# E-Commerce Technology For Sustainable Solutions

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*Abstract:* **Electronic Commerce is the Modern Business Methodology :-To improve quality/services/speed of delivery; more commonly associated with buying and selling of information, products and services via computer networks today; Latest and dependable way to deliver electronic transactions by computer to computer communication combined with (JIT) ; Just in time manufacturing methods; EDI and email used for many years. e-commerce is a transaction of buying or selling online. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems.**

*Key words :* **EDI; Mobile Commerce; Internet Marketing;**

## INTRODUCTION

Electronic Commerce is the Modern Business Methodology :-To improve quality/services/speed of delivery; more commonly associated with buying and selling of information, products and services via computer networks today; EDI – Electronic Data Interchange; Latest and dependable way to deliver electronic transactions by computer to computer communication combined with (JIT) ; Just in time manufacturing methods; EDI and email used for many years. e-commerce is a transaction of buying or selling online. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle although it may also use other technologies such as e-mail.

## INFORMATION PROCESSING ACTIVITY

It is in the form of transactions as follows:- transport between computer and consumer over public networks; home shopping; banking for security and electronic cash/ credit etc; trading partners; market research; managerial decision making; organization problem solving; operations and supply chain management and interaction advertising / sales / marketing. To-day Internet Super highway ( I – way) is possible to transform information transport technology for e-commerce applications.

### Global Information , Long-Distance N/W

It is Available via coaxial or fiber cable, Owned by interexchange carrier ( IxCs) with the following facilities :-International transmission likely; Eg. Current large scale capacity of fiber optic connections between USA and Europe ( TAT-8) to operate at gigabit rate ;Services provided by At & T, MCI, Sprint, wiltel etc.; There are over 475 smaller carriers; ; Uniform speed / efficiency / levels of technology / cost of telecom services for voice and data services; AT & T has a good presence inwireless market as well as local access to customers

### Satellite Network

It is Initially used to transport long distance telecommunications and one way video broadcasts. Fiber optics changed the role of satellites in global communication industry. Fiber optics is the choice since it provides higher bandwidth than satellites. Also the following are valid :-Satellite – accessible from any spot on the globe. ; Can provide broad band digital services including voice and data & video.;Over 150 communication satellites are providing wide range of services; Geosyn chronous orbit ( GEO)satellites are placed in a high circular orbit 22,300 miles above equator; GEO satellites rotate with earth and appear to be stationary; Used to broadcast a wide beam to ensure the wide area coverage; Mortorola's / Microsoft & Mcaw cellular- provide basic infrastructure to beam data / voice practically anywhere in the world; Next VSAT ( very small aperture terminal) satellite uses small ground antennas to provide low data rate point to point N/W services . Day by day this is increasing for retail markets.

### I-Way

E-commerce applications are dependent on I-way. In the case of cable TV , two-way interactive applications are not possible. Whereas in I-way, small business information of publishing using tools like www ( world wide web) are possible. Possibilities are mentioned below: - Publish information by set-up of on-line servers; Consumers / end-users or business paying for information on products / services; Information services for commercial / govy./pvt. For goods / services; Value-added information providing etc.;

Components of the information super I-way infrastructure

Network access equipment : consumer / business premises equipments

Local on ramps : Telecom based infrastructure, cable TV based infrastructure, wireless infrastructure, commercial on-line infrastructure

Global Information distribution – N/W : Backbone communications & satellite N/W

### Networks Making Up The Internet

Business internet provides accepted TCP/IP as the standard protocol on their own Networks thus, allowing smooth linkage with the Academic Internet.

### DOMAIN SERVICES / WEB SERVICE PROTOCOLS

- Client Browser

- WWW server Functions

- Third-party Services

  o Digital Library of document / Data Server

  o Third party information processing tools/ services

  o Electronic payment servers Essential concepts in Web

URL : Uniform resource locator (Address Scheme)

HTTP: Network Protocol – Hyper text transfer protocol

HTML: Mark-up Language representing hypertext documents containing list boxes graphics.

**Internet Application And Utility Programs**

Today ATM interface is an integral part of bank's communications and market strategy.

