CSC-370
E - Commerce
(BSc CSIT, TU)

Ganesh Khatri
kh6ganesh@gmail.com

Module Structure

- Semester : VI

- Nature of the Course
  - Theory + Lab + Assignments

- Full Marks : 60 + 20 + 20

- Pass Marks : 24 + 8 + 8

- Credit Hours : 3

Introduction

- Electronic commerce (e-commerce) remains a relatively new, emerging and constantly changing area of business management and information technology.

- E-commerce is digitally enabled commercial transactions among organizations and individuals.

- Digitally enabled transactions include all transactions mediated by digital technology e.g. Internet

- Commercial transactions involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services

- Exchange of value is important for understanding the limits of e-commerce. Without an exchange of value, no commerce occurs

Introduction

- Some of the definitions of e-commerce often heard and found in publications and the media are:

  – Electronic Commerce (EC) is where business transactions take place via telecommunication networks, especially the Internet

  – Electronic commerce describes the buying and selling of products, services, and information via computer networks including the Internet.

  – Electronic commerce is about doing business electronically.

  – E-commerce is defined as the conduct of a financial transaction by electronic means
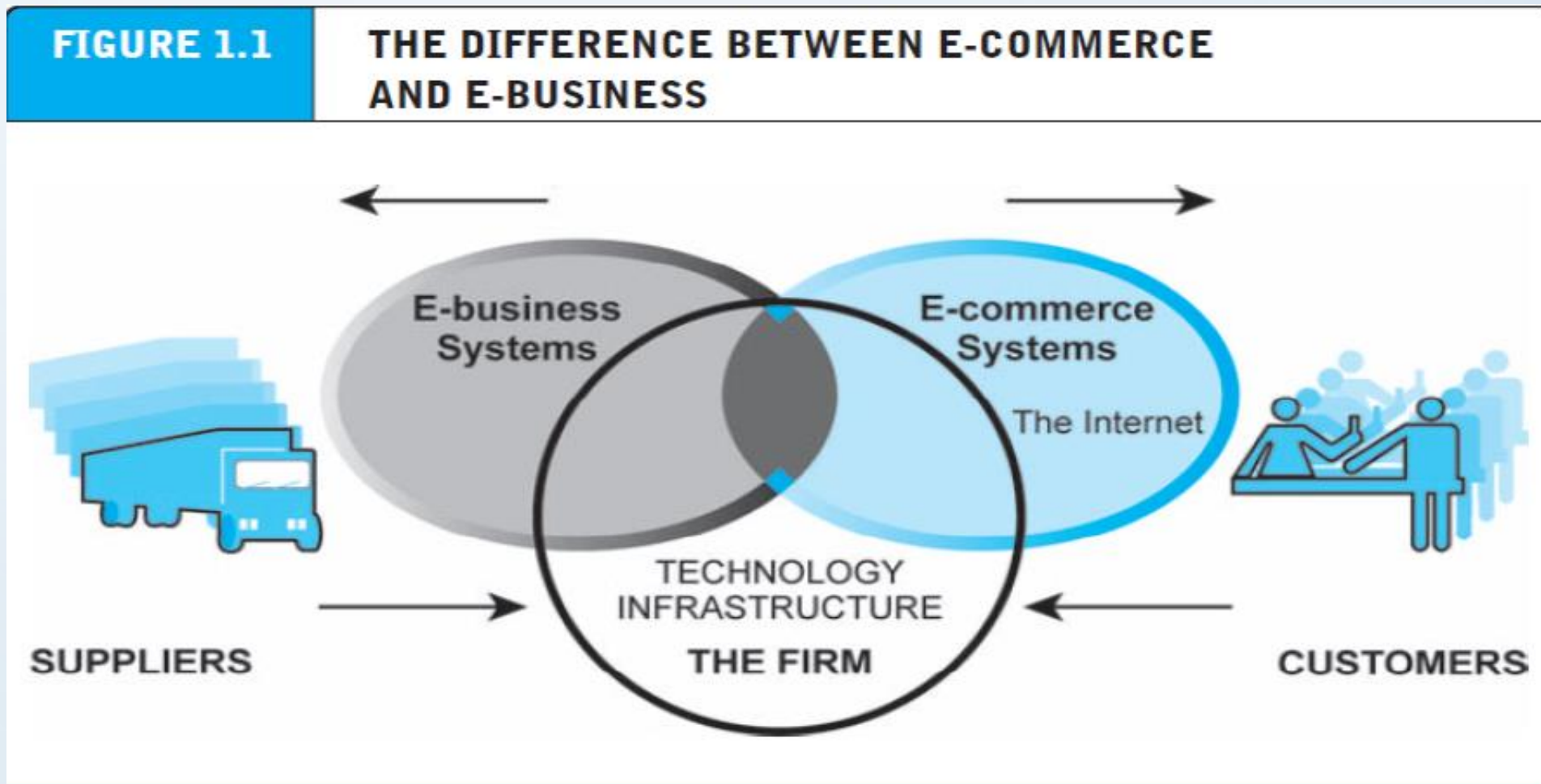
Difference between E-Commerce and E-Business

- **E-Business** refers to the digital enablement of transactions and processes within a firm, involving information systems under the control of the firm as shown in figure.

