UNIT 20 ELECTRONIC COMMERCE

Structure

20.1 OBJECTIVES

After studying this unit, you should be able to:

- describe the importance of information technology in International Business
- explain the importance of Internet in International Business
- explain the concept of Electronic Data Interchange (EDI)
- describe how to do business electronically
- explain various global trade point networks
- describe the concept of commerce net
- discuss the business issues relevant for international trade transactions

20.2 INTRODUCTION

Rapid developments in computer and telecommunications technologies during the last decade has moved the world from manufacturing economy to information economy. Not that manufacturing will be unimportant hereafter, but information will be the power house of global economy. The Internet and the popular World Wide Web have dramatically changed the information exchange process all over the world. It is but a small world!

The physical boundaries separating the countries of the world are mostly man-made and are not the natural barriers to economic activities of human beings. This reality has awakened businesses and governments all over the world. Economic growth in an environment of intense global competition is feasible only through efficient trade, both national and international. International trade is a necessity because no one region or country has all the resources to be a self sufficient and closed economy. Information is a vital resource for business transactions. International electronic commerce is managing this resource with maximum efficiency using the Global Information Infrastructure. It will open new markets and create new business opportunities to enterprises of all sizes and all nations. In this unit, you will learn the highlights of electronic commerce, major business issues, important trade networks and Electronic Data Interchange System.

20.3 EMERGING DIRECTIONS IN INTERNATIONAL BUSINESS

We are living in the information age. The amount of information packaged with the products and services has been steadily increasing. Businesses that efficiently handle information in their products and transactions will succeed, grow, and provide better goods to their customers. To handle information efficiently, organizations must possess the appropriate information technology (IT) infrastructure. While self-owned networks may not be within the reach of most companies, they can obtain a minimum level of internetworking through network service providers.

Like global competition, global partnership is an emerging reality. Most corporations will depend on suppliers distributed across national boundaries. Integrating production activities with suppliers and customers is again an information management issue. In an intense competitive environment, product quality and cost to the customer are very critical. Just-in-time (JIT) Inventory Management, Total Quality Management (TQM), and continuous improvement are some of the important concerns businesses need to address and resolve. Carefully designed and implemented information systems help firms handle these issues.

Mass customization is an emerging trend. For many products and services, a standardized version may not be accepted by individual customers. Organizations need to bring out customized products within a mass production setting. The ability to succeed is directly related to the ability to process massive digital information. Companies need to recognize the economic value of information.

Information — A Valuable Resource

Our main objective is to create an awareness that information is a vital business resource. Acquisition and use of information is an economic activity, particularly in the context of a perceivable trend towards electronic commerce (EC). International electronic commerce depends on the exchange of trade-related information using the global information infrastructure (GII).

To provide a basic understanding of information transmission and retrieval processes, the Internet services such as Gopher, Telnet, File Transfer Protocol (FTP), and the World Wide Web (the Web) are discussed. Under the leadership of the United Nations Conference on Trade and Development (UNCTAD), trade networks on the Internet are being developed to help developing nations participate in international trade and speed up their economic growth. UNCTAD is leading the way to establish Global Trade Point Network that links all the national and regional Trade Point Networks on the Internet. The main objective is to bring the latest technologies within the reach of developing nations, providing them with greater opportunities for participation in international trade. These nations have a rare opportunity to take a quantum jump in international trade by building their national information infrastructures through regional coordination. Highlights of electronic commerce, major business issues, and a few entrepreneurial examples of electronic commerce on the Internet are included to complete the picture of information-oriented international trade.

20.4 ELECTRONIC COMMERCE (EC)

EC broadly connotes business activities (with associated technical data) conducted electronically. Using electronic channels based on computer and telecommunications technologies, a lot of business transactions and information interchange can be automated without any constraints on the geographical dispersion of the trading partners. In the emerging global electronic marketplace, all companies meet on equal terms. They have access to all information services to communicate. They need not revert to paper-based transactions. Buyers' activities are supported by multimedia catalogs, and other seller services. Sellers' activities are supported by automated order processing, production scheduling, delivery scheduling, payment services and so on. Third parties offer value-added services such as specialized directories, brokering, referral, vendor certification, credit handling, etc.

The electronic market has started to bloom. The number of companies, offering information and services for sale over the Internet and value-added networks (VANs) has been increasing very fast. Their number may increase to a million by the year 2000.

The electronic marketplace will be structured as a fully distributed network of product and service providers. The majority of these providers will operate their own servers and locally control all information on their servers. It should be possible to accommodate any number of participants. EC can lead to enterprise integration. It can mold the vast network of businesses, government agencies, and other trade organizations. It can also lead to internal integration of all business activities. The important benefits of EC are:

i) Competitive advantage through innovative marketing strategies

ii) Mass customization through online interaction with the customers

iii) Global reach for even small businesses

iv) Efficient market research

v) Cost reduction in business operations through efficient links with the suppliers and strategic allies

vi) Multimedia presentation of product, company and marketing information

Organizations participating in EC need to be aware of several critical issues. The choice of technology must be appropriate for the business activities of the organization. The real backbone of EC is the customer. Companies must be willing to organize themselves to be customer-driven. Business processes need to be reengineered to suit EC. Hierarchical organizational structures must give way to horizontal ones to empower individual employees for efficient customer-oriented operations. Adequate attention must be paid to the security and privacy issues involved in business transactions.

