# An Introduction to Electronic Commerce

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# Definition of E-commerce

1) conducting business transactions
2) sharing of business information
3) maintaining business relationships
4) prospecting customers
5) managing and fulfilling orders

*with the assistance of telecommunications and telecommunications-based tools*

i.e.

not only the buying and selling of goods and services

but also the various processes that support this goal

# Interorganizational Systems

An interorganizational information system (IOS) involves information flow among two or more organizations.

**Major objective**: *efficient routine transaction processing*, such as transmitting orders, bills, and payments using electronic data interchange (EDI) or extranets.

**Scope:**  An IOS is a unified system encompassing two or several business partners.

A typical IOS includes a company and its suppliers and and/or customers.

# Traditional commerce,
# Pure E-commerce, Partial E-commerce

**Three dimensions**
1) the product (service) sold [physical / digital]
2) the process [physical / digital]
3) the delivery agent (or intermediary) [physical / digital]

*Traditional commerce*: All dimensions are physical

*Pure EC*: All dimensions are digital

*Partial EC*: All other possibilities including a mix of digital
and physical dimensions

# The three dimensions of E-commerce
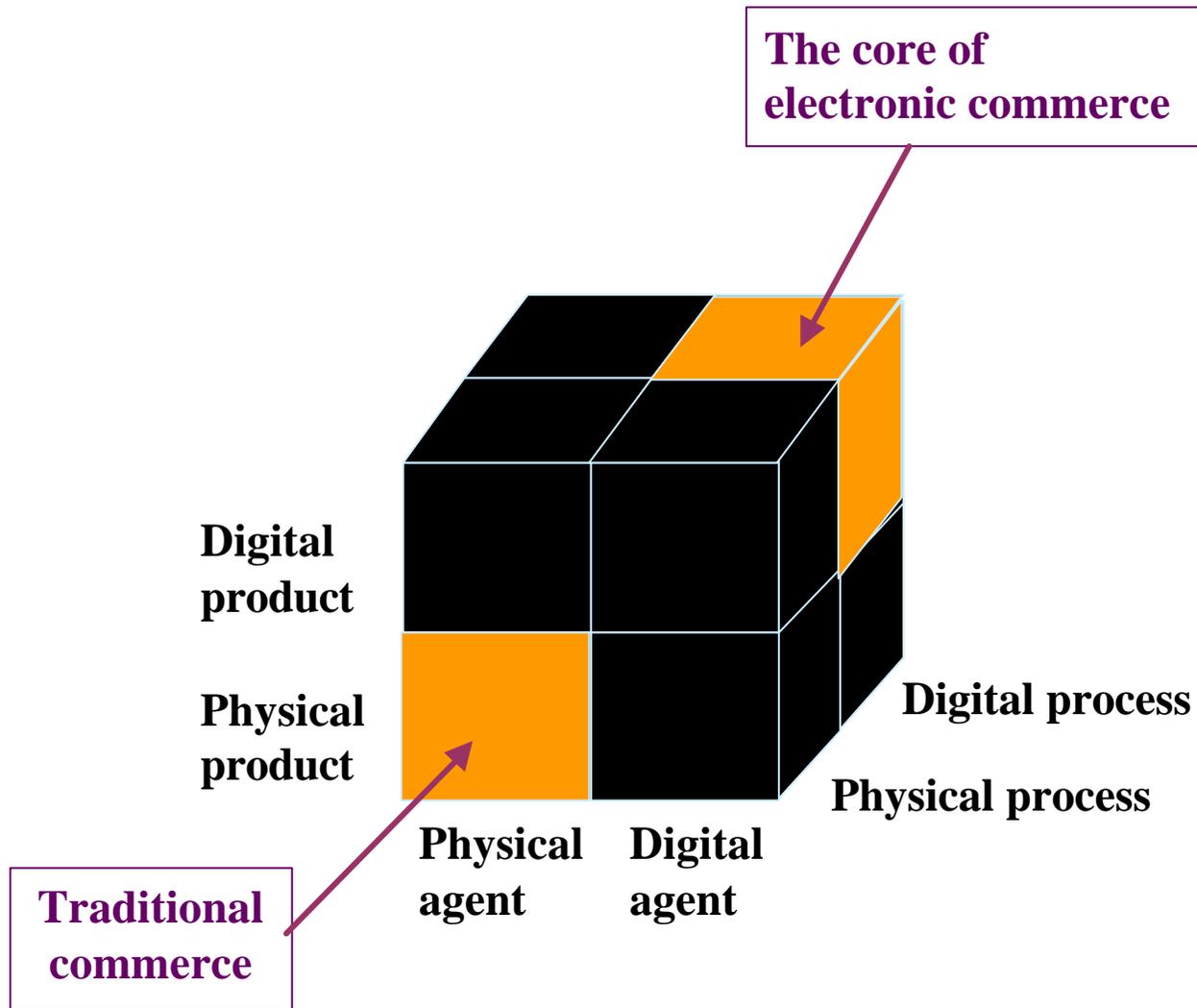
# Examples of digital goods and services

- documents, including articles and books;