FIGURE 1.1 THE DIFFERENCE BETWEEN E-COMMERCE AND E-BUSINESS
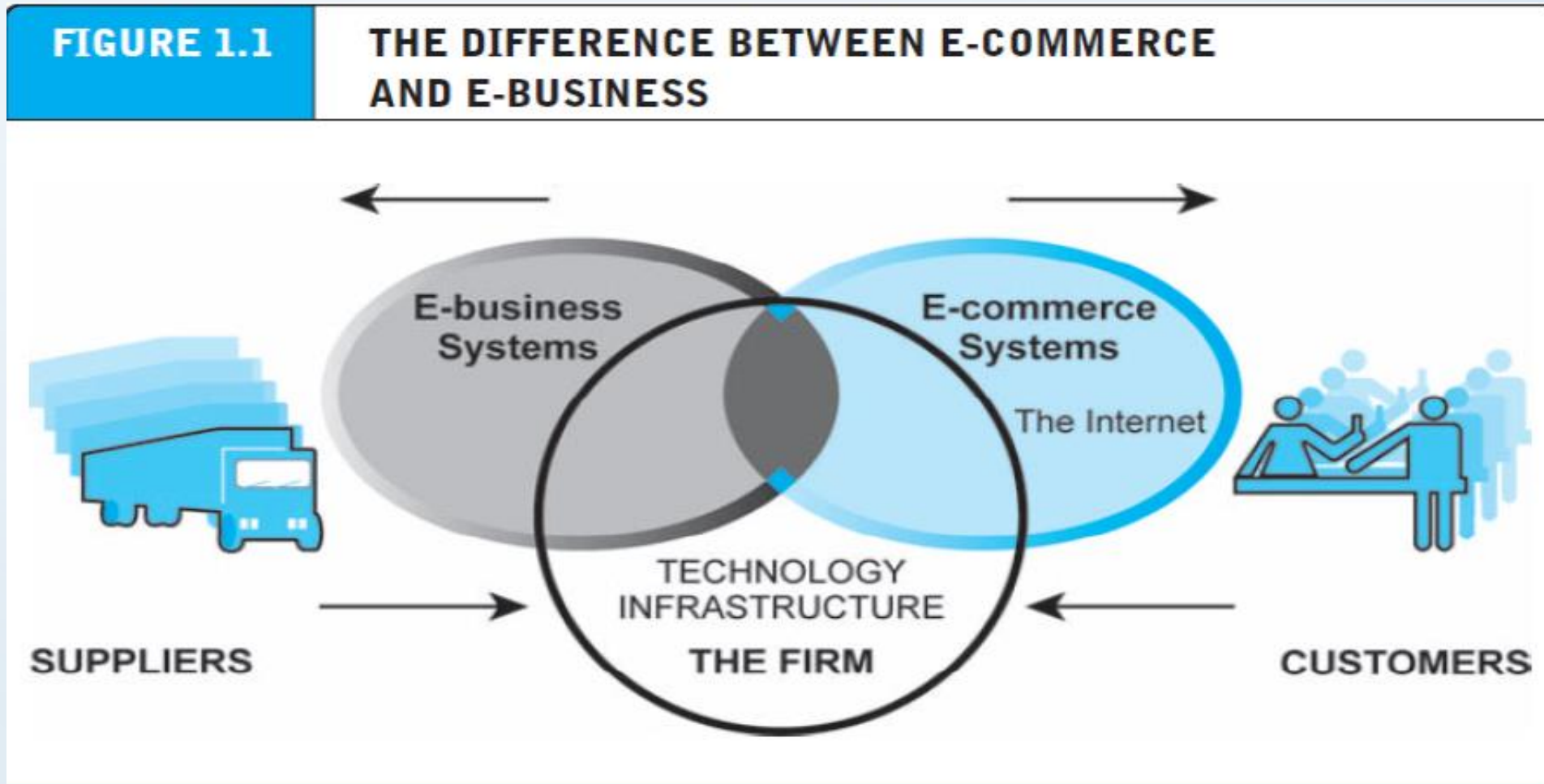
Difference between E-Commerce and E-Business

- **E-commerce** involves transactions that cross firm boundaries as shown in figure.