A detailed analysis would reveal that communication of information constitutes as the major component of business transactions. Computers supported by telecommunications technology help save time and money by speeding up and automating information communication processes. This reality should be the driving force for the developing nations to enter the EC arena.

Since computing and telecommunications technologies are becoming more powerful and becoming cheaper, developing nations must build national information infrastructure with adequate backbone networks to support EC. Information highways are easier and cheaper to build than concrete highways. The added advantage is the availability of global connection to all the domestic companies. Most developed nations, possibly with the exception of USA, do not have technologies in place to fully support EC. Developing nations have a unique opportunity to catch up with the developed nations in the EC sphere.

EC offers an excellent scope for domestic products to gain international visibility through the Web on the Internet. This is an immense advantage for exporters of products unique to the developing nation. The importers also benefit by identifying cheaper and quality inputs for their businesses.

Increasing the volume of international trade is an urgent need of the developing nations to achieve sustained economic growth at a faster rate. With the international business placing a greater reliance on electronic channels, the developing nations need to build the necessary infrastructure for EC, if they are not to be left out.

Check Your Progress A

1. What is Electronic Commerce?

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2. Enumerate three benefits of Electronic Commerce.

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3. What is Global Trade Point Network?

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20.5 THE INTERNET

There are more opinions about Internet than there are people on the Internet. There are many definitions of Internet - It's a global network; It's a new form of doing business; The Information Superhighway; The Network of Networks; A Worldwide Computer Network; The Net; and many more.

Internet is simply a collection of interconnected networks. These networks are located within many universities, businesses, libraries, government offices, research institutions, entertainment organisations all over the world. The Internet links these various networks so that people all over the world can share their information.

Internet started as a network sometimes in early 1960s, as an experiment of the US defence Department. This network called ARPANET connected various military and research sites and was itself a research project in how to build reliable networks. Beginning in the late 1980s the National Science Foundation (NSF), a federal agency, started expanding its own network using ARPANET technology. It first allowed the campuses and research centres to share data and information, but increasingly the connections were used for e-mails and for transferring data and information files between sites. With this Internet was born. The Internet proliferated during the PC boom in 1983, when it was having only 235 hosts. This number went up to 1 lakh in 1989, and the beginning of 1995 the number of hosts attached to the Internet was more than 4 million. No one knows the exact size of the Net, but according to various estimates, currently, more than 60 million users are connected to the Net, more than 7 million servers are connected and it belongs to no one. Studies indicate that it is growing at the rate of 150 per cent. Projections indicate that by the year 2010 every one on earth will be connected to the Net?

The Internet is not an individual organisation or network; it is a collective term for many backbones, regional and site data networks that it comprises. The Internet is thus called "democratic" as nobody owns it and controls it, and it has bought in its wake a whole new culture with its own new terminology, and etiquette — or NETiquette. The Internet defines a common ground for internetworking communities and establishes a community of people and organisations that want to connect.

As a user one must know what the Internet can offer? In general terms one says that Whatever one wants to find or know it is available through Internet. Broader list of things/services which one can get from Internet is given below:

- Search/retrieve/read millions of files stored on computers throughout the world
- Exchange e-mail with any user on the NET
- Search/retrieve free or commercial softwares
- Search databases on millions of topics

- Join subject oriented discussions
- Receive/transmit data/programme files
- Do video conferencing
- Browse through private/public libraries
- Buy or sell products
- Conduct market surveys
- Conduct test marketing
- Distribute electronic publications
- Provide customer support
- and many more.....

20.6 THE INTERNET SERVICES

The Internet is used for a variety of activities. Some of the common activities are:

- Accessing and retrieving information
- Communicating
- Teleworking
- Transacting business
- Using recreational facilities

These activities are performed using a variety of services available on the Internet. These services are briefly explained below:

E-Mail: Electronic mail or E-mail is a service for sending messages to individuals or to mailing lists. It is faster and cheaper than traditional mail. Newsgroups and bulletin boards are offshoots of e-mail. These allow users to post messages or notices for anyone to read. Advanced interactive forms of e-mail with multiple users enable computer conferencing in real time. Its significant advantage is that it could be used for flexible participant groups.

File Transfer Protocol (FTP): FTP helps with moving files from one computer to another. FTP has promoted a broad range of public databases and services. It is possible to find information on many topics such as law, public health, recipes, and agriculture. Many free software programmes can also be downloaded using FTP. When free FTP access is provided, it is known as anonymous FTP, as the users are not required to reveal their own identity. Private archives can be accessed only by authorized users. The main advantage is that large files of data or information are transferred from one computer to another at very high speeds. Archie is a tool that helps the users to search for files of their interest for retrieval using FTP.