**ATM Network**

ENTERTAINMENT:- Movies On Demand, Video Cataloging, Interactive Ads, Multi-User Games, Online-Discussion

FINANCIAL SERVICES:-Home Banking, Financial Services, Financial News

ESSENTIAL SERVICES:- Home shopping, electronic catalogs, Telemedicine, remote diagnostics

EDUCATION AND TRAINING:- Interactive education, multi-user games, Video conferencing on-line databases

**Information based marketing :** marketing research and customer prospecting; marketing presence; product or services bundling; pricing and priority; target and micro marketing; advertising on internet; online advertising; bill board and or www model ( without active search)

**Interactive marketing process on Internet:** Step 1: segment to identify potential customers; **Step 2: Create promotional/ advertising / educational material;** (www- page with multimedia effects); Step 3: Put the material on customers computer screen; Push – based marketing - user groups, email; Pull – based marketing - www pages; Step 4: Interacting with customers Dialogue with customer questions/ Answers; Step 5: Leaning from customers Incorporating feed back Identify new markets; Step 6: On-line customer service

**Market Research:** Data Collection; Data organization; Data Analysis and sense making

**Real World Payment Systems**

1985 – Electronic Data Interchange ( EDI) extensively used in bank to bank payment systems

1994 – Digital cash trials by Digicash of Holland conducted online

1995 – Mondex electronic currency trials begin in Swindon, England

EFT – ( Electronics Fund Transfer) Banking and Financial systems

Examples : bank to bank transfer; auto Teller machines; home banking

Retailing payments :Examples: Credit cards

Online electronic commerce payments: Examples:

Digi cash; Net cheque; Smart cards / debit cards

**Digital Token-Based Electronic Payment System**

Electronic token 3 types : Cash or real time, Debit or prepaid, Credit or post paid

E-Cash: Means a new concept of on-line payment system

Properties of E-cash: Monetary value, interoperatibility, retrievability, security

**Infrastructure - On-Line Credit Card Processing**

Regional electronic fund transfer ( EFT) networks; Credit card Association; Equipment vendors; Data processors; Software developers; Bill payment companies; Telecommunication providers

Risks and Electronic payment system: **Fraud or mistake; Privacy issues; Credit Risk**

**Digital Payment System**

Cyber Cash Uses digital payment mechanism; Uses modern cryptographic technologies; Includes public

and private key encryption; Uses digital signature; Implemented thro' special client and server software; Installing and configuring a merchant's 'WWW SERVER' to accept cyber cash payments is more complicated.

**"First Virtual "**

Using different assumptions about the state of information over the internet; Offers a method of buying and selling information products over the internet; First Virtual allows information merchants the opportunity to offer their information for a fair price; First Virtual is for buying and selling information only; It is not to be used for selling products or services; It can be used for subscriptions, membership and charitable contribution; First Virtual is not using encryption or digital signatures; First Virtual payment system can be implemented by sellers or www servers, on file transfer (ftp) servers and even in e-mail. First Virtual Internet payment system : Fundamental Assumption :Electronic information merchants can produce as many or as few copies of any information; Information buyers, like buyers of any other product need some way to examine products before they buy; Buying and selling should be simple and have as low as entry cost in time, money and effort as possible. **Opening a first virtual A/c :** Contain a Format: Full Name, e-mail, ph#, address, postal code , state etc.. **First Information Process :** Customer attempts to download information; Merchant has the option to verify the A/c.; Offered information will be sent to buyer directly form merchants server; Merchants server sends e-mail detailing buyer & Seller ID, time purchased & price; First virtual sends e-mail to customer whether he/she wants to pay for this item; If 'Yes' some attention (similar to e-mail A/c opening time some virtual agreement taken); Then confirm transaction.