FIGURE 1.1 — THE DIFFERENCE BETWEEN E-COMMERCE AND E-BUSINESS

Difference between E-Commerce and E-Business

- **E-Business** does not include commercial transactions involving an exchange of value across organizational boundaries.

- For example, a company's online inventory control mechanisms are a component of **e-business**, but such internal processes do not directly generate revenue for the firm from outside businesses or consumers, as **e-commerce**, by definition, does.

- It is true, however, that a firm's **e-business** infrastructure provides support for online **e-commerce** exchanges; the same infrastructure and skill sets are involved in both **e-business** and **e-commerce**.

- **E-commerce** and **E-business** systems may blur together at the business firm boundary, at the point where internal business systems link up with suppliers or customers.

Benefits of E-Commerce

- The benefits of e-commerce can be seen to affect three major stakeholders: organizations, consumers and society

1. **Benefits of e-commerce to organizations**

   - **International marketplace :** Single physical marketplace located in a geographical area has now become a borderless marketplace including national and international markets. Businesses now have access to people all around the world

   - **Operational cost savings :** The cost of creating, processing, distributing, storing and retrieving paper-based information has decreased.

   - **Mass customization :** E-commerce has revolutionized the way consumers buy good and services. Organizations now customize their products according to the customers' need and feedbacks online.

   - **Lower telecommunications cost :** The Internet is much cheaper than value added networks (VANs) which were based on telephone lines for the use of organization. It is also cheaper to send a fax or e-mail via the Internet than phone calls.

Benefits of E-Commerce

1. **Benefits of e-commerce to organizations**

   - **Digitization of products and processes :** Particularly in the case of software and music/video products(digital products), which can be downloaded or e-mailed directly to customers via the Internet in digital or electronic format.

   - **No more 24-hour-time constraints :** Businesses can be contacted by or contact customers or suppliers at any time(online order and delivery)

Benefits of E-Commerce

2. Benefits of e-commerce to consumers

- **24/7 access :** Enables customers to shop or conduct other transactions 24 hours a day, all year round from almost any location. For example, checking balances, making payments, obtaining travel and other information.

- **More choices :** Customers not only have a whole range of products that they can choose from and customize, but also an international selection of suppliers

- **Price comparisons :** Customers can 'shop' around the world and conduct comparisons either directly by visiting different sites. (for example www.pricenepal.com for electronic products).

- **Improved delivery processes :** This can range from the immediate delivery of digitized or electronic goods such as software or audio-visual files by downloading via the Internet, to the on-line tracking of the progress of packages being delivered by mail or courier

- **An environment of competition :** where substantial discounts can be found or value added, as different retailers for customers.

Benefits of E-Commerce

2. Benefits of e-commerce to society

- **Enables more flexible working practices :** enhances the quality of life for a whole host of people in society, enabling them to work from home. It also potentially reduces environmental pollution as fewer people have to travel to work regularly(eg, Zoom)

- **Connects people :** Enables people in developing countries and rural areas to enjoy and access products, services, information and other people which otherwise would not be so easily available to them.

- **Facilitates delivery of public services :** For example, health services available over the Internet (on-line consultation with doctors or nurses), paying taxes, bills over the Internet.

Limitations of E-Commerce

- There was much hype surrounding the Internet and e-commerce over the last few years of the twentieth century

1. **Limitations of e-commerce to organizations**

   - **Lack of sufficient system security, reliability, standards and communication protocols :** There are numerous reports of websites and databases being hacked into, and security holes in software. For example, Several banking and other business websites and government websites, have experienced breaches in security where 'a technical oversight' or 'a fault in its systems' led to confidential client information becoming available to all

   - **Rapidly evolving and changing technology :** there is always a feeling of trying to 'catch up' and not be left behind. Customers and developers have to be updated with the software updates.

   - **Pressure to innovate and develop business models :** to exploit the new opportunities which sometimes leads to strategies detrimental to the organization

Limitations of E-Commerce

1. **Limitations of e-commerce to organizations**

    4. **Facing increased competition from both national and international competitors often leads to price wars and subsequent unsustainable losses for the organization**

    5. **Problems with compatibility of older and 'newer' technology**

Limitations of E-Commerce

2. Limitations of e-commerce to consumers

- Computing equipment is needed for individuals to participate in the new 'digital' economy, which means an initial capital cost to customers

- A basic technical knowledge is required of both computing equipment and navigation of the Internet and the World Wide Web

- Cost of access to the Internet, whether dial-up or broadband tariffs

- Cost of computing equipment : Not just the initial cost of buying equipment but making sure that the technology is updated regularly to be compatible with the changing requirement of the Internet, websites and application