Gopher: Gopher provides a menu driven system of access points to browse for resources on remote computers. Once an item of interest is located, it can be immediately accessed through Gopher. The menu options varies with servers. Many university library catalogs are available on Gopher. Quite a number of them provide facilities for interlibrary loan requests.

In the information maze, Gopher became a popular tool. Yet, it was often difficult to find the right gopher site which would lead to the right information needed. The task gets more complex if related documents are spread across several Gopher servers. Veronica and Jughead are two popular software tools used to search for the right Gopher site containing the desired information.

Telnet: It is a tool for logging into remote computers on the Internet. Telnet access to several public services such as library catalogs is not restricted. But, access to most computers is available only to those who have authorized accounts on those computers or networks. Once connected to a remote machine using telnet, your keyboard functions as if it

is a component of the **remote system**. Telnet is particularly useful in accessing from other locations your e-mail and special services available on your computer.

Wide Area Information Service (WAIS): WAIS is an extremely useful service to search through indexed material and finding articles based on what they contain. The search is essentially based on a group of words to be found in the article(s). However, the search is limited to only those items that are already indexed. After a successful search, WAIS can display the documents if needed. Since indexing is a labour intensive task, a limited number of free WAIS libraries exist supported by voluntary efforts.

Check Your Progress B

1. What is Telnet?

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2. What is Internet?

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3. List four services offered by Internet.

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4. State whether following statements are **True** or **False**.

   i) International electronic commerce depends on the exchange of trade-related information using the global information infrastructure.

   ii) ARPANET has been primarily connected with the US trade and business.

   iii) Archie is not used for File Transfer Protocol.

   iv) Gopher provides a menu driven system of access bounds to browse for resources on remote computers.

   v) Telnet is used for searching indexed material and finding article.

20.7 THE WORLD WIDE WEB (WWW)

The World Wide Web (shortly called as the Web) has become very popular. It is only during the last couple of years that its presence on the Internet has become prominent. The Web technology is based on a client-server architecture. It has facilitated availability of multimedia information on the Internet. Moreover, it permits users to access documents located at different sites, using hyperlinks.

A client (also called a browser in the context of the Web) is a programme on the user's computer terminal. It can request information stored at different servers located all over the world. A server is another programme on the computer terminal where information is stored and is made available to clients requesting such information. Some of the popular Web clients are Mosaic, Netscape and Explorer.

A client helps the user to form a request (generally by clicking on a link), to send the request to the appropriate server, to inform the user of the status of the request, and to present the results of the user's request. A server receives requests from clients, validates such requests (like security clearance), retrieves the stored information as requested by the client, and delivers the information to the requesting client. In general, a server is capable of simultaneously handling multiple requests from different clients.

Another technology, hypermedia has helped the popularity of the Web. Hypermedia technology allows linking different media in any nonlinear fashion. Imagine reading the annual report of a business corporation. When you click on "*the Chairman's Address at the Annual Meeting of the shareholders*" (a hyperlink), you get a video presentation of the speech. Part way through the video presentation, you click on another hyperlink, "*Company History*", and you get a multimedia presentation of the company from a CD-ROM. You have gone through some information in a nonlinear fashion just following some references or links of your choice. You can always return to any of the previous documents.

The main attraction of the Web is its hypermedia capabilities. The users are able to download multimedia documents for viewing or reproducing them for their own uses. The WEB documents are created using the hypertext markup language (HTML). Cross references or hyperlinks to other documents are easy to embed. This provides two advantages. First, any long document can easily be split into convenient smaller documents and hyperlinks can be used to link them. Second, references to other Web documents can be made easy through hyperlinks.

With its multimedia capabilities, the Web is popular worldwide. Invariably, every Web server on the Internet has a home page to provide a brief overview of the organization and the information available with the server. To obtain the information wanted, the user needs to navigate using the hyperlinks. Many commercial organization offer product and related information on the Web. Smaller organizations create their Web presence with the help of the Internet services providers.

Since the Web has proliferated rapidly on the Internet, it is possible for a user to be lost in the cyberspace. It is preferable to access a Web document using its uniform resource locator (URL). The URL of a document is its address. When the URL of a document is not known, the search engine available with the browser software is used.

20.8 ELECTRONIC DATA INTERCHANGE (EDI)

EDI is the computer-to-computer exchange of business information among trading partners. The information exchange must conform to mutually agreed standards among the parties involved so that their systems have technological capabilities to handle flow of information in both directions.

In a common EDI scenario, purchase orders are sent to suppliers. The suppliers send acknowledgements, and follow up by sending shipping documents. The purchaser makes payments through banks on receipt of invoices. This chain of activities is performed through computer-to-computer interaction without human intervention.

EDI offers many advantages. It reduces the time and cost of transactions. It improves the accuracy of transactions. Indirectly, it helps companies to lower their inventory costs and improve customer satisfaction. The cost savings generally are more than the additional costs incurred on EDI infrastructure and training personnel.

