic transmissions. India has a large

reserve of technical personnel, which could make use of the new opportunities to provide informational, consultancy, educational and entertainment services over the Internet. The ratification of SAPTA at the recent SAARC summit could open new markets for Indian technical and engineering expertise.

Travel and tourism can benefit significantly from on line transactions. India has varied tourist attractions to offer, and must take advantage of the increasing accessibility of information offered by electronic commerce. Information on tourist spots, travel alternatives, hotels and recreational activities can be provided to foreigners over the Internet. Details on prices can be provided and pictures of the holiday spots displayed. Travel and hotel bookings can be done, and payments made, all through electronic transmissions.¹⁹ Given the computerisation of today's world, this should invite more tourists to India and earn us valuable foreign exchange.

Opening up of India's financial sector to domestic and foreign private participation, a competitive environment has already been created. The tremendous decrease in transaction costs as a result of the emergence of electronic commerce shall stress that Indian banks remain efficient and economically viable. The future success of the Indian banking sector shall depend on exploiting economies of scale and maintenance of a competitive edge, resulting in increase in export of Indian banking and financial services. An efficient and competent banking network could also take advantage of the integration of international financial markets. Electronic commerce increases links between domestic and foreign markets. It shall facilitate mobilisation of resources from international capital markets, improving our balance of payments position and helping our development plans.

Electronic commerce is technology - and innovation-intensive, and India is a net importer of technology from developed countries. To remain an integral part of world trade in an environment increasingly dominated by electronic transmissions, India must keep itself up to date with the latest technology. This will mean increasing imports and a worsening of our already-unfavourable trade balance. Further, unless we can provide adequate telecommunications infrastructure to facilitate electronic commerce, Indian exporters relying on traditional means of

¹⁹ Established Indian hotel chains have already commenced tourism and travel related transactions through Internet, for e.g. Oberoi Group of Hotels.

trade will be at a disadvantage vis-a-vis foreign suppliers with access to electronic means. Today a large number of standard business transactions are done through computer-to-computer data interchanges. Obtaining information on products, placing orders, finalising contracts and making payments electronically is quicker and free from procedural delays. If electronic transmissions are free of custom duties, our exporters using traditional means may lose business. Imports too may rise, provided Indian producers too prefer to order supplies from cheaper, more reliable foreign sources. However, this could be countered by improvement in competitiveness. Further, unless the government can devise an effective and predictable legal framework to validate electronic contracts, guarantee electronic payments and safeguard consumer interests, no foreign companies will trade with India electronically.

Overall (+ ve) Impact

Fiscal Issues

The fiscal implications of Electronic Commerce on the Indian economy relate to implications on the tax and expenditure policies of the government. The question of how taxes and tariffs should be applied and implemented to electronic commerce is a major issue in this area. India relies heavily on indirect taxes as a source of revenue, much more than it relies on direct taxes. Customs duties are a large component of these indirect taxes, almost 4 per cent of the GDP. The US proposal on electronic commerce for codification of the current practice at the WTO, is bound to raise some serious fiscal issues for the developing countries, including India. With the spread of electronic commerce, many transactions earlier carried out through traditional means will now be carried out through electronic means. Trade via electronic channels is very difficult to measure and monitor. It is important to note that some goods and services could cross borders through electronic means without physically crossing international boundaries. This distinct nature of electronic commerce resulted in acceptance of the US proposal temporarily at the WTO.

If electronic transactions are freed from customs duties, while such duties continue to be imposed on other traditional transactions, the spread of electronic commerce will mean a large loss of revenue for the government. For a country with a fiscal deficit as large as India's,

such a loss of revenue will be disastrous. India will also lose out on potential new sources of income that could have been earned from the expansion of trade through traditional means. Likewise, other developing countries have expressed their diffidence at the WTO. Most countries have welcomed the announcement of the Quad Ministers to work towards a comprehensive work programme in the WTO on the trade-related aspects of electronic commerce. However, most WTO members have accepted OECD guidelines over the development of framework on taxation of electronic commerce.

Expenditure

Electronic commerce will not only mean a loss of sources of revenue, but will also mean increased expenditure for the government. For the conduct of electronic commerce, an adequate communications infrastructure is essential. India will need to spend considerably on telephone lines, computer systems, Internet services and computer education to build a sound base for electronic transactions. Government expenditure in these areas will have to be increased substantially. Rakesh Mohan Committee projects that with the current growth of telecommunication sector, the total investment required for infrastructure development is approximately Rs. 92 billion by 2000, and Rs.160 billion by 2006. In fact, the fresh investments required in the next few years are quite substantial. In absolute terms, it would require an overall capital expenditure of the order of Rs.1700 billion by 2006, at today's prices and duty structure.

Total Funds Required		(Rs. In Billions)									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Investment Required	52	88	119	92	74	91	90	120	124	160	
Sources											
Internal Gen.	-40	-26	-11	6	24	21	49	90	141	220	
Debt	46	57	65	43	25	35	25	25	9	3	
Equity	46	57	65	49	25	35	25	25	9	3	

From the year 2002 onwards, the cellular mobile services sector would be able to sustain its growth through internally generated funds. It has been assumed that the internal surplus of cellular mobile services is not available for funding the basic services networks. As such, from the year 2001, the sum of the various sources of funds is greater than the investment requirement.

Source: Rakesh Mohan Committee Report, 1996.

To ensure free flow of domestic and international resources of such magnitude into this sector, the government need to review some of its strategic policies on investment. The mobilisation of resources is a major difficulty for telecom planners. This could not be achieved through governmental efforts or through a monopoly of state owned operator. The unique feature of telecom services is that after initial investment is made, the growth in the network could be sustained through internally generated funds. This has been the experience worldwide, including India. Thus, a progressive deregulation of the telecom sector is the need of the hour, where private sector should lead. Though the Government played a dominant role in financing the initial development of telecom sector, including Internet, network expansion has to be driven primarily by the private sector. For electronic commerce to flourish, innovation, expanded services, broader participation, and lower prices, shall arise in a market-driven arena led by the private sector. The GOI has initiated the process, however the progress is slow with adverse affects on the overall performance of basic services.

To encourage private investment in telecommunication infrastructure, the government may give tax incentives to enterprises, domestic and foreign, engaged in developing, maintaining and operating such services. Customs duties on parts of computer and telecommunication equipment may also have to be reduced to facilitate electronic commerce. Currently, the import duty is relatively high, leading to high operational costs. A few examples are as follows:

- No domestic production of mobile phone handsets, high handset prices are due to high import duty (50 per cent + 20 per cent).
- Limited domestic production of radio equipment, infrastructure equipment attracts high import duty rates:
 - Line equipment (50 per cent + 20 per cent)
 - Radio equipment (50 per cent + 15 per cent)

India will thus have to amend its fiscal policy to cope with the decreasing revenues and increasing expenditures.

Overall (+ve) Impact

Revenue

Adverse influence of the US proposal on global electronic commerce is more pronounced on revenues. Losing out custom duties would mean less revenue for the government. It will become necessary to tap new

sources of revenue, without compromising on efficiency in the allocation of resources. The government may try to widen the direct tax base by incorporating more people into the tax net, or increase tax rates. Corporate tax collection could also increase as a result of the growing volume of trade through electronic means. Another possible source of income could be taxes imposed on services. In India at present, very few services are subject to taxes. The government may impose a tax on computer maintenance and consultancy services, which will surely increase in importance with the spread of electronic commerce.