- Lack of security and privacy of personal data

- Physical contact and relationships are replaced by electronic processes. Customers are unable to touch and feel goods being sold on-line or determine voices and reactions of human beings

- A lack of trust because they are interacting with faceless computers

Limitations of E-Commerce

3. **Limitations of e-commerce to society**

   ▪ **Breakdown in human interaction :** As people become more used to interacting electronically there could be an erosion(divide) of personal and social skills which might eventually be detrimental to the world we live in where people are more comfortable interacting with a screen than face to face

   ▪ **Breakdown in human interaction :** As people become more used to interacting electronically there could be an erosion(divide) of personal and social skills which might eventually be harmful to the world we live in where people are more comfortable interacting with a screen than face to face.

   ▪ **Social division :** There is a potential danger that there will be an increase in the social divide between technical haves and have-nots – so people who do not have technical skills become unable to secure better-paid jobs and could form an underclass with potentially dangerous implications for social stability

   ▪ **Reliance on telecommunications infrastructure, power and IT skills :** which in developing countries nullifies the benefits when power, advanced telecommunications infrastructures and IT skills are unavailable or scarce or underdeveloped

Limitations of E-Commerce

3. **Limitations of e-commerce to society**

    - Wasted resources : As new technology dates quickly how do you dispose of all the old computers, keyboards, monitors, speakers and other hardware or software?

    - **Difficulty in policing the Internet :** which means that numerous crimes can be committed and often go undetected

Seven Unique Features of E-Commerce

1. **Ubiquity**
   - In traditional commerce, a marketplace is restricted i.e. we can be in limited physical area to buy or sell.
   - Whereas E-Commerce is ubiquitous meaning that it is available just about everywhere, at all times.
   - It make possible to shop from your desktop, at home, at work or even from your car, using mobile commerce.
   - The result is called a market space - a marketplace extended beyond traditional boundaries and removed from a temporal and geographic location.
   - From a consumer perspective, ubiquity reduces transaction costs – the costs of participating in a market.
   - To transact, it is no longer necessary that you spend time and money traveling to a market

Seven Unique Features of E-Commerce

2. Global Reach

- Unlike traditional commerce, e-commerce technology permits commercial transaction to cross cultural and national boundaries far more conveniently and cost effectively.

- As a result, the potential market size for e-commerce merchants is roughly equal to the size of the world's online population

3. Universal Standards

- One strikingly unusual feature of e-commerce technologies is that the technical standards of the Internet, and therefore the technical standards for conducting e-commerce, are universal standards – they are shared by all nation around the world.

- In contrast, most traditional commerce technologies differ from one nation to the next.

- For instance, television and radio standards differ around the world.

- The universal technical standards of e-commerce greatly lower market entry cost – the cost merchants must pay just to bring their goods to market

Seven Unique Features of E-Commerce

4. Richness

- With the use of e-commerce technology merchant can present their message in effective way.

- Information richness refers to the complexity and content of the message

5. Interactivity

- E-Commerce technologies are interactive, meaning they allow two-way communication between merchant and consumer.

- Television, for instant, cannot ask the viewer any questions, enter into a conversation with a viewer, or request customer information be entered into a form.

- In contrast, all of these activities are possible on an e-commerce Web site.

- Interactivity allows an online merchant to engage a consumer in a ways similar to a face-to-face experience, but on a much more massive, global scale

Seven Unique Features of E-Commerce

6. **Information Density**
   - The Internet and the Web vastly increase information density - the total amount and quality of the information available to all market participants, consumers and merchants alike.
   - E-commerce technologies reduce information collection, storage, processing and communication costs.
   - At the same time, these technologies increase greatly the accuracy and timeliness of information - making information more useful and important than ever.
   - As a result, information becomes more plentiful, cheaper and of higher quality

7. **Personalization / Customization**
   - E-commerce technologies permit personalization: Merchants can target their marketing message to specific individuals by adjusting the message.
   - The technology also permits customization - changing the delivered product or service based on a user's preference or prior behavior

E-Commerce Framework

- E-Commerce applications are built on the existing technology infrastructure - a myriad of computers, communication networks, and communication software forming the Information Superhighway.

- The technology infrastructure of the Internet is both an enabler and a driver of change.

- An infrastructure is defined as "the foundation of a system."

- In this case, the technological foundation of the Internet, simply put, enables the running of the e-commerce enterprises.

- The hardware backbone of computers, routers, servers, fiber optics, cables, modems, and other network technologies provides half of the technology equation.