By the year 2000, experts estimate that 95% of all business transactions will be computerized from negotiation of deals to payments. While the estimate may be an overstatement, the trend of EDI automation is unmistakably evident. Increasing awareness of EDI benefits, falling prices and increasing power of technology, compulsive influence of trading partners, international EDI standards — all favour growth of EDI.

20.8.1 Need For EDI

For any successful trade transaction, companies need information before and after the transaction. For example, information before the transaction includes market information (company and product information, opportunities for buying/selling), transportation, insurance, credit, customs, and import/export trade regulations. After the transaction, information on goods supplied/delivered, payment arrangements, shipping details, etc. are needed. In this age of global markets, accurate and timely information has strategic value. Such information becomes even more critical if business processes like order processing, production scheduling, electronic funds transfer are automated. Normal modes of information exchange like telephone, mail, and fax will be inadequate for electronic commerce. When most business transactions pass through interconnected networks, related information also flows through the same electronic channels. Since different users (individuals and organizations) will be using different technologies, use of standards for EDI becomes a necessity.

International trade transactions are more complex than domestic ones. A typical international transaction involves about 15 participants, 50 documents, different legal systems, languages and currencies. Information standards in international trade transactions are needed to reduce transaction costs and speed up the transaction process. Such standards help service providers like freight forwarders, customs, banks, and insurance organize their systems efficiently and in turn help companies perform their transactions with greater efficiency. A company with a host of suppliers and customers cannot be expected to maintain hundreds of different data exchange arrangements. Therefore, EDI has been developed to be hardware, software, and communications media independent.

EDI has been evolved, assuming that in the long run, Trade Points and their customers will wish to exchange trade-related information covering the full trading cycle. In the first phase of standardization, pretransactional information has been classified under three categories:

- Business opportunities
- Company information
- Country/Market information

Lists of major types of information exchanged have been prepared. The process of standardization is progressing.

20.8.2 UN/EDIFACT

Standardisation in the EDI messages plays an important role when information has to be communicated between the computers. EDI cannot work without standardisation, as EDI will involve diverse parties like exporters, importers, custom authorities, freight forwarders and shipping lines. Communication would break down if interchanging partners did not follow agreed standards, leading them from an intolerable mountain of paper documents to an electronic "Tower of Babel", especially in international EDI. Different EDI standards have been developed to meet sectoral and national requirements for speedy and successful implementation within closed groups, but implementations across national and sectoral boundaries are difficult, since partners are required to interpret several EDI standards at great expense and inconvenience. Trying to resolve this barrier for international communication, United Nations introduced a common standard called UN/EDIFACT (EDI for Administration, Commerce and Transport). A single international EDI standard flexible enough to meet the needs of government and private industry. UN/EDIFACT is fast gaining recognition and acceptance as the global EDI standard.

EDIFACT defines the syntax rules for the transmission of messages and can be used across industries, across global boundaries and for both government and private sector. EDIFACT is a fusion of European and American national standards. EDIFACT is supported by a set of rigorous messages design procedures, thus ensuring that EDIFACT messages which are endorsed by the United Nations conform fully to the standard and hence are internationally functional. Trading community world wide has already recognised the importance of adopting the EDIFACT message standards for the use in their international trade operations.

Countries which have already implemented EDI are either using EDIFACT message standards or planning to use it.

20.8.3 Value Added Networks (VANs)

Many business corporations, use proprietary systems or value added networks for EDI with their business associates. In many instances, bigger organizations coerce their smaller trading partners into accepting their proprietary systems. Using dedicated systems for data interchange, business partners can tightly integrate and automate many of their business processes such as order processing, just-in-time (JIT) inventory system, and invoicing and payment system. EDI adopters have benefited from operational efficiency that give them significance competitive advantage.

For the many companies that cannot afford investment in EDI technology, the alternate route of using the value added networks (VANs) is offered by service providers. VANs provide secure networking services for EDI transactions among member companies.

20.8.4 EDI and The Internet

While many companies use proprietary systems or value added networks for EDI, very few use the Internet for EDI. The Internet is considered by many to be a long term alternative to VANs. Most organizations already have Internet connectivity and Web servers. Thus, it should be easy to start EDI on the Internet without much additional investment, making the Internet a viable solution for small companies wanting to implement EDI.

The Internet access provider has limited accountability and provides limited customer support. Also, there is no assurance of secure environment and reliability. In these areas, the VANs score better. However, a VAN costs a lot more than the Internet connectivity. Unlike the VAN, the Internet also offers interactive access and electronic information access at no extra cost.

20.9 GLOBAL TRADE POINT NETWORK (GTPN)

Under the auspices of the United Nations Conference on Trade and Development (UNCTAD), the Trade Efficiency Initiative was launched in February, 1992. The main objective of this initiative is to open international trade to new participants, especially the small and medium sized enterprises (SMEs), by simplifying and harmonizing trade procedures worldwide and by giving traders access to advanced technologies and information networks. The Trade Point programme is a key component of this initiative.