**Cyber Cash**

To process credit card transaction, one must establish merchant Account with a bank offering cyber cash :Cyber cash client software is available from several sources including cyber cash's website; When customer completes a purchase, click cyber cash PAY button, then merchant receives information about this customer's order; The encrypted data includes customer's payment information; Merchant's cyber cash forwards the encrypted message to cyber cash; Once cyber cash receives the encrypted payment message, then cyber cash determines credit card – based or cyber coin transaction; When cyber cash is credit card based, then cyber cash forwards the message to merchant's designated bank or credit card processor; Then the acceptance or rejection takes place in 20 sec.; With cyber coin, electronic wallet essentially holds

digital money transfer is US$20 increments; Cyber coin money is placed into A/C at cyber cash and during transaction, money is pulled from wallet and sent to merchant's cyber coin wallet; The Cyber cash merchant server must be properly setup before any cyber cash transactions; Tests are to be conducted before accepting cyber cash

**Running First Time S/W For Cyber Cash**

New Wallet Screen; Summary Screen; Key generation screen; New Wallet Confirmation; Back up screen; Add credit card screen; Name credit card screen; Credit card billing information screen; Credit card number entry screen; Credit card wizard screen 1; Credit card wizard screen 2; Credit card wizard screen 3; Credit card wizard screen 4; Cyber cash client application administration panel; Cyber cash client application– transaction log; Cyber cash payment request summary; Transaction authorization notification screen

## NETWORK SECURITY & FIREWALLS

Two Broad Types : Client –Server Security, Data and Transaction Security

Client –Server Security uses Various Authorization; Only Valid users / programs have access to information like databases; Properly authenticated users are allowed access; Includes Password protection , encrypted smart cards, biometrics & Firewalls.

Data & transmission Security ensures Privacy; Ensures confidentiality in Electronic messages / Data Pkts; Authentication of remote users of on-line payment; Data encryption using Cryptographic methods as preventive measures

**Types of holes in Client-Server Network Security**: Physical Security holes; Software Security holes; Inconsistent usage holes. Physical Security holes: Examples:Public workstation so that any hacker can temper the first data; On the Network , guess passwords. Software Security holes: Badly written programs like "send mail" hole during 1988; Recently in IBM CRS – 6000 workstations, a "root" shell with highest level of access was possible & could be used to delete the entire file system. Inconsistent usage holes: When system administrator assembles a combination of Hardware & software such that seriously flawed from security point of view: This is common when software is more complex. Trust-based Security: Trust everyone & do nothing extra far protection. Security Through obscurity (STO); Any Network is secured so far as nobody outside its management group is allowed to find out anything about its operational details. This is quite successful in system like IBM MVS or DEC VAX. Password Schemes:- First level barrier to accidental intrusion.

Biometric System: Most secure level of authorization involving some unique aspect of a person's body. Past biometric authentication was based on comparison of finger prints, palm prints or signature verification. Many biometric devices are costly.

### Threats To Network Security

Security threat that is emerging in Electronic Commerce world is mobile code (Software Agent) which resembles like traditional virus threat ;It is executable program with ability to move from machine to machine; Invoke itself without external influence; These threats of 2 kinds: Threat to local computing environment from mobile software; Access control and threats to servers including denial of service, packet replay and packet modification

### Software Agents And Malicious Code Threat

These threats arise from malicious data or code, refers to viruses, worms, Trojan horses, logic bombs and other deviant Software programs. Virus: A Code segment then replicates by attaching copies of itself to existing EXE files. The new copy of virus is executed when user executes the host program. Trojan Horse : A program that performs a desired task but also includes unexpected and undesirable function. When editing program for a multi-user systems, could lead to deleting some user's files too. Worm: A self-replicating program that is self-contained and does not require a host program. Worms commonly utilize network services to propagate to other host systems . Threats To Servers: These threats consist of Unauthorized modification of server data; Modification of incoming data pkts.; Compromise of a server system by exploiting bugs in server software; Compared to stand-alone systems, network servers are much more susceptible to attacks. Example: Hackers have potential access to a large # of systems. This lead to security holes; Hackers can use popular UNIX programs like Finger, rsh, to discover A/C name, try to guess simple password etc and then have illegal entry; Hackers can trap user names and unencrypted password sent over internet; Hackers can configure a system to masquerade as another system, thus gaining unauthorized access; Servers are especially vulnerable to service over loading by writing a small loop, then sends requests continuously for a particular file; Message over loading occurs when somebody sends a very large file, every few minutes