- The other half includes the soft-ware and communications standards that run on top of the hardware, including the core protocols for the Web

E-Commerce Framework

- framework for e-Commerce consists of three parts as shown in below figure

Electronic Commerce Applications

Supply Chain Management
Procurement & Purchasing
Audio and Video on Demand
Entertainment and Gaming

Online Marketing and Advertising
Online Shopping
Online Financial Transaction
Education and Research

Common Business Services Infrastructure
(Security/Authentication, Electronic Payment, Directories/Catalogs)

Multimedia Content & Network Publishing Infrastructure
(Digital Video, Electronic Books, World Wide Web)

Messaging & Information Distribution Infrastructure
(EDI, E-Mail, HyperText Transfer Protocol)

Information Superhighway Infrastructure
(Telecom, Cable TV, Wireless, Internet)

Public policy, legal, economical development, and privacy issues

Technical standards for electronic documents, multimedia contents, business transactions, and network protocols

E-Commerce Framework

- The first part consists of a **variety of electronic commerce applications** including both inter- and intra-organizational and electronic market. Such as *Supply Chain Management*, *Video-on-Demand*, *Procurement and purchasing*, *On-line marketing and advertising*, *Home shopping* etc.

- The second part of the building blocks of the infrastructure consists of :

  - **Common business services**, for facilitating the buying and selling process

  - **Messaging and information distribution**, as a means of sending and retrieving information (ex-EDI, e-mail, P2P file transfer)

  - **Multi-media content and network publishing**, for creating a product and a means to communicate about it.

  - **Information Superhighway infrastructure** consisting of telecommunication, cable operator, ISPs , Wireless technologies and Internet

E-Commerce Framework

- The third part consists of the *public policy* and *technical standards* necessary to support the applications and the infrastructure

  - **Public policies** govern issues like universal access, privacy, and information pricing. The public policy infrastructure affects not only the specific business but also direct and indirect competitors. It should take into consideration of :

    - Cost of accessing information

    - Regulation to protect consumers from fraud and protect their right to privacy.

    - Policies of global information traffic to detect information pirating and obscene sites

  - **Technical Standards** governs issues like technology for communication and as well as for Internet
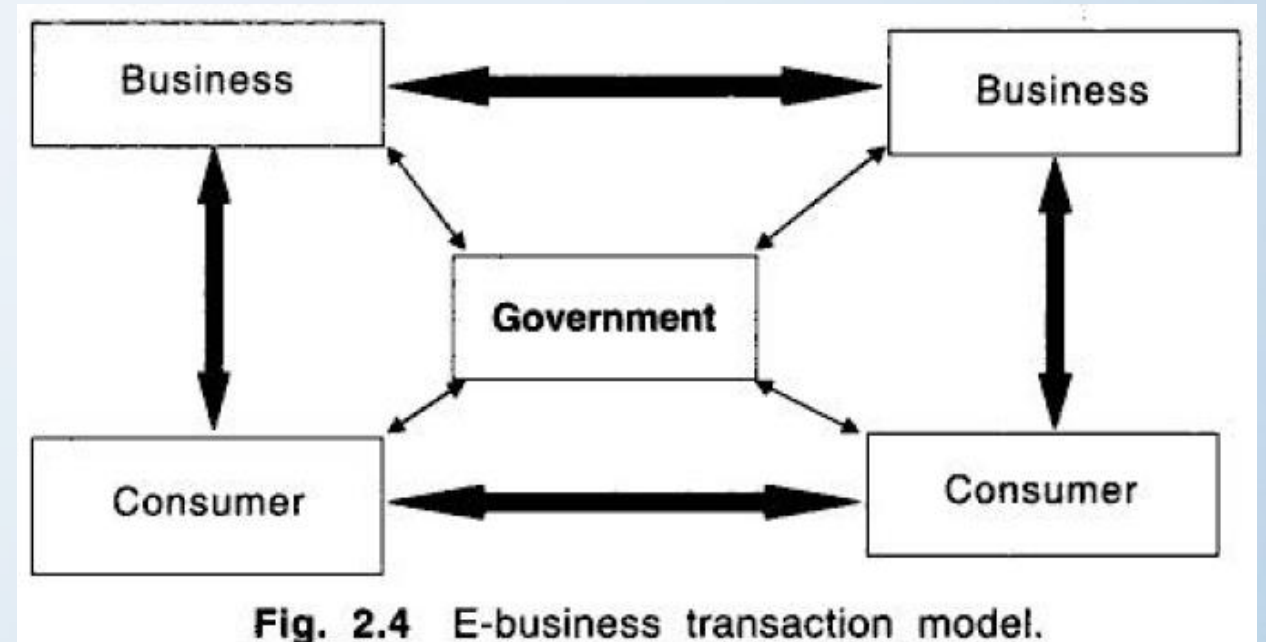
E - Commerce Types

- **Business - to - Customer(B2C)**

  - online sale of a products or services from a business to an end-consumer

  - Eg. Amazon, Daraz etc

- **Business - to - Business(B2B)**

  - sale of goods or services between businesses electronically

  - improve the efficiency and effectiveness of a company's sales efforts

Fig. 2.4 E-business transaction model.