The Global Trade Point Network (GTPN) was officially launched by the UNCTAD delegates at the United Nations International Symposium on Trade Efficiency held in Columbus, Ohio, USA during October 1994. The programme has four major objectives:

- Make international trade transactions more efficient by simplifying and standardizing the trade process.
- Make current and prospective international traders more effective by providing them with easy access to trade information, facilitation of services, information technologies, network, and support training.
- Promote new commercial partnerships between international traders through the creation of electronic information and communication links and through the addition of new international trade participants.
- Increase awareness of existing and potential international traders to new trading opportunities and techniques offered by advances in trade information, technology, and attendant international standards.

To accomplish these objectives, the programme envisages setting up of Trade Points in all regions of the world. The Trade Points are to serve as trade information centres, and trade facilitation gateways to global networking. As trade information centres, they will provide impartial, timely, and accurate information on all aspects of trade transactions. As trade

facilitation gateways, they will provide services to SMEs in the pre-transaction, transaction, and post-transaction phases of the trade cycle. As gateways to the Global Trade Point Network, the Trade Points will allow traders to access relevant trade information from several international sources. The Trade Points bring together all providers of services required to make a commercial transaction: customs, foreign trade institutions, freight forwarders, transport companies, banks and insurance firms. The design of each Trade Point is undertaken locally as per UNCTAD guidelines.

The network of Trade Points are grouped regionwise. The countries in each group are as follows:

- **Africa:** Botswana (Gaborone), Burundi (Bujumbura), Djibouti (Djibouti), Eritrea (Asmera), Ethiopia (Addis Ababa), Gabon (Libreville), Cote d'Ivoire (Abidjan), Kenya (Nairobi). Malawi (Lilongwe), Mauritania (Nouakchott), Mauritius (Port Louis), Senegal (Dakar), South Africa (Pretoria), St. Tome and Principe (St. Tome and Principe), Swaziland (Mbabane), Tanzania (Dar Es Salaam), Uganda (Kampala), Zambia (Lusaka), Zimbabwe (Harare)
- **Australia:** Melbourne
- **Central America:** Cuba (La Habana), Honduras (Tegucigalpa)
- **Europe:** Czech Republic (Prague), Estonia (Tallinn), Finland (Helsinki, Tampere), France (Bordeaux, Grenoble, Le Havre, Lille, Marseille - Provence), Germany (Rostock), Portugal (Lisbon, Oporto), Russia (Moscow, St. Petersburg), Spain (Seville), Switzerland (Lusanne), Ukraine (Kiev), United Kingdom (London)
- **Middle East:** Algeria (Algiers), Egypt (Cairo), Israel (Tel Aviv), Morocco (Rabat), Tunisia (Tunis)
- **North America:** Canada (Montreal), United States of America (Columbus in Ohio, Detroit, Los Angeles)
- **Asia:** China (Beijing, Shanghai), India (New Delhi), Indonesia (Jakarta), Malaysia (Malaysia) Maldives (Male), Philippines (Manila), Singapore (Singapore), South Korea (Seoul), Thailand (Bangkok), Vietnam (Hanoi),
- **South America:** Argentina (La Plata, Santa Fe), Bolivia (Cochabamba), Brazil(Brasilia, Campinas, Curitiba, Florianopolis, Porto Alegre, Rio de Janeiro), Chile (Santiago), Colombia (Barranquilla, Bucaramanga, Cali, Cartagena, Santa Fe de Bogota), Peru (Lima),Uruguay (Montevideo), Venezuela (Maracaibo, San Cristobal)

20.9.1 Trade Point Network

The UN Trade Point Development Centre (UNTPDC) is located at Melbourne, Australia. A major service of this centre is to provide an Electronic Trading Opportunities (ETO) system which would include a list of current world opportunities available to businesses. Another important service is a facility to Trade Points to create multimedia catalogs for their companies using the UNTPDC Web Incubator server. Companies can display their information, brochures and catalogs online as simple text or with full multimedia support. Companies using the ETO-Visual catalog services will be exhibited at the GTPN and their products linked to the ETO Master Index at the UNTPDC Web site.

Also at Melbourne, Australia, UNTPDC and the Royal Melbourne Institute of Technology (RMIT) have jointly established the "Asia Pacific Trade Point Development Centre (APTPDC) Lab." The research project covers technical feasibility, cost effective designs, information highway requirements, and operational methods to support the establishment of electronic information processing, information infrastructure development and electronic commerce technologies to improve trade efficiency throughout the world. Based on the experience gained in this lab, a working model of the lab will be developed so that similar labs can be set up expeditiously in other regions of the world to assist Trade Points worldwide to get connected to the GTPN. Additional sites for TDPC Labs will be established in Brazil, China, India, Kenya and the United States, with the central site at Geneva. Solutions developed at these labs must conform to the principles and standards laid down for the GTPN.