- data, including statistics;

- reference information, including dictionaries and encyclopaedias;

- projected sound, such as speeches and musical performances;

- projected video and video-with-sound, including television, video-conferencing and video-clips; and

- interactive voice, such as telephone conversations and tele-conferencing;

- interactive video and video-with-sound, such as video-conferencing;

- images, including structured graphics such as diagrams and musical scores, and photographs;

# Examples of digital goods and services

- news;

- weather forecasts;

- entertainment, infotainment, edutainment and education via multi-media;

- bookings and tickets for live events;

- software, quite generally;

- commerce in insurance;

- commerce in money, including foreign currencies;

- commerce in securities, and financial derivatives such as stock-based, interest-rate-based and index-based options; and

- commerce in commodities, and commodities derivatives such as futures.

# Electronic markets

A *market* is a network of interactions and relationships where information, products, services, and payments are exchanged.

The market handles all the necessary transactions.

An *electronic market* is a place where shoppers and sellers meet electronically.

In electronic markets, sellers and buyers provide information, negotiate, submit bids, agree on an order, and finish the execution on- or off-line.

# Categorisation of Marketspaces

## B2B (Business to Business)

Includes non-profit organisations (co-operatives, industry associations, chambers of commerce, trade unions, charities, community associations with a social purpose, e.g. sports clubs).

## B2G / G2B (Business to Government / Government to Business)

- **sales** by business enterprises to government
- **service delivery** by government to business enterprises

## B2C (Business to Consumer)

## C2C (Consumer to Consumer)

'classified ads', auctions of personal possessions...

# Electronic Commerce Applications

On-line banking, On-line shopping, On-line marketing and advertising, etc.

## People
Buyers, sellers, intermediaries, programmers, systems developers, etc.

## Public policy
laws and regulations

## Technical standards
for document handling, security issues, and network protocols payment
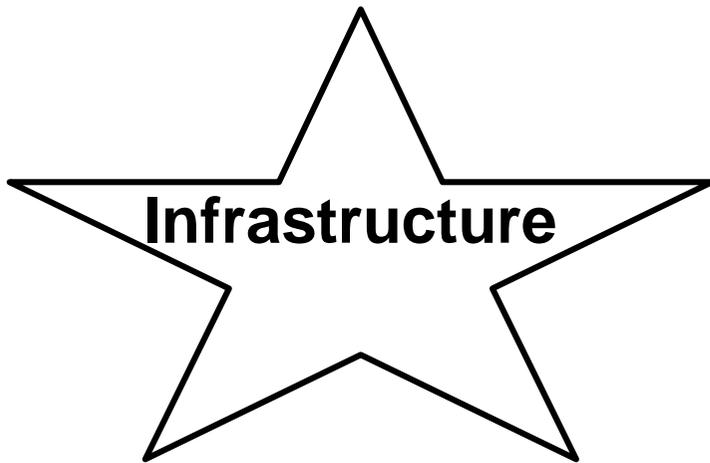
## Organizations
Partners, competitors, associations, government agencies