E - Commerce Types

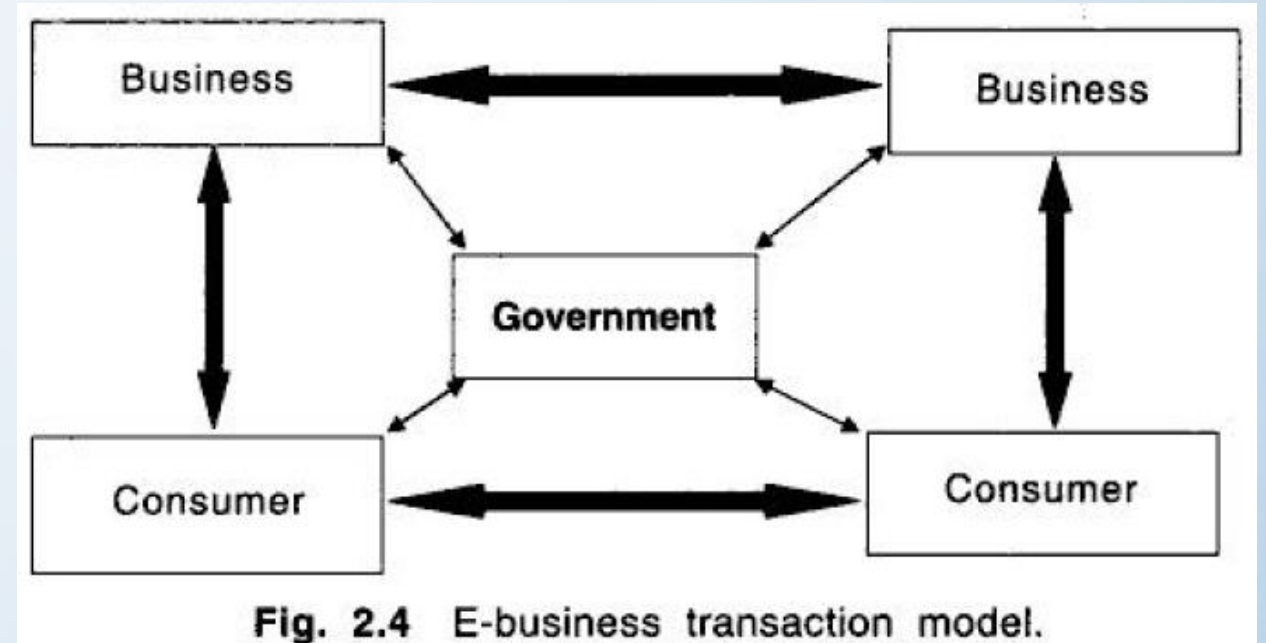- **Business-to-Government(B2G)**
  - Businesses selling to local, state and federal agencies
  - Eg. igov.com

- **Customer-to-Customer(C2C)**
  - Customers sell directly to other customers electronically
 - Eg. ebay.com, hamrobazar

- **Customer-to-Business(C2B)**
  - customers offer products or services to businesses
  - Eg. priceline.com

Fig. 2.4 E-business transaction model.

3

Mobile Commerce (M – Commerce)

- is the buying and selling of goods and services through wireless handheld devices such as smartphones and tablets

- As a form of e-commerce, m-commerce enables users to access online shopping platforms without needing to use a desktop computer

- Eg. in-app purchasing, mobile banking, virtual marketplace apps like the Amazon mobile app or a digital wallet such as Apple Pay, Android Pay and Samsung Pay