20.9.2 Electronic Trading Opportunities (ETO) System

ETO system is a major Web service under UNTPDC Global Reach Programme. The ETO Master Index facilitates access to the system and navigation to all possible locations of ETOs. Users can search ETOs to access ETO Visual Catalogs (multimedia), and ETO Visual Special Projects. ETO connector links to several Internet sources on international trade information such as Commerce Business Daily, International Trade Daily, Daily Government Trade Opportunities, World Bank's World Trade Yellow Pages and Circle International Inc. ETO system offers a variety of services for promoting international trade:

- ETO Data Entry — A facility for members to enter data online through their regional ETO for dissemination to all the other ETO sites worldwide
- ETO Associates — Information on public and private sector institutions offering information brokering services and providing information to GTPN through the ETO system
- ETO Agent Registration — Facility for subscribing to the ETO mailing list at the Trade Points worldwide
- ETO EDI Centre — One stop access to definitions and implementation guides for international EDI transactions.
- ETO Search — A search engine based on ETO specifications and format under an UNTPDC research and development project
- ETO Email Query System — A facility to users to search the ETO databases at the Trade Points via simple email

20.10 COMMERCE NET

CommerceNet was formed in U.S to facilitate the use of an Internet-based infrastructure for Electronic commerce (EC) to allow efficient interactions among customers, suppliers and development partners to speed time to market and reduce the costs of doing business. The charter of the CommerceNet is to:

- Operate an Internet-based Web server to provide information for an open electronic marketplace for inter-business transactions
- Accelerate the mainstream application of EC on the Internet
- Enhance existing Internet services and applications, and promote new services
- Encourage broad participation of companies of all sizes and offer training programme on the CommerceNet

This Internet-based electronic marketplace will drastically reduce paper-based transactions. Its major features are:

- Browsing of multimedia catalogs, soliciting of bids and placing of orders by buyers
- Responding to such bids, scheduling production, and coordinating of deliveries by sellers
- Bringing buyers and sellers together through a wide array of third party value-added information services.

The value-added services include specialized directories, broker and referral services, vendor certification and credit reporting, network notaries and repositories and financial and transportation services. These services require dedicated communications lines. The use of an Internet-based infrastructure reduces the cost and lead time for participating in EC, and makes it practical for both small and large businesses.

CommerceNet will provide assistance to companies for:

- Internet connectivity
- On-line directories and other EC initiatives
- On-line access to software tools for information providers
- Security mechanisms including authentication and encryption

The CommerceNet Consortium is a nonprofit organization funded both by the Federal Government and member companies. The CommerceNet is managed by this consortium. It has six active working groups focussing on Internet connectivity, Network services, Payment services, Directories and catalogs, Internet EDI, and Engineering data transfer/design-to-manufacturing integration.

CommerceNet participants create home pages on their own Web servers. These home pages serve as virtual storefronts on the Internet. These home pages typically provide an overview of the companies and point-and-click access to product and service information, online catalogs, product order forms and so on. The home pages can be reached using the hyperlinks on the CommerceNet server's directory pages.

CommerceNet consortium believes that the majority of companies and organizations in the USA may conduct business via the Internet by the year 2000. CommerceNet is a step toward a de facto National Information Infrastructure (NII) capable of linking up with other EC projects in other regions. Future technologies being explored include:

- Intelligent shopping agents that can search through catalogs and negotiate deals
- Collaboration tools for distributed work teams that support both real time interaction and videomail
- Natural language search and retrieval techniques for large distributed information bases
- Format translation services that enable engineering organizations to exchange product data.

20.11 BUSINESS ISSUES

Nature of International Trade Transactions

An international trade transaction may typically involve about 15 different participants and 50 different documents, different legal systems and governments, and different languages. Examples of participants are the two trading partners, shipping agents, freight carriers, customs in the two countries, legal firms, banks, financial institutions, insurance firms, credit reporting agencies, government agencies monitoring environment and foreign exchange regulations, and business consulting services.

Documentation for international trade may be a formidable task for small and medium businesses. Some examples of documents are commercial invoice, bill of lading, certificate of origin, inspection certification, dock receipt, warehouse receipt, insurance certificate, shipper's export declaration, export licence, export packing list, letter of credit and many more.

Different countries have different legal systems as regards legal provisions and resolution of legal disputes. Rules and regulations concerning product packaging, consumer rights, information to the consumer, service conditions, product liabilities, metric regulations, etc. differ from country to country. Legal procedures could be time consuming, exasperating and expensive in some countries, and quite the opposite in many others.

Different languages can also lead to misinterpretation of facts and information when translated from one language to another. A simple illustration makes this point clear. Names and titles are used differently in different countries. Some do not use first names in business correspondence, but use titles with surnames or last names. Direct translation can therefore lead to misunderstanding among the partners. Literal translation can at times cause embarrassment due to cultural differences.

It is important to recognize that successful international business transactions are built on efficient handling of information at many levels. Appreciation of this facet of international trade helps better understanding of other business issues discussed in the following subsections.

Technology: The tools for EC are still under development, and the available ones are not standardized. Users all over the world have installed and continue to install a variety of equipment and tools on their networks. Though these networks may be interconnected, information movement across all of them is not completely reliable or timely. Not all these networks are really suitable for a Global Trade.