### Public Key Cryptography

More powerful form of cryptography that involves the use of public keys ; It involves a pair of keys, a private key and a public key associated with each other; Information encrypted by private key can be decrypted only using the corresponding public key; The private key used to encrypt transmitted information by the user is kept secret; The public key is used to decrypt information at the receiver and is not kept secret; Since only the bonafide author of an encryption message has knowledge of the private key, successful decryption using the corresponding public key verifies the identify of the author and ensures message integrity; Public keys can be maintained in some central repository and retrieved to decode or encode information; No one can figure out the private key from the corresponding public key; Further public key cryptography can be used for sender authentication known as digital signatures

### Secured Electronic Transmission

It Involves Data Security, Message Security, Message confidentiality, Message and system integrity, Message sender authentication / identification, Encryption as basis for Data and message security, Data Encryption standard (DES), Public key cryptography. Network Security Solution involves Security and Web, Categories of internet Data and transaction, WWW – Based security schemes, Basic authentication features, Secure Sockets Layer (SSL), Secure Hypertext Transfer Protocol (S-HTTP), Security and Web : It is a high profile problem; Day by day # of applications forwards commerce; Many Client – Server authentication need Server authentication, Privacy using encryption, Data integrity ; Categories of internet data & Transaction : Several categories of data must be encrypted; Public data have no security restriction; Copyright data have content that is copyrighted but not secret; Confidential data is secret; Secret data's existence is secret. WWW-Based Security Schemes : Secure HTTP (S-HTTP) is a revision of HTTP , enabling the incorporation of various cryptographic message formats, most of security take place at the protocol level; Security Socket Layer (SSL) uses RSA security to wrap security information around TCP /IP based protocols.

### Web Security Layers

| Electronic Commerce Application |
| --- |
| S-HTTP |
| TCP –Based application protocol |
| SSL |
| Internet protocol (IP) |

Firewall – is the barrier between the corporate Network and the outside world (untrusted network). It is a method of placing a device, a computer or a router between the network and the internet. It is to control and monitor all traffic between the outside world and the local network. Typically the device allows insiders to have full access to service on the outside world while granting access from the outside only selectively, based on log on name, password, IP address or other identifiers .

### EDI: Legal, Security And Privacy Issues

Under US contract law, there are three modes of communication: Instantaneous: IF the parties use face to face communication like telephone, an offer or acceptance is deemed communicated and operable when spoken; Delayed (USPS) (US posted service)The mailbox rule provides that an acceptance communicated via USPS mail is effectively communicated when dispatched or physically deposited in a USPS mailbox ;Delay (Non USPS)Offers an acceptance transmitted (other then through USPS mail) via telegram, mailgram and probably electronic managing system are deemed communicated and operable upon receipt. Couriers fell within this category. The legal disparity between USPS and non – USPS service requires re-examination as the differences no longer there. Messaging systems combine both instantaneous and delayed communication. A message delay is a function of specific application, message routing, Networks traversed, system configuration and other technical factors. So who assumes liability? If US mail or an overnight express does not deliver a contract to the right addresses, then it can be held responsible for any business loss caused by the error. In the case of EDI, court has NOT decided yet. The US government will support the legal authority of digital signature will meet the requirements of legally binding signatures for most purposes. If a contract is signed with digital signature one can early verity that no one byte is altered. Thus, legal consideration of digital notarizing and binding strength of EDI is a topic deserving of prompt, quantified and intense attention.

### EDI , E-Commerce Standard

Two major EDI standards are ANSI : American National Standards Institute X.12 committee; United Nations EDI for Administrations, commerce and trade ( EDIFACT) standards for international usage. ANSI X.12 : Accredited Standard committee in 1979 to R & D Standard For business documents; X.12 committed set standard for EDI related business transactions like order placement and processing, shipping and receiving , invoicing, payments, cash applications processing for products and services; Sets generally map a traditional paper document to electronic format to move over telecommunication N/W; Each transaction format includes many data segments. EDIFACT : Developed by united Nations; Similar to ANSI X.12 ; Based on TRADECOMS developed by UK; Department of customs and excise with assistance of SITPRO ( British simplifications of Trade proceedings board); Further developed by United Nations economic commission for Europe; Widely accepted by EDI std.; Today EDIFACT and ANSI are working towards compatibility.