It is, however, very difficult to monitor the volume of trade on the Internet for the purpose of tax collection. The Internet lacks clear and fixed geographic lines of transit that historically have characterised the physical trade of goods. However, it is possible to administer tariffs for products ordered over the Internet, but delivered via conventional methods. The structure of Internet makes it difficult to do so when the product or service is delivered electronically, for example, designs and drawings, computer software, digital video movies and music, etc. These could ultimately mean substantial loss to the exchequer. However, the benefits of electronic commerce are far more in terms of volume and quality of business.

The US stressed in its taxation framework for Internet that taxation of commerce conducted through the Net should be kept consistent with the established principles of international taxation. The US framework avoided inconsistent national tax jurisdictions and double taxation. Likewise, the OECD recommended that any taxation on the Internet sales should follow the international principles:²⁰

- It should neither distort nor hinder commerce. The tax system should not discriminate among types of commerce, nor should it create incentives that will change the nature or location of transactions.
- The system should be simple and transparent. It should be capable of capturing the overwhelming majority of appropriate revenues, be easy to implement, and minimise burdensome record keeping and cost for all parties.
- The system should be able to accommodate tax systems used by other countries to ascertain uniformity.

²⁰ "GEC and Taxation", OECD Report, 1997.

The Indian taxation system substantially lacks on all fronts and incorporation of most international taxation principles shall require significant changes in the prevalent system. Undoubtedly, the recommendations have a concrete basis because of the Internet's special characteristics - the potential anonymity of the buyer and seller, the capacity for multiple small transactions, and the difficulty of associating online activities with physically defined locations.

Legislative Issues

The government has taken some preliminary steps to facilitate India's integration into international electronic commerce. The Ministry of Commerce has set up an Electronic Data Interchange (EDI) Council in 1995-96 to facilitate the adoption of this technology by all departments and organisations involved in foreign trade. Largely, the legal system in India is inadequately geared up to take up future challenges of commercial activities from electronic transmissions. The general law relating to interpretation is the General Clauses Act 1897, which is regarded as the principal law of interpreting statutes - in regard to Central Acts and certain other laws. The expression "Electronic Data Interchange" is not defined in that Act. The Indian Evidence Act 1872 also has limited coverage over electronic transmissions. In fact, EDI is a late phenomenon and the legal system in India does not deal directly and specifically with the status of information generated, or stored, or communicated by EDI, with very few exceptions.

The innovative work of Project LARGE (Legal Adjustments and Reforms for Globalising the Economy) has strongly recommended the incorporation of an Electronic Data Messages Bill. However, electronic commerce is an advanced form of interchange of data because goods and services are electronically transmitted. Thus, the legal framework for electronic commerce would not only incorporate essentials related to electronic transmissions, but also the obligations of commercial transactions. The scenario across a major cross-section of the globe is similar. Singapore has taken the lead in drafting the Electronic Transactions Bill 1998, which is currently under review and policy discussions. Other countries, such as the US, France, Canada, European Community, etc. have commenced discussions on developing suitable legal framework for electronic commerce. Some of the serious implications identified are as follows:

Enactment of Uniform Commercial Code

The private enterprises and free markets have flourished in recent years and their emergence is much stronger in the post-WTO agreement period. It is observed that private sector and open markets have dominated in areas where there are predictable and widely accepted legal environments supporting commercial transactions. Thus, to create a predictable legal environment for electronic commerce, the legal framework must clearly define the rights and obligations of the transacting parties. Besides, the commercial code should be outward-oriented, based on the guidelines of UNCITRAL Model Law on Electronic Commerce. In the absence of adequate statutes on the new forms of electronic transmissions within the Indian legal system, the enactment of a uniform commercial code is a matter of urgency and appropriateness within a suitable time frame. The Code should deal with legal aspects of:

- a) how a contract could be electronically formed;
- b) the acceptance and use of electronic or digital signatures;
- c) safety and security of electronic records;
- d) authentication and non-repudiation of a transaction; and
- e) privacy and confidentiality of the commercial transaction.

The wide ranging commercial activities that could be undertaken electronically leaves a variety of questions unanswered-i.e. once the order is placed electronically, where and when does the transaction take place? Indeed, how do you know who you are dealing with in cyberspace? Thus, it is all the more important to enact a Universal Commercial Code for the purpose of uniformity and international acceptance. The objective should be to allow fully informed buyers and sellers to voluntarily agree to form a contract subject to the legal framework of the Uniform Commercial Code. The UNCITRAL model law on electronic commerce establishes rules and norms that validate and recognise contracts formed through electronic means, sets default rules for contract formation and governance of electronic contract performance. It also defines the characteristics of a valid electronic writing and an original document. Besides, it provides for the acceptability of electronic signatures for legal and commercial purposes and supports the admission of computer evidence in courts and arbitration proceedings. Thus, the enactment of the Universal Commercial Code is a major challenge in the Indian context in view of the upsurge in electronic commercial activities.

Global electronic market place requires an appropriate framework covering technical, commercial and legal aspects. The legislative framework and codification of electronic transmission activities shall foster interoperable technical solutions, competitive business practices and consistent rules. The implications of shortening technology life-cycle in the computer industry stresses the need to examine the legal framework on commercial transactions through the Net, at a global level. Primarily, the focus should be on eliminating the uncertainties surrounding different national and regional responses. Such anomalies and contradictions shall hamper the development of the electronic market place. Countries such as Singapore, have decided to remain technology-neutral as far as possible due to the fast pace of technological progress and wide spread ignorance on the cyberspace consumers' tastes and preferences.

Overall (+ve) Impact

Intellectual Property Protection

Commerce on the Internet shall involve the sale and licensing of intellectual property. The viability of electronic commerce depends primarily on the confidence of the respective sellers on the regulatory mechanism that ensures their intellectual property rights are protected. Likewise, buyers must know that they are obtaining an authentic product. India is a signatory to the TRIPS Agreement and our statutory framework is commensurate to most of its provisions, with a few exceptions. These exceptions, such as, the provisions on undisclosed information, geographical indications, integrated circuits and patents, are of utmost importance in view of global electronic commerce. The US alone holds most patent rights on Internet commerce, like the Electronic Shopping Area. Under these circumstances, the protection of patent rights shall become an essential requirement of global electronic commerce. The TRIPS Agreement establishes clear and effective copyright, patent and trademark protection to prevent piracy and fraud. Undoubtedly, it implies that the relevant statutes shall need to be looked at for safeguarding owner's rights in the cyberspace. Technology, such as encryption, could help in combating piracy. An adequate and effective legal framework also is necessary to deter fraud and theft of intellectual property. The legal system should be backed by a strong and effective enforcement mechanism to provide efficient legal recourse in the event of criminal breach of intellectual property rights.

The WIPO updated the Berne Convention and adopted two new treaties in 1996. The two treaties - the WIPO Copyright Treaty and the WIPO Performance and Phonograms Treaty - will greatly facilitate the commercial applications of online digital communications over the Internet. Both treaties include provisions relating to technological protection, copyright management information and the right of communication to the public. All of these are indispensable for an efficient exercise of rights in the digital environment. However, these treaties do not address issues of online service provider liability, leaving them to be determined by domestic legislation. Adopting a futuristic oriented legislation will be a major challenge for the Indian statutory framework. Besides, the Indian legislative framework must necessarily develop suitable statutes on undisclosed information and geographical indications to safeguard the seller's rights in an electronically completed transaction.

Thus, growth of electronic commerce depends on the adequate protection of intellectual property rights, including industrial property rights and copyrights. The global protection of patents concerning infrastructure of electronic commerce is essential for the progress of electronic commerce. The US and other major participants have decided to assist by prompt ratification and implementation of the WIPO Copyrights Treaty and the WIPO Performances and Phonograms Treaty. There is an unequivocal relationship between technology, investment, intellectual property rights and international trade. It is established that trade follows investment and technology; investment and technology follows intellectual property rights. Thus, India's participation in global electronic commerce could be facilitated with adequate protective mechanism for intellectual property rights.