While advanced telecommunications technology is available, most current networks use inferior technologies that do not have the required capacity to handle data movement at significantly high transmission rates or to provide uninterrupted service. Consequently, the Internet which is handling the current data traffic will be overburdened when the traffic load multiplies several times in the next few years. Until the more advanced telecommunications technologies are universally used, the overall efficiency of networks on the Internet will continue to be below the optimum level.

Regulations and Standards: The Internet and the Web are practically unregulated. The Internet is believed to be one of the major factors that have promoted free speech and liberal thoughts all over the world including countries with authoritarian rule. So far the users have been voluntarily observing an acceptable form of behaviour. Occasional violations of commonly accepted code of behaviour do take place and generate a lot of resentment among the users. Ethical behaviour is of critical importance to business transactions. As EC spreads with more participants and business volume, the need for a regulatory channel will be imperative. Developing an internationally acceptable regulatory channel without unduly curbing free flow of information and transactions will be no easy task.

Political and Geopolitical Issues: Different countries have different trading, accounting, and government practices. In the electronic marketplace which cuts across the physical national boundaries, business transactions and exchange of information must take place seamlessly across networks of different countries. While this issue seems to be insurmountable, it can be handled satisfactorily if approached with the right attitude. Most conflicts in international business transactions arise because of unsatisfactory dissemination of information such as customs regulations, foreign exchange rules, contractual obligations, and so on. The Internet can be a vehicle to provide timely and accurate information to the parties involved in international trade and thus save the business from irregularities and errors in transactions.

Geopolitical awareness is a reality of today's world that cannot be ignored. Countries in the same region realize that peace and prosperity can be achieved only through integrated economic growth. European Economic Community (EEC) may be the forerunner in regional cooperation. ASEAN (Association of South East Asian Nations), NAFTA, SADC and many others subscribe to regional associations for economic activities. Such organizations have the potential to build an integrated information infrastructure to promote EC within the region and with other regions. This approach will help eliminate redundancy in the infrastructure, and save time, effort and money through economies of scope.

Encryption: Encryption is a technique to convert data into an unintelligible form which cannot be reconverted into the original format without a secret decryption key. Cryptography has been in use for long in the military all over the world. The object of applying cryptography to documents transferred over the networks is to prevent vital information getting into the hands of unauthorized persons. Encryption techniques on the network are very sophisticated and automated tools. Intensive efforts by specialized companies are aimed at making communications over the Internet secure. Another objective is to protect and validate digital signatures on electronic documents.

Public key cryptography is a widely used method. It works on a pair of public and private keys for each user. The sender uses the recipient's public key to encrypt the document before sending it. The receiver uses their public key to authenticate the identity of the sender, and to decrypt the document.

Security of Data And Information: Several issues associated with security are of great concern to the business community. Security is probably the biggest deterrent to use of the Internet for commercial purposes. A whole series of new crimes have emerged on the Internet. They have been nicknamed as Net Crimes. These include electronic theft of credit cards, remote bank robberies, sabotage through deliberate destruction or corruption of

digital files, theft of digital files and other resources, disinformation, theft of trade secrets, and libel.

To protect their systems from unauthorized access, companies build firewalls. The basic design principles of a firewall are:

- No compromise of the network system even if a network service has a bug in its implementation
- No connection to the network from hosts on other untrusted networks
- Reasonable method to test the correctness of a network service and the network system.

EC will be incomplete without electronic payments involving firms, credit agencies and financial institutions. Making information on funds transfer secure and preventing unauthorized funds transfer are important for business transactions to flourish on the Internet. Apart from the use of encrypting such transactions, use of digital or electronic cash is considered as a viable option. A major problem with this option is that digital cash transactions may be hidden from tax authorities.

Privacy is a major issue, at least in business transactions. Computer networks can electronically snoop around to gather information on buying habbits of the customers. Such information could be put to illegal use or cause nuisance. Providing privacy safeguards to customer information is important.

Multi-Cultural Issues: Language is the foremost problem. Many potential customers may not be reached unless information reaches them in their own languages. Automated translation in multiple languages is not currently possible. Because of the limited vocabulary used in business transactions, automated translation of business transactions may be achieved in the foreseeable future. Many countries may face a problem when building their information infrastructure for want of tools and equipment capable of handling their languages. Fortunately for the majority of the countries of the SADC, this is not an issue. Apart from Angola and Mozambique, other SADC countries have adequate grounding in English and have access to unlimited access to all the latest commercial tools developed for English speaking users.

Since marketing information may be freely available on the Internet all over the world, its presentation must be acceptable to various cultures and values. Certain expressions and graphic displays can potentially offend the sensitivities of groups of people. Likewise, Internet interaction among globally distributed trading partners need to pay attention cross-cultural values and attitudes.

Check Your Progress C

1. What is World Wide Web?

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2. What do you mean by Electronic Data Interchange?