## INTERNAL INFORMATION SYSTEM

Information begins with corporate data; Corporate data deals with building blocks; Building blocks form the information and knowledge that underlie the operations of all enterprises regardless of industry, size or county; Corporate information is created, managed and stored in many forms and places; Its value is contingent on the ability of workers to access, manipulate, change and distribute it. How information systems benefit their companies? The following systems are well- known to build competitive advantage and enhance effectiveness : SABRE – American's Airline's reservation system; COSMOS – Federal's Express customer system tracks every package in the network through hand-held computers; American Hospital system's ASAP order entry and inventory control system; ECOWOMOST – the pharma system by placing terminals in drug stores etc.; USAA – United Service Automobile Association used its automated insurance environment. In all these cases a proprietary infrastructure was put in place first and then the organization went beyond the technology to view the management of 'infrastructure' itself as an asset to gain competitive advantage.

### Information Architecture

This enables cross - functional systems and better information utilization ; Cross – Functional system deals with Integrating the enterprise with information flowing from one business to another; Cross functional integration has shifted from monolithic mainframes toward client – server system connecting corporation Databases, workers and tasks via network information; We can see this concept in supply chain management.

### Information Not Data

The focus today is based on corporation information. While the information system and applications may have to change periodically, the information has a longevity of 10 – 25 years : Companies are attempting on information architects

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rather than system builders; Information architecture is based on the wide spread adoption of standards and protocols in Hardware, software & telecommunication; Technology is changing faster; Price – performance ratio for computers have improved exponentially. For Example in 2 years, Intel's 486 evolved from 25 MHz, to 33 MHz, to 66 MHz etc.; In short we are at the major shift; The way we design the Information systems is the revolutionary change in business environment.

**Macro Forces & Internal Commerce :** Macro Forces affecting Organization are as follows: An increasing competitive global market – place;

Shrinking middle management function; Changing customer demands and preferences; Pressure to reduce expenses

**Buzzwords For Efficient Management :** Total quantity management; Business process improvement or business process re-engineering; Confusion on re-engineering with downsizing; Both functions are different ; Re-engineering results in more work, productivity improves or profits increases; Down sizing (or corporation restructuring) reduces the work force or personnel cost reduction; Re-engineering often uses automation to reduce work load to increase quantity and efficiency; Re-engineering may not lead to downsizing.

**Global Markets :** 'International' typically means that a company has an office in foreign country; Global goes beyond that to autonomy and decentralization of operations; Global markets are not new to MNC which by definition does a substantial portion of its business in countries other than its home country; How must businesses adjust their administration and information management systems to operate successfully through out the world? What is the role of information super highway in the global market place?

**Vertical Organization**

The vertical approach to corporate management poses two problems to smooth operations.; First it creates boundaries that discourage employees in different departments from interacting with others; Second, department goals are set such that friction is caused many departments; For example, goals are set to maximize sales only and pay little attention to account collection or service delivery; If service or quality of products are not good, it does not matter for sales, since it meets its goal of target sales; A lot of gaps (Communication) are formed between employees; Finally, three key ingredients, namely, product, process and customer are missing; A major drawback is its failure in understanding and co-operation between departments.

**Horizontal Organization**

Principal goal is to facilitate the smooth transition of intermediate products and services through its various functions to customer; The object is proper co-ordination, improving flow management, work quality and increasing value for customers; Even through the objects are good on paper, they are vague and elusive during implementation, since every group has difference goals.

## ELECTRONIC BROKERAGES IN INTERNAL MARKETS

In Chicago and San Francisco, a company "Peapod" is delivering groceries / liquor / prescriptions etc to more than 10,000 households. Using a PC, shoppers can browse and types in an order. Then peapod employee takes a wagon to pick up supplies and delivers them in 3 hours.