- M - Commerce usage worldwide : 59% [simicart.com/blog/m-commerce-statistics]
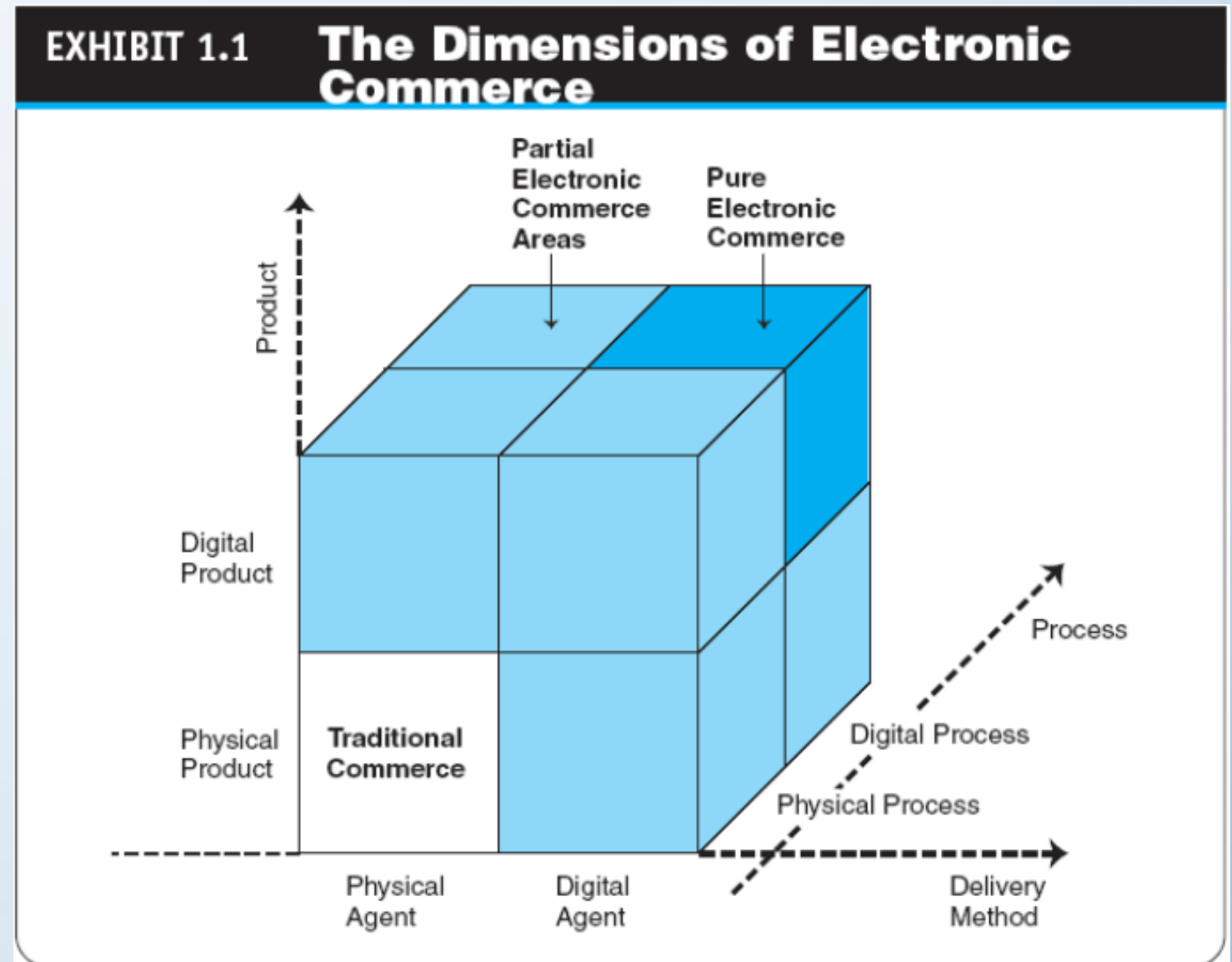
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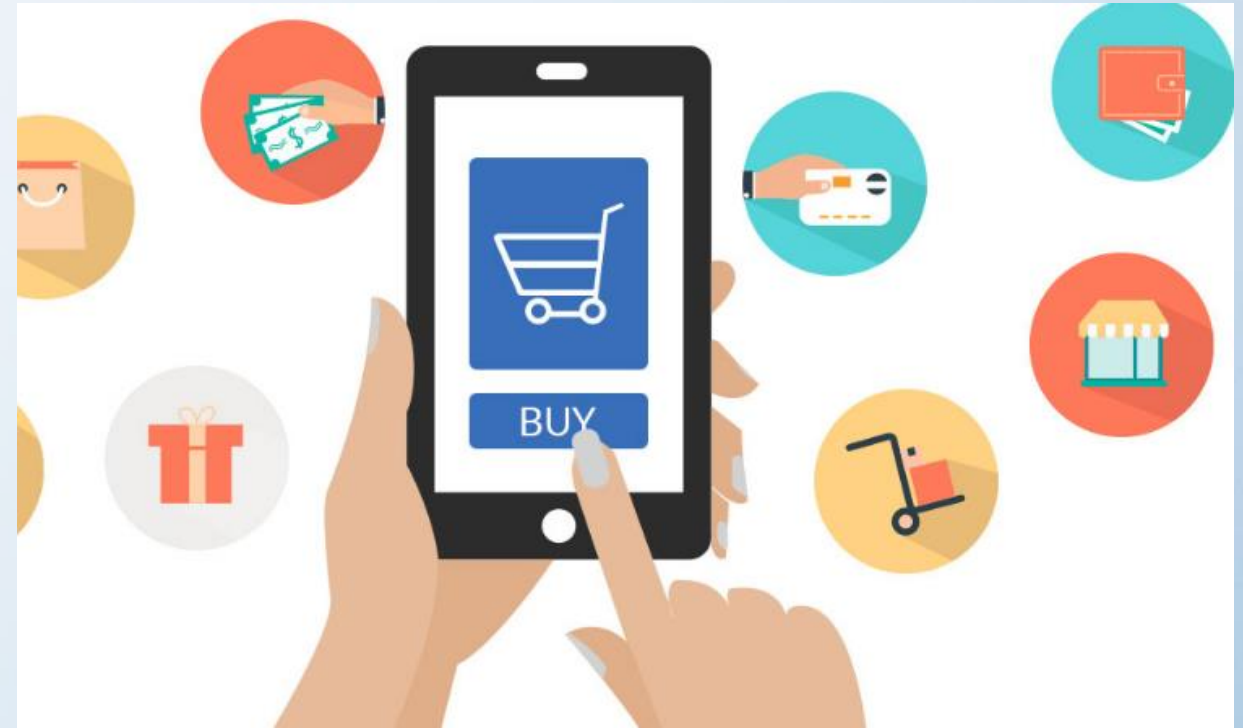
Ubiquitous Commerce (U - Commerce)