Overall (+ve) Impact

Privacy and Security

Privacy and security are essential features of electronic commerce. In the past, electronic commerce could not achieve much, which could be attributed to this limitation.²¹ Sellers and buyers prefer to use

²¹ Frequent hacking and trespass on the Internet, and lack of adequate technological support to safeguard privacy and security have resulted in erosion of confidence among the end-users. This limitation has adversely affected the wider acceptance of electronic commerce.

conventional methods in order to ensure confidentiality in the commercial transaction. With the advent of new security mechanisms, such as, electronic/digital signatures, digital certificates, etc., the future of global electronic commerce rests on confidentiality. As Denis Leung of Netscape Communications points out, the lack of privacy could leave potential buyers short on trust, making it difficult for the buyers to hand over their credit cards or bank details.²² A genuine concern is - how does one ensure that he/she is connected to the right web site? Any body could claim that their web site represents a certain bank or shopping mall. Thus, another form security mechanism is in the offing, the digital certificate. It is a type of computer software which provides an official third party guarantee, for example, a web site is actually what it claims to be. In the Indian context, the legislative framework is absolutely silent on such issues. The provisions of TRIPS on undisclosed information or trade secrets have still to be separately considered. Thus, commercial activities on the Internet are somewhat limited, especially restricted to transfer of information. Adequate legislative framework needs to be developed for widening the dimension of commercial activities through the Net.

Another facet of privacy is related to data - collection, interpretation, dissemination and circulation. The privacy principle in electronic commerce incorporates principles of fair information practices resting on fundamental precepts of awareness and choice. The data-collectors must inform the consumers what information they are collecting and how they intend to use such data. Besides, they should provide consumers with a meaningful way to limit use and re-use of personal information. In fact, such disclosures are designed to stimulate market resolution of privacy concern and trust by empowering individuals to obtain relevant knowledge about the reasons for data collection, its usage and adequate protection measures. This shall enable the consumers to make better judgements about the levels of privacy available and their willingness to participate. It identifies three values to govern the way in which personal information is acquired, disclosed and used online:

- a) information privacy;
- b) information integrity; and
- c) information quality.

²² Bickers C., "Sign in Cyberspace", Far Eastern Economic Review, April 30, 1998.

Under these principles, consumers are entitled to redress. The consumer's interest is threatened by improper use or disclosure of personal information, or if decisions are based on inaccurate, outdated, incomplete, or irrelevant personal information. Such disclosures are common, especially in direct marketing, advertising and other services. International consensus on privacy protection centers on the OECD guidelines on the Protection of Privacy and Transborder Flows of Personal Data. It was issued in 1980, and it embodies well-established principles of fair information practices. These principles form the basis of the US Privacy Act, 1974, with a purpose of forming data protection regimes and ensuring free flow of information between and among nations. The OECD Guidelines could be a basis to establish privacy and confidentiality in the Indian business environment.

Overall (+ve) Impact

The overall impact of global electronic commerce is positive for the Indian environment. This is primarily to strengthen the open market oriented environment, which induces competitiveness, of which the ultimate beneficiary is consumer. As a principle, the legal framework of the off-line world will be equally applicable to the online world. The public interest shall also need to be safeguarded in a proportionate manner. However, technical options are limited in the Indian context for open networks, like the Internet. Effective and efficient alternatives are already beginning to put legal structures to test in various fields of existing law, especially the TRIPS provisions. Only in the case of electronic transmissions, specific character of border-less electronic marketplace, may therefore require drafting, enactment, adaptation of legal framework and respective enforcement mechanisms. Mostly, the online world is beginning to expose differences in national laws, though such differences might be entirely compatible with the domestic markets and activities. However, the central legal issue is that of identifying the violators in the network environment.

The advent of global electronic commerce has made a major contribution to the Indian statutory framework because it will allow flexibility in developing a futuristic legal system. Countries, having one or more laws on electronic data transmission, shall have to either amend their existing laws as and when the need emerges or shall have to draft a new law to encompass all the possible areas emerging from electronic commerce. However, our reaction time matters for active participation

in global electronic commerce. Otherwise, in the electronic marketplace of worth US \$ 5 billion, Indian representation shall be negligible.

Social Issues

Experience of most East Asian economies has shown that poverty can be converted into an asset if low wages are combined with the requisite education, skills and equipment. Electronic commerce opens many such opportunities in service industries. It essentially requires a combination of instruments - a computer, a telephone connection, an Internet connection, etc. Access to such equipment is biased in favour of the rich in developing countries, like India. With the spread of electronic commerce, the risk of widening social disparities in an already skewed society is considerable. Apart from economic and legislative issues, electronic commerce raises some social issues that require attention. Electronic commerce may alter the social framework of the country, with both positive and negative implications. By facilitating the integration of Indian economy and society with the rest of the world, electronic commerce will encourage a broader, global outlook. By increasing accessibility and communication within the country, it will help narrowing inter-regional and inter-caste disparities in the Indian society. On the other hand, the limited access to a small section of society to electronic transactions may widen social disparities. Specifically, the social implications of increasing electronic commerce can be divided under two categories - the inter-personal inequalities and cultural issues.

Inter-personal Inequalities

A wide range of disparities - income inequalities, rural-urban inequalities, inter-regional inequalities, inter-caste and religious inequalities, and gender inequalities - mark Indian society. The introduction of any new means of exchange among its people will definitely have an impact on their social relationships and will gradually change the framework of society.

Electronic commerce requires a combination of techno-capital intensive instruments. Access to such equipment is biased in favour of the rich in developing countries, like India. With the spread of electronic commerce, the risk of widening *income disparities* in an already skewed society is considerable. The poorer sections of society do not have

adequate facilities to avail the opportunities presented by electronic commerce. Besides, their role is marginal in influencing the relevant market forces and structure. They do not have access to computer networks and telecommunication infrastructure and lack computer education. They face resource constraints, and in an imperfect capital market, they cannot borrow funds without providing the requisite security. The richer sections of society, on the other hand, have easier access to computer systems. They have adequate funds to gain adequate computer literacy and make use of new technology more easily. In such a social setup, electronic commerce becomes a privilege of the rich.

However, the larger benefits of electronic commerce to the weaker section could not be overlooked. The access to information for the decision-makers at all levels is recognised as a major input in proper administration, identification of beneficiaries and distribution of benefits. Electronic means of communication overcome the informational barriers and reduce the operational cost and reaction time considerably. The allocation of physical resources and benefits to the poor are efficiently and effectively planned and administered due to elimination of wide variety of middle-men, official and unofficial. In fact, the removal of informational barriers could greatly facilitate the government's poverty alleviation programme because of effective implementation and efficient monitoring.

Apart from the gap between the rich and the poor, electronic commerce also carries with it the risk of increasing *the rural-urban divide*. Infrastructure facilities like electricity and telephone lines are a luxury reserved for urban areas. In rural areas, such facilities are scarce. Two-thirds of India's population lives in rural areas. Out of the 6,04,374 villages in the country, only 2,67,832 have telephone lines. In 1996-97, 31.2 lakh new lines were provided, out of which 20 per cent went to just the four metropolitan cities. Literacy levels in rural areas are low, and computer systems are often unheard of. The enrolment rate in primary schools in villages is very low, while in urban areas there are a large number of technical graduates searching for jobs. In such a situation, the concentration of trade through electronic means in urban areas will deprive the vast majority of the population living in rural India, of an opportunity to improve their standard of living.