### WORK – FLOW AUTOMATION

It offers the following :- More timely; Cost-effective; Interpreted ways to make decision; Work flow portrays the movement of a business process and its associated tasks among workers and operation required from initial stage to completion; Typically work flows are decomposed into steps or tasks with which should be done first, second and so on; Another way of looking at work- flow is to find out the amount of cross functional activity; Clearly it is time that companies must adopt an integrated process view of all business elements. Organization integration is complex with 3 steps: Improve existing processes by using technology where appropriate; Integrating across the business functions with information needs for each process; Integrity business function, application programs and databases across departments and groups; The ultimate goal is to ensure that all departments and end users have access to organization-wide data rather than relying on proprietary data.

**Work-Flow Co-Ordination**

The Key element of a market-driven business is the co-ordination of tasks and other resources; Simplest work-flow co-ordination tools to understand and implement are electronic forms like lotus notes; These packages offer a network based, automated alternative to paper documents; As the number of parties in the workflow increases, good co-ordination is necessary; To have butter work flow co-ordination companies are using software agents; A good work flow package lets users specify acceptance criteria for moving work from one stage to the next; It can also coordinate existing software and track processes to make sure the work gets done by right people.

## Customization And Internal Commerce

Customization qualities are Technology embodies adaptability, Programmability, Flexibility and Others. Customer driven customization is becoming important because of too much of choice. Work all markets are well suited for the application of customization . Most of the written material and thinking about customization has neglected technology. Customization is also becoming in service industries, like banks, retail outlets, hospitals etc.

### TIMELINE FOR THE DEVELOPMENT

**During 1971 - 80**

- 1971 Or 1972: The Arpanet Is Used To Arrange A Cannabis Sale Between Students At The Stanford Artificial Intelligence Laboratory And The Massachusetts Institute Of Technology, Later Described As "The Seminal Act Of E-Commerce" In John Markoff's Book What The Dormouse Said.

- 1979: Michael Aldrich Demonstrates The First Online Shopping System.

**During 1981 - 90**

- 1981: Thomson Holidays UK is the first business-to-business online shopping system to be installed.

- 1982: Minitel was introduced nationwide in France by France Télécom and used for online ordering.

- 1983: California State Assembly holds first hearing on "electronic commerce" in Volcano, California. Testifying are CPUC, MCI Mail, Prodigy, CompuServe, Volcano Telephone, and Pacific Telesis. (Not permitted to testify is Quantum Technology, later to become AOL.)

- 1984: Gateshead SIS/Tesco is first B2C online shopping system and Mrs Snowball, 72, is the first online home shopper

- 1984: In April 1984, CompuServe launches the Electronic Mall in the USA and Canada.

  It is the first comprehensive electronic commerce service.

- 1989: In May 1989, Sequoia Data Corp. Introduced Compumarket The first internet based system for e-commerce. Sellers and buyers could post items for sale and buyers could search the database and make purchases with a credit card.

- 1990: Tim Berners-Lee Writes The First Web Browser, Worldwideweb, Using A Next Computer.

**During 1991 - 2000**

- 1992: Book Stacks Unlimited In Cleveland Opens A Commercial Sales Website (Www.Books.Com) Selling Books Online With Credit Card Processing.

- 1993: Paget Press Releases Edition No. 3 Of The First App Store, The Electronic Appwrapper

- 1994: Netscape Releases The Navigator Browser In October Under The Code Name Mozilla. Netscape 1.0 Is Introduced In Late 1994 With Ssl Encryption That Made Transactions Secure.

- 1994: Ipswitch Imail Server Becomes The First Software Available Online For Sale And Immediate Download Via A Partnership Between Ipswitch, Inc. And Openmarket.

- 1994: "Ten Summoner's Tales" By Sting Becomes The First Secure Online Purchase Through Netmarket.

- 1995: The Us National Science Foundation Lifts Its Former Strict Prohibition Of Commercial Enterprise On The Internet.

- 1995: Thursday 27 April 1995, The Purchase Of A Book By Paul Stanfield, Product Manager For Compuserve Uk, From W H Smith's Shop Within Compuserve's Uk Shopping Centre Is The Uk's First National Online Shopping Service Secure Transaction.

- 1995: Jeff Bezos Launches Amazon.Com And The First Commercial-Free 24-Hour, Internet-Only Radio Stations, Radio Hk And Netradio Start Broadcasting. Ebay Is Founded By Computer Programmer Pierre Omidyar As Auctionweb.