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3. How value Added Networks Services are different from Internet Services?

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4. What is Global Trade Point Network?

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5. State whether following statements are **True** or **False**.

   i) The World Wide Web permits users to access documents located at different sites, using hyperlinks.

   ii) EDIFACT is a fusion of American and Asian national standards.

   iii) Electronic Trading opportunities system is a major web service under UN Trade Point Development Centre Global Reach Programme.

   iv) Commerce Net consortium is a profit making organisation.

   v) The Internet and the Web are practically unregulated.

20.12 LET US SUM UP

The potential for international trade using electronic channels in the wake of the explosive growth of the Internet with its Web component has drawn the attention of both the developing and developed nations. UNCTAD realizes that poverty alleviation can be achieved through economic growth. Electronic commerce creates new opportunities for the developing nations to active participation in international trade.

Information is the key to trade efficiency. UNCTAD has developed far reaching plans to implement an initiative for global information infrastructure through a structured world network of Trade Points. As these plans take shape, businesses all over the world will have access to accurate and timely information on all trade-related activities and services. It will provide an impetus to the growth of new markets. Avoidance of production and delivery delays, and cost savings through efficient information management will enable businesses to operate more efficiently .

Developing nations have an opportunity to participate in electronic commerce individually and as a consortium. It is also a rare opportunity to catch up with the developed nations as most of them have just started building their infrastructure for electronic commerce. The information technology infrastructure is a shareable resource. Planning jointly for the region and coordinating with UN agencies.

20.13 KEY WORDS

America Online: A popular Internet access service provider.

Browser: A client software on the Web.

CD-ROM: Compact disc, read only memory : a form of high capacity storage.

CommerceNet: A US non-profit organization set up to promote electronic commerce using an Internet-based infrastructure.

CompuServe: A popular Internet access service provider.

Cryptography: The subject of developing methods and tools for encrypting and decrypting messages.

D&B: Dun & Bradsheet, a commercial organization providing commercial database services and business consulting services.

Decryption: For reconverting encrypted messages into their original form.

Digital Signature: Used by trading partners for authenticating electronic documents in business transactions.

EC: Electronic Commerce - uses a combination of computer and communications technologies for business transactions.

ECRC: The Electronic Commerce Resource Centre Programme to promote awareness and implementation of electronic commerce and related technologies.

EDI: Electronic Data Interchange - an interorganizational computer-to-computer exchange of structured information standard, machine-processable format.

Electronic Marketplace: A virtual marketplace where business transactions between the customers and companies take place through electronic channels.

E-Mail: Electronic mail essentially through computer networks.

Encryption: Used to convert message for transmission into intelligible documents for securing the information in those documents.

FTP: File Transfer Protocol, which allows users to move files between hosts on the Internet.

Gateway: A computer system that facilitates transfer of data between normally incompatible networks or applications.

GII: Global Information Infrastructure, a highly advanced technological environment capable of all types of information exchange.

Gopher: Distributed information system which presents to the user in the form of hierarchical menus.

HTML: Hypertext Markup Language in which the Web documents are written.

Hyperlink: A click and point access provider in Web documents.

Hypermedia: A combination of hypertext and multimedia.

Hypertext: Documents that contain hyperlinks to other hypertext documents.

Internet: The worldwide network of networks facilitating several information services for network users.

Internetworking: Interconnecting networks through gateways.

Jughead: A tool to search for information on Gopher servers.

Mosaic: A Web browser software that supports hypermedia.

Multimedia: Documents that hold combinations of different kinds of data such as text, audio, video and graphics.

Netscape: A popular Web client software.

Teleworking: Carrying out officially assigned duties through electronic channels from any computer on any network.

Telnet: A terminal emulation protocol that allows you to log in to other computer systems on the Internet.

UN/EDIFACT: United Nations Electronic Data Interchange for Administration, Commerce and Transport.

URL: Uniform resource locator - the addressing method used with the hypertext.

Veronica: A service that allows you to search all Gopher sites for menu items.

World Wide Web (WWW): A hypertext, distributed system developed at CERN.

20.14 ANSWERS TO CHECK YOUR PROGRESS

B 4 i) True ii) False iii) False iv) True v) False

C 5 i) True ii) False iii) True iv) False v) True

20.15 TERMINAL QUESTIONS

1. What are the principal functions of Internet? Are they similar to a VAN?
2. Describe at least four basic tools used on the Internet? How these tools are important for International Business?
3. Why are EDI standards so important and why one standard cannot serve across industries?
4. Why are people putting so much of information on the Internet, information that they are not likely to ever receive payment for from readers? Is this behaviour strange from an economic standpoint?
5. What is web browser? How have browsers contributed to the growth of the WWW?
6. Highlight the legal implications associated with the electronic commerce? How one can overcome these implications?
7. What are the objectives of Trade Point Programme of U.N?

SOME USEFUL BOOKS

Anant K. Sundaram and J. Stewart Black, *The International Business Environment—Text and Cases*, Prentice Hall of India (Recent Edition), New Delhi.

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