# Infrastructure

**Multimedia content and network publishing infrastructure**
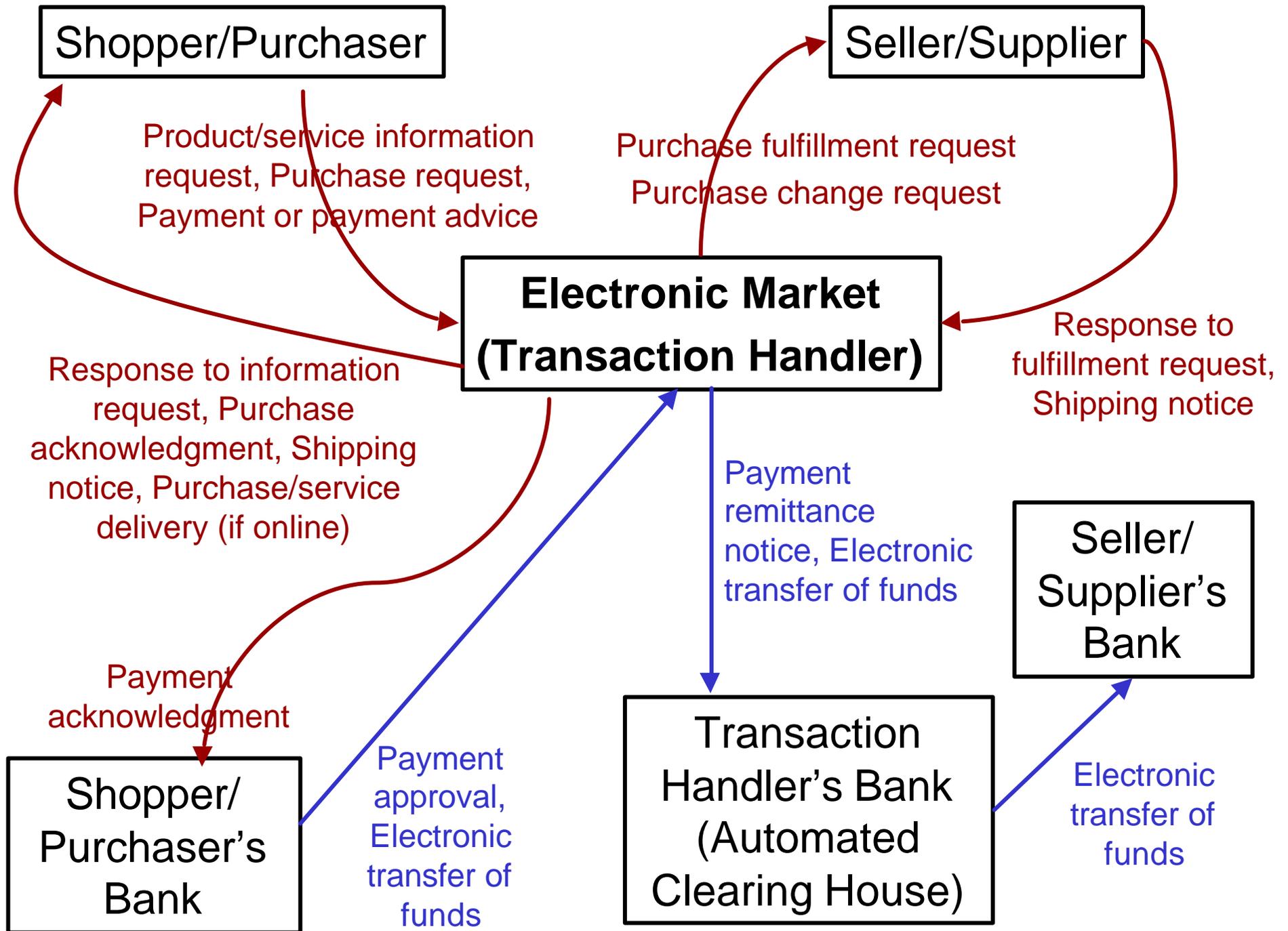(HTML, JAVA, World Wide Web, VRML)

**Messaging and information distribution infrastructure**
(EDI, e-mail, Hyper Text Transfer Protocol)

**Network infrastructure**
(Telecom, cable TV wireless, Internet, VAN, WAN, LAN, Intranet, Extranet)

**Infrastructure**

**Interfacing infrastructure**
(databases, applications)

**Common business services infrastructure**
(security smart card, authentication, electronic payment, directories, catalogs)

## Shopper/Purchaser

**Product/service information request, Purchase request, Payment or payment advice**

## Seller/Supplier

**Purchase fulfillment request Purchase change request**

## Electronic Market (Transaction Handler)

**Response to fulfillment request, Shipping notice**

**Response to information request, Purchase acknowledgment, Shipping notice, Purchase/service delivery (if online)**

**Payment remittance notice, Electronic transfer of funds**

## Seller/ Supplier's Bank

**Payment acknowledgment**

## Shopper/ Purchaser's Bank

**Payment approval, Electronic transfer of funds**

## Transaction Handler's Bank (Automated Clearing House)

**Electronic transfer of funds**

# Major business pressures

| | |
|---|---|
| Market and economic pressures | Strong competition<br>Global economy<br>Regional trade agreements (e.g. NAFTA)<br>Extremely low labor cost in some countries<br>Frequent and significant changes in markets<br>Increased power of consumers |
| Societal and environmental pressures | Changing nature of workforce<br>Government deregulation of banking & other services<br>Shrinking government budgets subsides<br>Increased importance of ethical and legal issues<br>Increased social responsibility of organizations<br>Rapid political changes |
| Technological pressures | Rapid technological obsolescence<br>Increase innovations and new technologies<br>Information overload<br>Rapid decline in technology cost vs. performance ratio |