However, some studies have pointed that telecommunication facilities have greatly reduced the rural-urban divide in India. The electronic medium has significantly influenced the taste and preferences of rural consumers. Besides, growing telephone networks in recent years has considerably brought the people closer, especially in terms of rural-urban disparity. Thus, the overall benefit of telecommunication could not be overlooked in adverse conditions, such as India. Electronic Commerce could further reduce the rural-urban divide by bringing a wide-variety of service facilities in the far-flung rural areas. Largely, the lack of health facilities has been realised as the major concern of rural population. Providing public health facilities across the country, as diverse as India, is itself a gargantuan task. However, electronic commerce could considerably reduce the distance between the doctor and patient for diagnostics and remedial measures. In fact, accurate diagnostic is considered as a major shortcoming for the rural population, forcing them to move to urban centers. This has put a lot of pressure on already burdened health facilities in urban areas. The medico-commercial activities through electronic means could solve some of these shortcomings. Instant messaging through electronic means could also provide effective relief measures in rural areas in adverse conditions, such as, epidemic, natural calamities, etc. Likewise, legal advice could also be sought through electronic means.

The net impact of electronic trade on social inequalities, however, need not necessarily be negative. It will bring with it an increase in communication across the country, and will help in reducing narrow differences on grounds of *region, caste and worship*. Increasing accessibility in the remote rural and backward areas with the help of a computer and a telephone line can be used to promote education and bring these areas closer to the urban, more prosperous areas of the country. The cause of ethnic differences largely rests in ignorance and lack of information. A well-informed and educated society could not be easily misled for individual interests. Most ethnic differences emerge from illiteracy and ignorance. Electronic commerce could play a dominant role in eliminating these shortcomings for the diverse Indian society.

Electronic transactions can also help to increase the role of women in the economy, and reduce *gender inequalities*. Female literacy in India is 43 per cent as compared to male literacy of 69 per cent. Given

the number of consumer goods available over the Internet today, women could easily obtain information on new products, order them and even purchase them through the computer, without leaving their homes. In fact, electronic commerce facilitates women participation in day-to-day buying decisions. Electronic commerce has a direct influence on the cottage industry, allowing small entrepreneurs to participate in the global economy. Women who at present are not involved in any commercial activity, and wish to start a small business from their homes, could provide information about their products on the Internet or could participate in electronic tendering.²³ As electronic commerce spreads, more and more women can thus become financially independent and capable of decision making.

Small and medium enterprises in India do not have adequate facilities to avail the opportunities presented by electronic commerce. They do not have access to computer networks and telecommunication infrastructure, and lack in trained computer personnel. They face resource constraints, and in an imperfect capital market, they are perennially dependent on financing institutions. Loans are only available against requisite security. Many small producers fear new technology, and are not open to new ideas and new ways of conducting business. The larger enterprises, on the other hand, are already using computer systems in a big way, in their day-to-day operations. They have adequate funds, and can adapt to the new technology more easily. In such a social setup, electronic commerce becomes a privilege of the rich and big. However, introduction of electronic tendering in the business environment, eliminates such disparities and allows SMEs at remote locations to participate on equal basis against their established counterparts.²⁴

Some experts' view that as trade through electronic transmissions grows, the larger enterprises will be able to take advantage of the new opportunities, and carve a niche for themselves in world trade. The small and medium enterprises, on the other hand, may lose their business

²³ Successful case studies are highlighted in WDR-1998. For instance, the use of e-mail by the small business loan programme in Vietnam, the Panamanian women posted pictures of their traditional handicrafts on the web, monitoring of rural credit programme in Mexico, etc.

²⁴ The WTO held a Conference at Geneva on "Electronic Tendering and Government Procurement" in June 1998.

if they continue to rely on traditional business methods. The increasing volume of business of the richer sections of Indian society, often at the cost of the business of the poor, will widen the income disparity in the country. If electronic commerce brings with it mergers of small firms to exploit economies of scale, small entrepreneurs will be further marginalised. But it is a distinct possibility in view of the widening scope of electronic commerce, like the acceptance of electronic tendering as a means of procurement at all levels of commerce.

Overall (+ve) Impact

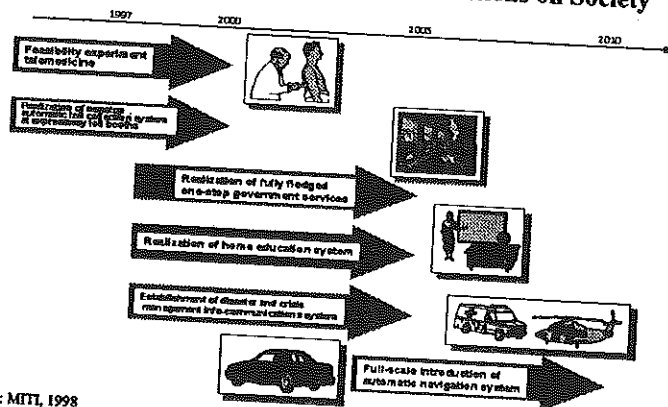
Cultural Issues

Electronic commerce will bring with it tremendous informational advantages to those sections of society which have an access to the requisite equipment. Increasing electronic trade will help to integrate the Indian economy with the rest of the world. The easier and cheaper access to information from the world over will help to build a rational and educated society, global in outlook and free from narrow differences of caste and religion. Access to information on medical advances, scientific innovations, legal and political thought and economic theories will facilitate adaptation of new ideas in our society.

Exposure to society and cultures of other countries will widen our horizons and help us to learn more about their way of life. Increased interaction with people of different nationalities will help Indians to learn about educational opportunities in other countries, job vacancies and avenues for trade. The cheaper and faster way to trade, as a result of electronic transmissions, will increase opportunities for many small and medium traders and will improve standards of living.

The easy access to information from worldwide sources can also create problems of privacy and unmonitored availability of inappropriate or unsuitable information. Personal information will need to be safeguarded from unauthorised access or misuse. Children may need to be shielded from information and entertainment services considered improper. The breaking down of international barriers will bring new ideas and lifestyles into the homes of people. Religious and cultural sentiments of people may thus need to be protected. New regulations may have to be passed to prevent access to offensive and indecent information. If such regulations are assured, electronic commerce can open up the Indian mind to an invaluable wealth of new information and ideas from diverse cultures around the world.

Significance of Info-communications on Society



Source: MITI, 1998

Overall (+ ve) Impact

Thus, Indian society is in for a tremendous change with the advent of electronic commerce. Variety of social and cultural issues could receive positive response. Some of the biggest shortcomings of good governance could be eliminated. The social and cultural issues highlight some new areas in electronic commerce that could find relevance in the developing societies. In fact, the emergence of global electronic commerce in India has opened new opportunities for the largely marginalised rural and poor population till date. India must realise that she cannot afford to wait. We have to act fast and decisively if we want to use the growing electronic trade to our advantage. If we continue at the current rate of social progress, it will take us until 2090 to reach a high human development category.²⁵ Electronic commerce will facilitate the spread of education and information in the country, and will open new avenues of economic activity. If we act now, we can ensure that we step into the 21st century as a more equitable and advanced society.