- 1996: Indiamart B2b Marketplace Established In India.

- 1996: Ecplaza B2b Marketplace Established In Korea.

- 1996: The Use Of Excalibur Bbs With Replicated "Storefronts" Was An Early

- Implementation Of Electronic Commerce Started By A Group Of Sysops In Australia And Replicated To Global Partner Sites.

- 1998: Electronic Postal Stamps Can Be Purchased And Downloaded For Printing From The Web.

- 1999: Alibaba Group Is Established In China. Business.Com Sold For Us $7.5 Million To Ecompanies, Which Was Purchased In 1997 For Us $149,000. The Peer-To-Peer Filesharing Software Napster Launches. Atg Stores Launches To Sell Decorative Items For The Home Online.

- 2000: Complete Idiot's Guide To E-Commerce Released On Amazon

- 2000: The Dot-Com Bust.

**During 2001 - 2010**

- 2001: Alibaba.Com Achieved Profitability In December 2001.

- 2002: Ebay Acquires Paypal For $1.5 Billion. Niche Retail Companies Wayfair And Netshops Are Founded With The Concept Of Selling Products Through Several Targeted Domains, Rather Than A Central Portal.

- 2003: Amazon.Com Posts First Yearly Profit.

- 2003: Bossgoo B2b Marketplace Established In China.

- 2004: Dhgate.Com, China's First Online B2b Transaction Platform, Is Established, Forcing Other B2b Sites To Move Away From The "Yellow Pages" Model.

- 2007: Business.Com Acquired By R.H. Donnelley For $345 Million.

- 2009: Zappos.Com Acquired By Amazon.Com For $928 Million. Retail Convergence, Operator Of Private Sale Website Ruelala.Com, Acquired By Gsi Commerce For $180 Million, Plus Up To

- $170 Million In Earn-Out Payments Based On Performance Through 2012.

- 2010: Groupon Reportedly Rejects A $6 Billion Offer From Google. Instead, The Group Buying Websites Went Ahead With An Ipo On 4 November 2011. It Was The Largest Ipo Since Google.

**During 2011 - 2015**

- 2012: Zalora Group Was Founded And Started Operations Around Asia.

- 2014: Overstock.Com Processes Over $1 Million In Bitcoin Sales. India's E-Commerce Industry Is Estimated To Have Grown More Than 30% From 2012 To $12.6 Billion In 2013. Us E-Commerce And Online Retail Sales Projected To Reach $294 Billion, An Increase Of 12 Percent Over 2013 And 9% Of All Retail Sales. Alibaba Group Has The Largest Initial Public Offering Ever, Worth $25 Billion.

- 2015: Amazon.Com Accounts For More Than Half Of All E-Commerce Growth, Selling Almost 500 Million Sku's In The Us.

### GOVERNMENTAL REGULATION

**In The United States**

Certain electronic commerce activities are regulated by the Federal Trade Commission (FTC). These activities include but not limit to the use of commercial e-mails, online advertising and consumer privacy. The CAN-SPAM Act of 2003 establishes national standards for direct marketing over e-mail. The Federal Trade Commission Act regulates all forms of advertising, including online advertising, and states that advertising must be truthful and non-deceptive. Using its authority under Section 5 of the FTC Act, which prohibits unfair or deceptive practices, the FTC has brought a number of cases to enforce the promises in corporate privacy statements, including promises about the security of consumers' personal information. As a result, any corporate privacy policy related to e-commerce activity may be subject to enforcement by the FTC. **Internationally** there is the International Consumer Protection and Enforcement Network (ICPEN), which was formed in 1991 from an informal network of government customer fair trade organisations. The purpose was stated as being to find ways of co-operating on tackling consumer problems connected with cross-border transactions in both goods and services, and to help ensure exchanges of information among the participants for mutual benefit and understanding. From this came Econsumer.gov, an ICPEN

initiative since April 2001. It is a portal to report complaints about online and related transactions with foreign companies. There is also **Asia Pacific Economic Cooperation** (APEC) was established in 1989 with the vision of achieving stability, security and prosperity for the region through free and open trade and investment. APEC has an Electronic Commerce Steering Group as well as working on common privacy regulations throughout the APEC region.