- The ultimate form of e-commerce and m-commerce in an 'anytime, anywhere' fashion.

- It involves the use of ubiquitous networks to support personalized and uninterrupted communications and transactions at a level of value that far exceeds traditional commerce

- The use of ubiquitous networks is to support personalized and uninterrupted communications and transactions between a firm and its various stakeholders to provide a level of value over, above, and beyond traditional commerce.

- It is the combination of electronic, wireless/mobile, television, voice commerce

Pure vs Partial E-Commerce

- Depending up on the digitization of products(services) sold, process, and delivery agent, there are two types of E-Commerce

  - **Pure E-Commerce** : If all of the above (product/service, process, delivery agent) dimensions are digital, then e-commerce is called pure e-commerce

  - **Partial E-Commerce** : Partial otherwise

EXHIBIT 1.1 **The Dimensions of Electronic Commerce**

Partial Electronic Commerce Areas

Pure Electronic Commerce

Product

Digital Product

Physical Product

Traditional Commerce

Process

Digital Process

Physical Process

Physical Agent

Digital Agent

Delivery Method

Challenges in E-commerce

- An absence of online identity verification

- Competitor Analysis

- Stuck in at the old way of approach to selling

- Shopping cart abandonment

- Maintaining customer loyalty

- The headache of product return and refund

- The struggle of competing on price and shipping

- Competing against retailers and manufacturers

- A problem of data security

Status of E-Commerce in Nepal

- In past recent years due to education and reach to Internet among the many people in Nepal has brightened the future of E-commerce.

- The interest of students in the field of IT and the growth of IT companies has helped a lot in the awareness and interest in youths for Internet and IT.

- This has directly created more opportunities to uplift E-Commerce in Nepal.

- It is noted that 63% of total population uses internet service in Nepal.

- This status proves that there is a good scope of E-Commerce in Nepal

- With the introduction of new technologies, digital stores and interactive apps, there is a big boost in sector of e-commerce.

- Many online portals and shopping portals are being launched.

- They are doing good business along with providing the best services.

Status of E-Commerce in Nepal

- They provide festival offers and various discounts to customers.

- A large number of people in Nepal stills think twice before purchasing online. Despite of the technological advancement, security is still a concern in people's mind.

- Various frauds and scams are hampering the growth of e-commerce in Nepal.

- Some of the successful companies playing a vital role in the growth of this industry are mentioned below
  - Kaymu (www.daraz.com.np)
  - Sastodeal (www.sastodeal.com)
  - Foodmandu (www.foodmandu.com)
  - Muncha (www.shop.muncha.com)
  - Metrotarkari (www.metrotarkari.com)

Overview of Electronic Transaction Act of Nepal

- ETA (Electronic Transaction Act) deals with issues related to cybercrime and also help in making and implementing laws over cybercrime

- It has made different requirements so that if anyone found having cybercrime, he/she will be punished according to the scene of the crime.

- He /she can be jailed for minimum from 6 months to a maximum of 3 years and has to pay the penalty according to the offense.

- However, the cybercrime has been overgrowing in Nepal because of an inadequate tracking system and the advancement needs still to build like in other developed countries.

- The lack of proper updates of ETA, the hackers again hack the governmental confidentiality.

- ETA yet hasn't adequately addressed Online payment, due to which we still don't have a fast and reliable online payment system too. [ref : ictframe.com]