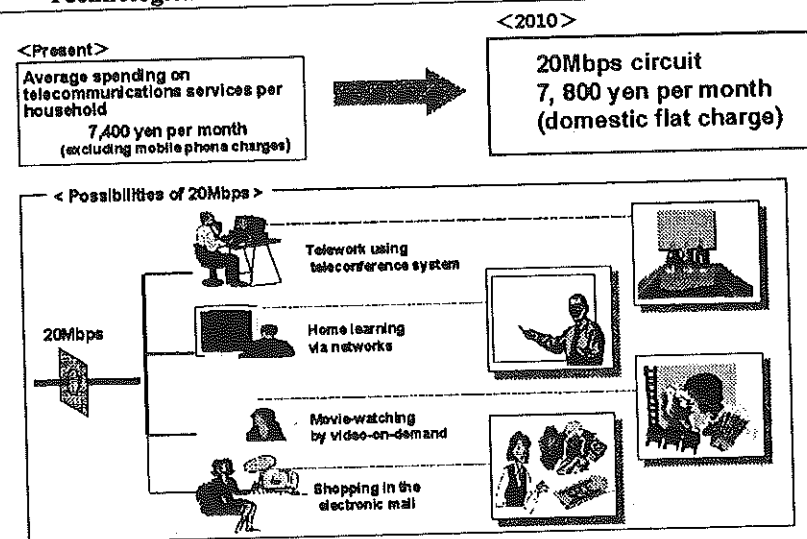
Technological Issues

Technology forms the core of information revolution and global electronic commerce. New information technologies have changed the way we work, learn and communicate with each other. The rate of

²⁵ Human Development Report, 1993.

innovations in technologies such as Internet, computers, software and both wired and wireless telecommunications is exponentially growing. The need for new technologies is evident from the changing requirements of info-communications system. The latest offshoot of information age is electronic commerce.

Technological Innovations & Diverse Use of Electronic Medium



Lately, emerging challenges of electronic commerce have stressed on the development of new technologies, such as, digital certificates, digital signatures, third party guarantee, etc. Thus, the level of technological capabilities shall determine the core competence of an economy in global electronic commerce.

Technology is a major challenge for India, especially in view of the emerging opportunities of global electronic commerce. Lack of information infrastructure is a serious limitation of the domestic marketing environment. The OECD suggested all countries to focus on few areas in information infrastructure for improving their competitiveness in global electronic commerce. Concomitant efforts by government and industry are required in building four basic areas of information infrastructure network - telecommunication, satellite, cable, wireless and electric utilities. An adequate example of highlighting the woes of developing countries is their operational bandwidth, commonly Indian telecommunication network operates at 14Kbps-128Kbps.

Time to Download 3.5-Minute Video Clip Using Different Technologies

Technology	Transfer Time
28.8 Kbps modem	46 minutes
128 Kbps ISDN	10 minutes
4 Mbps cable modem	20 seconds
8 Mbps ADSL	10 seconds
10 Mbps cable modem	8 seconds

Source: FCC, CS Docket No. 96-496; ADSL from Werbach 1997.

The speed of downloading restricts the potential users to play a dominant role in global electronic commerce. Indian entrepreneurs shall thus be facing serious shortcomings in electronic commerce primarily due to technological obsolescence of the existing telecommunication network system. Likewise, other problems related to technology shall play a dominant role in determining the growth of electronic commerce in India and development of new business areas. Some areas of concern are:

Information Technology Infrastructure

The information infrastructure is still in its early stages in India. The essential requirement for the Indian economy to integrate in global electronic commerce requires development of state-of-the-art info-communications infrastructure on a priority basis. The foremost technology related concerns are:

- a) Wider coverage of telecom network for improving penetration ratio.
- b) Upgradation of transmission technologies to allow higher bandwidth.
- c) Developing satellite telecommunication infrastructure to integrate with global broadband network.
- d) Replacement of conventional cables by fiber optic cables to allow for two-way Internet traffic.
- e) Set-top boxes to decipher voice, video and data sent in digital forms.
- f) Integration of Internet with wireless network, i.e., cellular phones, pagers and hand-held computers.

Internet connection in India is connected via lower band-width wires, while high-speed optical fiber lines are used for long distance communications in exceptional cases. The induction of optical fibers in the transmission network could significantly improve the operational

requirements of the Internet in India. In the US, Integrated Services Digital Network (ISDN) connections have become widely available to households and businesses. World-widely, manufacturers and software companies have been developing new technologies to allow faster communication across the existing copper network infrastructure. The DSL technologies allow compression and swifter electronic switching system. Technological advancement in optical amplification and new photonic switches make high-speed networks more powerful and more efficient. Likewise, newly industrialised countries in Asia and European Union have also adopted suitable measures to improve their integration to global telecom network systems. Similarly, Indian network system needs to adopt appropriate measures to play an active role in global electronic commerce. The WTO negotiations on Basic Telecommunication Services ensure global competition in the provisions of basic telecom services. India needs to take advantage of this opportunity to strengthen its national info-communications infrastructure.

The foremost issue is reviewing the telecom policy which has inadvertently overlooked the advent of electronic commerce. It has resulted in impeding the development and induction of advanced digital network in the country. However, the GOI has newly constituted a task force for widening the reach of information technology in India. The task force looked into a wide-variety of IT issues, including upgradation of existing info-communications network system. The recently submitted report plans to convert STD/PCO booths into info-kiosks to increase the penetration ratio of information network. The Rakesh Mohan Committee Report has also highlighted the basic technological and investment requirements for India to become a digital economy. It also suggests that in the absence of digital technology in India, it is a blessing in disguise because this opportunity allows India to procure best available IT technologies. Further technological innovations could be ensured by adopting a leapfrogging strategy and improving the interface of industry and local technology generators. Mobilisation of funds for improving info-communications network in India has led to a blanket approval for overseas investment for acquisition of technology with export realisation of \$25 million. Thus, India has to keep itself abreast with the latest technological innovations, especially transmissions and communications technologies to actively participate in global electronic commerce.

Overall (+ve) Impact

Confidentiality of Information

The intensification of information systems for society and global economy increasingly expose systems and data to variety of threats, such as unauthorised access and use, misappropriation, alteration, and destruction. Security of information systems involves the protection of the availability, confidentiality and integrity of the systems and the data that is transmitted and stored in them. The physical security of the paper-based world needs to be replaced in the electronic world by both technological and legal solutions. Cryptography shall play a particularly important role in ensuring security of data and the reliability of the transactions by safeguarding the confidentiality and integrity of data. Besides, digital certificates, digital signatures, electronic record, etc., are other technological innovations needed to ensure safety and security of the transaction.

Digital certificates are essentially IDs or passports embedded in electronic documents. The consumer purchases digital certificate software from a certification authority and uses to attach a digital signature to an electronic document. It shall function like a notary public. Companies would use their digital certificates as proof of identity and ensure a secure transaction. The certification authority acts as a third party guarantor in electronic commerce. Likewise, digital signature means an electronic signature consisting of a transformation of an electronic record using asymmetric cryptosystem and a hash function such that a person having the initial untransformed electronic record and the signer's public key could accurately determine:

- a) whether the transformation was created using the private key that corresponds to the signer's public key; and
- b) whether the initial electronic record has been altered since the transformation was made.

The key to successful digitally secure technologies is twofold: first, it is secure and difficult to forge, second it is issued by an authorised certification agency on which both transacting parties trust. In the absence of any legal framework for electronic transaction in India, these technological measures have significant impact on commercial activities related to electronic medium. However, establishment of such advanced means require general acceptance and user's trust. To

strengthen the domestic marketing environment for electronic commerce, the task force on IT has recommended setting up of a national level information security agency to play the role of cyber cop. The Indian software agencies could play a major role in developing appropriate software programmes for establishing digital signature and certificates for Indian entrepreneurs. Thus, technological innovations in software development in India could get a significant boost with the opening of new areas in "Secure Business Transactions".