### In Australia

Trade is covered under Australian Treasury Guidelines for electronic commerce, and the Australian Competition and Consumer Commission regulates and offers advice on how to deal with businesses online, and offers specific advice on what happens if things go wrong.

### In The United Kingdom

The Financial Services Authority (FSA) was formerly the regulating authority for most aspects of the EU's Payment Services Directive (PSD), until its replacement in 2013 by the Prudential Regulation Authority and the Financial Conduct Authority. The UK implemented the PSD through the Payment Services Regulations 2009 (PSRs), which came into effect on 1 November 2009. The PSR affects firms providing payment services and their customers. These firms include banks, non-bank credit card issuers and non-bank merchant acquirers, e-money issuers, etc. The PSRs created a new class of regulated firms known as payment institutions (PIs), who are subject to prudential requirements. Article 87 of the PSD requires the European Commission to report on the implementation and impact of the PSD by 1 November 2012.

### In India

The Information Technology Act 2000 Governs The Basic Applicability Of E-Commerce.

### In China

Telecommunications Regulations of the People's Republic of China (promulgated on 25 September 2000), stipulated the Ministry of Industry and Information Technology (MIIT) as the government department regulating all telecommunications related activities, including electronic commerce. On the same day, The Administrative Measures on Internet Information Services released, is the first administrative regulation to address profit-generating activities conducted through the Internet, and lay the foundation for future regulations governing e-commerce in China. On 28 August 2004, the eleventh session of the tenth NPC Standing Committee adopted The Electronic Signature Law, which regulates data message, electronic signature authentication and legal liability issues. It is considered the first law in China's e-commerce legislation. It was a milestone in the course of improving China's electronic commerce legislation, and also marks the entering of China's rapid development stage for electronic commerce legislation.

## E-COMMERCE IMPACT

### Impact On Markets And Retailers

Economists have theorized that e-commerce ought to lead to intensified price competition, as it increases consumers' ability to gather information about products and prices.

### Social Impact

This reflects that the e- commerce has huge impact on the economy and society from the other side. For instance, B2B is a rapidly growing business in the world that leads to lower cost and then improves the economic efficiency and also bring along the growth of employment. e-commerce has changed the relative importance of time, but as the pillars of indicator of the country's economic state that the importance of time should not be ignored. e-commerce offers the consumer or enterprise various information they need, making information into total transparency, and enterprises are no longer is able to use the mode of space or advertisement to raise their competitive edge. Moreover, in theory, perfect competition between the consumer sovereignty and industry will maximize social welfare. In fact, during the economic activity in the past, large enterprises frequently had the advantage of information resources at the expense of consumers. Nowadays, the transparent and real-time information protects the rights of consumers, because the consumers can use the internet to pick out the portfolio to their own benefit. The competitiveness of enterprises will be much more obvious than before; consequently, social welfare would be improved by the development of e-commerce. The new economy led by e-commerce changes humanistic spirit as well, but above all, employee loyalty. Due to the market with competition, the employee's level of professionalism becomes crucial for enterprise in the niche market. The enterprises must pay attention to how to build up the enterprises inner culture and a set of interactive mechanisms and it is the prime problem for them. Furthermore, though the mode of e-commerce decreases the information cost and transaction cost, its development also makes human beings overly computer literate. Emphasizing a more humanistic attitude to work is another project for enterprise to development.

## CONCLUSIONS

E-commerce is not a new industry, technically speaking, but it is creating a new economic model. Most people agree that e-commerce will positively impact economic society in the future, but in its early stages its impacts are difficult to gauge. Some have noted that e-commerce is a sort of incorporeal revolution. e-commerce has numerous social benefits: one, the cost of running an e- commerce business is very low when compared with running a physical store; two, there is no rent to pay on expensive premises; and three, business processes are simplified and less man-hours are required to run a typical business smoothly. In the area of law, education, culture and also policy, e- commerce will continue to rise in impact. e- commerce will truly take human beings into the information society.

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