Overall (+ve) Impact

Inter-sectoral Issues

Inputs for IT are not limited to hardware and software technologies, the most important input for IT is electricity. The poor reliability and quality of power supply across the country is a major bottleneck of economic development. About 30 per cent of the villages await electricity connection. The worse-off supply situation is experienced in other rural areas where the power cuts could extend to more than 24 hours. Besides, the normal voltage available online over large distances vary between 160-180 volts and some times even lower. Under these circumstances, alternative power generation utilities, such as, UPS, DG sets, etc., are also ineffective. Thus, poor power supply will adversely affect the operation of rural info-communication network system. Therefore, development and penetration of info-communications infrastructure is primarily based on the development of power sector, especially for the rural areas. The adverse implications of poor power position emphasises on the need for reviewing the existing power policy-rural electrification programme and adopt suitable measures to overcome the related limitations.

The human resource is another area that faces the strange paradox of present times. India is the second largest reservoir of scientific and technical personals in the world and it has the highest illiteracy rate with an alarming level of unemployment. The technically skilled human resource is a fundamental requirement of efficient and effective info-communication infrastructure. The major limitation of rural development is the unavailability of skilled human resource. The two-third of our population resides in rural areas. The success of IT revolution is primarily dependent on the active participation of this two-third population. The

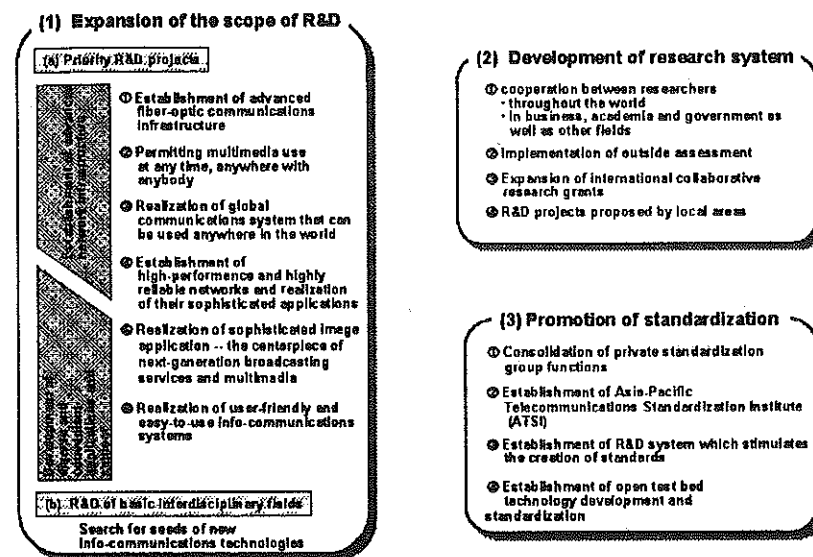
Task Force on IT has laid special emphasis on the turnout of adequate number of computer literate persons each year to meet the growing demand. The report suggests the use of government infrastructure during non-office hours by private educational institutions for IT training and establishment of virtual institutes throughout the country for distance education.

The success of government's initiative on IT is also dependent on the local science and technological base. It is established that the pace of electronic innovations has revolutionised the production processes leading to shortening of technology life-cycle. In last one year, Intel Corporation, has phased out three microprocessor technologies resulting in complete obsolescence of 286, 386, 486, Pentium-I microprocessor technologies. Likewise, Microsoft Inc. has released a new software package MS Windows-1998 within two years. Such developments have a significant impact on manufacturers and users in terms of production scheduling, inventory management and operations. Thus, the role of local technology generators is vital to confront such technological issues. Local technology generators need to integrate their efforts with the requirements of the industry. Their technology absorption time should be minimal to further their development efforts. No country could afford to remain perennially dependent on outside sources for application technologies. Currently, our technology generators have a marginal role in development of info-communication technologies. It has resulted in increased imports, burdening the exchequer and manufacturers. This situation could be improved by improving interface of industry and technology generators. Therefore, the science and technology policy-especially with respect to local technology generators, needs to be reviewed to safeguard our national and industry interests.

Global electronic commerce and Internet are essentially technology driven form of economic development. Technology is a major concern for all developing countries including India, especially with respect to electronic commerce. The development of info-communication infrastructure with emphasis on increasing the penetration rate and wider coverage has been realised as the primary consideration. Emerging opportunities of global electronic commerce have also stressed on development of secure marketing environment. The success

of our efforts is based on procurement and development of appropriate info-communication technologies. An all round expansion of network in India could eliminate some of the major informational and operational constraints. Technology based system improves decision making and efficiency. MITI of Japan suggested the R&D based technology strategy for gaining competitiveness.

Technology Strategy & Electronic Commerce



Source: MITI, 1998.

The overall impact of global electronic commerce is positive. However, there are a few inter-sectoral issues that need to be resolved in order to actively participate in electronic commerce. Poor power supply, inadequately skilled human resource and weak local technology generators could seriously hamper our chances in exploiting the emerging opportunities from global electronic commerce. We should apply our concerted efforts to overcome such limitations to exploit the emerging opportunities from global electronic commerce.

Environmental Issues

Sustainable development must take account of economic, social and ecological factors. Unrestricted industrialisation has led to variety of environmental problems and adversely affected the human health. We

are responsible for polluting air, water, and soil by releasing, dumping or using various chemical wastes indiscriminately. It is observed that electronic commerce has emerged as an alternative to variety of environment related problems. The issue under consideration is whether electronic commerce eases the pressure on our natural resources. The development in info-communications networking has led to the establishment of paper-less working environment with more efficiency, thus, alleviating the pressure on forests as suppliers of raw material for paper industry. It is also envisaged that electronic commerce could contain the pressures of pollution resulting from excessive transportation.

The possibility of global climate change due to increased emissions of carbon dioxide and other greenhouse gases are resulting from wide variety of industrial activities. Thus, climate change has become one of the major issues on the agendas of planners in industrialised and developing countries. Undoubtedly, the major contributor of polluting gases is our fossil-fuelled power plants. However, a part of it could be attributed to the transportation sector. Besides global climate change, other environmental problems related to excessive transportation are sound pollution, discharge of chemicals and suspended solids into water, indisposed waste, etc.

Transportation Issues

High levels of dust in air could cause or add to respiratory problems, particularly in areas where air quality is unsatisfactory. The smaller particles (<25 microns), which comprise about 15-20 per cent of transportation dust settles gradually in the atmosphere. These fine particles could be inhaled and lead to adverse health effects, directly or in combination with other atmospheric pollutants.²⁶ Air pollution due to diesel and steam locomotives, trucks and other mode of transportation could be substantial. Such pollutants adversely affect human respiratory system. Lack of information on adverse effects of these pollutants on animals and vegetation restrict the understanding of bio-diversity implications.

Noise associated with the loading, unloading and transportation results in sound pollution. Peak noise levels of heavy-duty trucks could rise upto a level of 100 dBA. Likewise, diesel train could generate noise of

²⁶ Dust could combine with other pollutants produce sulfate aerosols peroxyacetyl nitrate that are known to be harmful to human health (Webber H. et al., "Environmental Guidelines for Coal Port Development", UNEP in collaboration with EPI East-West Center, Hawaii, 1987.)

the levels of 100-125 dBA. Adverse health effects are also associated with high levels of noise. The levels at which individuals begin to be disturbed by noise vary considerably, depending on factors such as the time of the day, frequency of noise and its modulation. However, reports suggest that prolonged exposure to noise above about 90 dBA could result in permanent hearing loss.

Global electronic commerce has a positive impact on natural environment because the thrust is on transmission medium. The electronic media act as a channel of distribution minimising the physical transportation of goods and services. Commodities that could be electronically transferred shall be preferred via this mode, thus reducing the cyclical movement of transport system. Channels of distribution and delivery systems are essentialities of present marketing system and add significantly to the transaction cost. The electronic commerce will also reduce the movement of buyers for procurement and choice because the interactive characteristics of Internet commerce allows them to browse the product catalogues and interact with the sellers on the Web site.

Natural Resources Issues

The paper industry is the largest user of raw wood from tropical forests. The extensive felling of tropical forests across the globe has adverse impact on ecological balance of the eco-systems, climate change and depletion of ozone layer. The tropical rain forests purify a large proportion of atmospheric pollutants from air. However, intensification of industrialisation and growing demand for paper products has resulted in widespread felling of trees. Electronic info-communication systems have provided much needed impetus to the idea of paper-less working environment. Global electronic commerce will further enhance the cause of paper-less working. Quite a large number of newspapers and magazines are presently available online. Besides, major companies have opted for advertisements online. The shape of electronic transactions range from product catalogue display to inventory management and procurement, resulting in significant reduction of paper use in processing and procurement of goods. Ever increasing electronic commerce shall further minimise the use of paper in day-to-day operations, reducing considerable pressures on our forests and improve environmental conditions.

Overall (+ve) Impact

The impact assessment of global electronic commerce on environment is a bit pre-mature due to lack of relevant data and other statutory frameworks. However, a common observation is that the overall impact of electronic commercial transactions could have positive impact on environment. Lately, the policy planners have realised that key to success world-widely lies in sustainable development. Countries are adopting stringent measures to ensure the safety of the natural environment. The WTO has also seriously taken up the environmental issues in determining international trade provisions. Thus, if the overall impact of global electronic commerce on environment is positive then it is to stay and grow with the passage of time.

Systemic Measures for India

It is a vital link for India to apprise itself with the emerging international consensus on electronic commerce, primarily to develop the requisite environment and draft appropriate rules and regulations to integrate itself with the global market. Developed countries, like the US, European Union, Canada, Japan, Singapore, etc., have made specific efforts in determining the major issues of global electronic commerce. The OECD has undertaken expert studies for drafting specific guidelines for taxation rules and related framework. Likewise, under the aegis of United Nations, a UNCITRAL Model Law on Electronic Commerce was drafted in 1996 at New York.

The WTO is contributing to the development of favourable conditions at international level for electronic communications and commerce, for instance through the IT Agreement on tariffs for IT products and the TRIPS agreement on the protection of intellectual property. In fact, the debate on global electronic commerce gained momentum with the introduction of the US proposal at the WTO. Thus, most industrialised countries and multilateral agencies have realised the importance of global electronic commerce. The developing countries have also attempted to review their business prospects in the light of changing market environment. In fact, all these efforts are based on a single conviction that the information society could only be a global one, with wide participation of the international community, irrespective of the developmental status of the country. The common features emerging from their efforts could become a guiding framework for India for systemic improvement within its domestic environment. The

following are six guiding principles for the development of electronic commerce:

- Private sector should take the lead.
- Government should draft a consistent legal framework providing certainty and predictability.
- Government should provide a secure and safe environment.
- Government through joint venture pilots and experiments with private sector shall expedite EC growth and development.
- Government should pursue innovative, liberal and transparent policies pro-actively.
- Consistency with international regimes, international cooperation and interoperability are necessary for EC to thrive.

These are commonly accepted principles to jumpstart the pervasive use of electronic commerce and to position an economy in the rapidly changing market environment. To ensure the development of a favourable legal and policy environment for electronic commerce, India needs to strictly follow these principles. Besides, India essentially needs to adopt the following measures to position itself as an Electronic Commerce Hub.

a) Establishment of a High Powered EC Policy Committee

The committee should be constituted with a primary objective of developing suitable legal and policy framework for Indian environment. Based on the experience of the US, European Union and Singapore, it is recommended that the Committee should be chaired by Ministry of Commerce along with members from related Ministries, e.g., Finance, Telecom, S&T, Law, etc. Besides, representatives from industry and related bodies should also be included in the Committee to air their suggestions and reservations. Under the aegis of the high powered committee, it should constitute two separate Policy Study Groups-Legal, Regulatory and Enforcement Study Group and Trade and Commerce Study Group. The committee should provide appropriate set of guiding principles and specific policy recommendations and initiatives within a specified time frame.

This decision could not be delayed further due to the growing pressures and threats of multilateral trading system. The WTO temporarily accepted the US proposal to keep global electronic commerce duty free for at least one year. This decision had incurred a lot of criticism from wide quarters, but the pressing needs of the changing procurement procedures in the multilateral trading system

had ultimately prevailed upon the final outcome. Besides, lately the WTO made a presentation on the growing use of Internet in government procurement. Particularly emphasising that a number of WTO members are already taking advantage of the Internet in procurement. On the other side, the European Union has made an attempt to develop a global charter covering technical standards, illegal content, licenses, encryption and data privacy on the Internet and other electronic networks. Singapore has recently drafted a most complete work on electronic commerce till date in the form of The Electronic Transaction Bill 1998. Likewise, other countries across the major cross-section of the globe are making serious attempts to develop suitable frameworks for electronic commerce. Thus, India needs to also adopt appropriate measures to ensure a level playing field for their domestic entrepreneurs.

b) Development of EC Infrastructure Services

Electronic infrastructure services are essential for supporting cyber traders, merchants, entrepreneurs and buyers of EC goods and services. Readiness and availability of professional and online services are critical to the success of electronic commerce. High-speed networks are being deployed internationally (for e.g., Canada-Singapore IT Collaboration Agreement shall establish a physical network connectivity to support collaboration in research and development, education and learning, industry and exchange, etc.). Some governments have developed adequate logistical support for EC activities by providing them integrated infrastructure to support the fulfillment of a business transaction, i.e. distribution and delivery. Thus, global information infrastructure is gaining acceptance and countries are in the process of building local info-communication infrastructure, including hardware and software components.

India has realised the importance of a strong and well-diversified info-communication infrastructure and lately has undertaken few initiatives in building the domestic setup. Besides, the recommendations of the Rakesh Mohan Committee, Athreya Committee, and Task Force on IT for the development of Indian telecom infrastructure services are indirectly converging on building appropriate info-communications system in India. Other unanswered EC issues are related to software and hardware elements of electronic transactions. Some of the essentials

are electronic supporting services, technical standards, etc. The electronic supporting services could comprise electronic notary services, cyber court and electronic arbitration courts, domain name service centers, etc., the uniformity in technical standards provides the necessary foundation for rapid development of applications and inter-operation among transactions and services. Thus, the policy makers must develop adequate electronic commerce infrastructure services in terms of related hardware and software elements to make the domestic market environment conducive to electronic transactions.

The multilateral trading system has brought into fore the need for enhancement of overseas linkages. The IT agreement and Agreement on Basic Telecom Services at the WTO could act as appropriate levers for building domestic info-communication infrastructure. Besides, it needs to expand physical telecom linkages with other countries and cities for mutual benefits. This could be achieved by collaboration agreements with some of the developed countries on a bilateral basis, such as the US, Canada, European Union, etc. Such agreements could jumpstart, promote and integrate India with the global market within short time.

c) Promote and Raise Acceptance by Industry and General Public

The success of Indian efforts on electronic commerce largely rests in the acceptance of industry and general public. Thus, electronic transactions should be actively promoted to the industry and the public by the government through wide variety of fiscal measures and incentives. The industry should be encouraged to imbibe the electronic culture in strategic planning and envisioning workshops targeted at top level management of businesses. Periodically, technology and technical sharing seminars should be organised to keep the industry informed of the new advances in this area.

Singapore Tourist board had adopted a unique strategy to raise and promote acceptance of electronic commerce to the general public. It had organised a Shop On The Net event in July 1997, the first electronic sale in Singapore. This strategy received tremendous success primarily in informing the local entrepreneurs and buyers about the benefits of electronic commerce. Second electronic sale event was held in early 1998 involving more than 40 e-shops using a variety of online payment and delivery services. Learning from their experience, India could also

devise suitable advertising strategies to promote online transactions among the general public, initially at a low level.

The primary objective of any promotional strategy should be based on highlighting the gains of electronic transactions over conventional means of business. The WTO organised a presentation on the application of Information Technology (IT) in business transactions. The potential gains from electronic transactions as emphasised during the deliberations are:

- a) gains in efficiency for buyers and suppliers as a result of time and cost savings;
- b) equal access to procurement information for SMEs and suppliers at far-off places;
- c) electronic means of ordering and delivery of goods and services at competitive prices by lowering transaction costs; and
- d) competitive marketing environment for accessing international markets.

The electronic commerce holds enormous potential for providing instant access to procurement information, driving down costs for suppliers and procuring agencies, and increasing the overall efficiency of the procurement process. It even provides an opportunity for the SMEs to participate in tendering and procurement process on a global basis. These benefits should be widely circulated to promote and raise the acceptance of electronic transactions among the industry and general public. Besides, adverse social conditions such as in India, electronic commerce could be turned into success story by using electronic medium for providing basic services to remote rural areas, such as medical services, identification of the beneficiaries, allocation of resources to poor, able governance for planning and execution, etc.

d) Consistent Legal, Regulatory and Enforcement Framework

Cyber space is a whole new faceless and intangible world. The super highway is fraught with diverse risks and uncertainties. Moreover, it is a fast changing environment with rapid technological changes. Thus, to gain acceptance within the domestic environment, the government needs to put in place an appropriate legal framework that provides for certainty, predictability, and clarity of the rights and obligations of the transacting parties. At the same time, the legal framework shall need to be technology-neutral and flexible enough to accommodate technological changes and the fluid global market environment.

Electronic commerce has many benefits, but also has the property that it facilitates fraud and makes prosecution difficult. Besides, its international nature means that the laws and regulations on which the consumer relies on for protection may not apply on the seller's country. Thus, it may require novel protection and redress mechanisms, some of which shall develop through competition, others shall require international cooperation among industry and governments. Financial intermediaries might be able to settle some disputes but legal authorities shall have to control systematic fraudulent or misleading conduct. As the commercial activity grows on the Net, the volume and nature of personal data disclosed on the network shall increase making the transacting parties vulnerable to illegal and harmful content of business transactions. Although traditional methods for addressing these issues may not be feasible in the electronic environment, advances in technology are offering new ways to resolve some of the issues.

In the absence of any specific legal and regulatory measures on electronic commerce in India, it becomes all the more vital to adopt suitable legal and enforcement framework. The first issue likely to confront electronic commerce is the privacy, safety and security of a commercial transaction. Thus, our efforts shall be focussed on developing a legal framework that could ensure the privacy, security and safety of the transaction. Some of the guidelines could be adopted from the Electronic Transaction Bill 1998 of the Singapore and UNCITRAL Model Law on Electronic Commerce 1996. The development of legal framework in India is essential because some of the countries, such as the European Union, have put restrictions on trade through electronic means. The restrictions are largely for areas having weak legal, regulatory and enforcement mechanisms.

e) Strengthening International Coordination

Organisations at inter-governmental and private sector levels across the globe are working towards finding solutions within a variety of formal and cooperative frameworks. Conferences and events involving governments, private sector and international organisations have been held in the recent past. The WTO has also made significant progress, notably in the form of GATT, GATS and TRIPS Agreements. It shall remain an important mechanism of trade liberalisation and shall strengthen the new multilateral trading system. Other agreements, such as ITA, TBT, etc., have given new impetus to global trade in information

technology products, telecom and financial services. In fact, the WTO's experience has demonstrated that many countries share a strong mutual interest in improving trade conditions.

The provisions and access to new information services is a major challenge for the trading community, especially in terms of ensuring free access to the global electronic market place through effective implementation of competition rules. The GATS provisions provide a basis to address these challenges. However, a debate is currently emerging as to whether there is a need to adjust those provisions when they apply to services provided electronically. The new round of services negotiations scheduled to start before the year 2000 could have serious implications on further liberalisation. In addition, the WTO working group on 'Trade and Competition' should eventually lead to the strengthening of competition rules at world-wide level, which would apply across sectors, including electronic communication and commerce.

India needs to identify most urgent issues and the appropriate ways to tackle these issues. The greatest difficulty lies in obtaining a consistent approach in view of the number of different groups engaged in parallel activities, which are not always coordinated. However, in many areas convergence of views is emerging on the definition of problems. It could include requirements from industry for proportionate financial assistance and technology neutral regulations, from consumer groups seeking adequate data protection, consistent implementation of competition rules, etc. Opportunities to exchange information could help to identify and solve problems arising from a lack of sufficient knowledge on applicable frameworks. It shall require a detailed examination of the problems and priorities to allow the international community to address them in a substantive and coordinated manner. India needs to proactively participate at all such international forums. The outcome of such participation could be enrichment of skills and better understanding of priority issues and possible means of overcoming such shortcomings. It shall primarily depend on the futuristic orientation of the Indian strategy to address the emerging challenges of global electronic commerce.

Conclusion

The newly established multilateral trading system has stressed on the need for increased marketing competitiveness. Rapid developments

in info-communications culminating into global electronic commerce is evidently one of the vehicles for enhanced competitiveness and economic prosperity. This is evident from the overall impact of electronic commerce on various sectoral issues discussion. Each issue has stressed on the need for immediate government's initiative and action. Timely action at the national level could provide a nation distinct competitive advantage in the global market place. Besides, integration of info-communications within the domestic environment could significantly influence in the well being of people. Keeping in mind the far-reaching benefits of info-communication technology and electronic commerce, India needs to develop and formulate a coherent EC policy. The process of developing and implementing the EC strategy is of prime importance. The GOI needs to consult openly and often with groups representing industry, consumers and Internet users, state and local governments, foreign governments, and international organisations to update and implement its EC strategy.

In the presence of a variety of issues, the interaction and confrontation among them, and the disparate fora in which they are being addressed shall necessitate a coordinated, targeted governmental approach to avoid inefficiencies and duplication of efforts in developing and reviewing policy. Some of strategic decisions for establishing a sound base for global electronic commerce in India are:

- Establish an independent governmental body to develop, monitor and update the EC strategy, as new events unfold.
- Provide sufficient resources in terms of finance, material, human and technological, to allow rapid and effective policy implementation.
- Develop strong and well-diversified info-communication infrastructure with focus on increasing the penetration ratio to cover larger cross-section of the population.
- Electronic commerce requires an effective partnership between the private and public sectors, with private sector in lead.
- Develop appropriate legislative framework for transacting business online.
- Collaborative arrangements with developed countries to act as an electronic commerce hub for SAARC countries.

Government participation must be coherent and cautious, avoiding contradictions and confusions that could sometimes arise when different

governmental agencies individually assert authority too vigorously and operate without coordination. There is a great opportunity for commercial activity on the Internet, only if the government and industry act appropriately. This opportunity could be realised for the benefit of all people.

Relevant Web Sites

- a) www.wto.org
- b) www.unctd.org
- c) www.oecd.org
- d) www.ecommerce.gov
- e) www.ec.gov.sg
- f) www.nic.in
- g) www.nautilus.org
- h) www.brint.com/elecomm.htm
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