# The marketing shift

| From | To |
|---|---|
| Mass marketing and advertisement | Target, one-to-one interactive marketing and advertisement |
| Mass Production (standard products, services) | Mass Customization |
| Monologue | Dialogue |
| Paper catalog | Electronic Catalogs |
| One-to-many communication model | Many-to-many communication model |
| Supply-side thinking | Demand-side thinking |
| Physical products and services | Digital products and services |
| Branding, megabrand | Diversification |

# How the Web influences advertising practices

1) The <u>direction</u> of the advertising message is reversed

2) <u>Content</u> regains importance as the core of the advertising effort

# Reversal of the <u>direction</u> of the advertising message

### In traditional advertising

The message is imposed on the consumer, who is passive

The model of marketing communications is one-to-many

### In Web advertising

The consumer *chooses* to view an advertisement on a site

The consumer *takes actions* to uncover the information the advertiser wishes to deliver

# Renewed importance of <u>content</u> as the core of the advertising effort

***Traditional advertising***

⌘ uses brief distilled messages to catch and hold attention

⌘ depends on repetition to deliver the message

⌘ minimizes and simplifies content to fit the time constraints of media or the size constraints of the page

⌘ relies on packing the maximum amount of meaning into the minimum amount of content

***Web-based advertising*** works with different constraints emphasizing content and presentation

⌘ Time and page size limitations become less important

⌘ Presentation, content, navigation, and flow become more important

⌘ Content must be dynamic, current, and relevant to a variety of audiences

⌘ It must catch the viewer's eye in 10 seconds or less

# Changes in the workplace

***Impacts on Manufacturing***

    Pull processing, mass customization, shorter cycle time, integration (ERP), electronic bidding and procurement

***Impacts on Finance and Accounting***

    Electronic payment systems, electronic cash, home banking, electronic stock trading

***Human Resource Management***

    Electronic recruiting, on-line training, distance learning

# Benefits to organizations

♦ Expands the marketplace to national and international markets

♦ Decreases the cost of creating, processing, distributing, storing and retrieving information

♦ Reduces inventories and overheads

♦ Allows for customization of products and services, thereby providing competitive advantage

♦ Lowers communication costs

# Benefits to customers

♦ Customers can shop or do other transactions at any time and from any location that has on-line access

♦ Customers can receive information quickly and can thereby more easily compare offers and prices

♦ Quick delivery of products and services in some cases, especially with digitized products

♦ Customers can participate in virtual auctions

♦ Customers can interact with other customers in electronic communities and exchange ideas as well as compare experiences

♦ E-commerce increases competition, which results in substantial discounts.

# Benefits to society

♦ Enables more individuals to work at home,
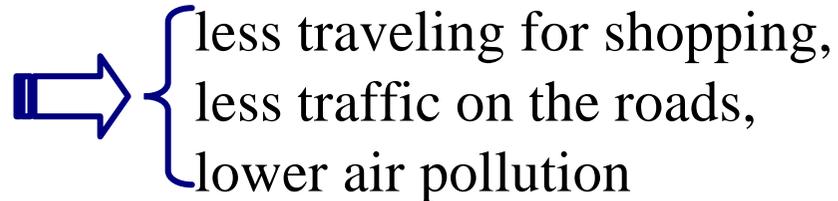
⟹ { less traveling for shopping,
less traffic on the roads,
lower air pollution

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♦ Allows for some products and services to be sold at lower prices

⟹    increased purchasing power of lower income individuals

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♦ Enables inhabitants of developing countries and rural areas to enjoy products and services which otherwise are not available to them

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♦ May facilitate access to products and services to
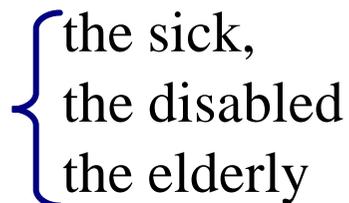
{ the sick,
the disabled
the elderly

(provided that they get adequate training and on-line access)

# Technical limitations of E-commerce

♦ Lack of sufficient system's security, reliability, standards, and communication protocols

♦ Insufficient telecommunication bandwidth

♦ Difficulties in integrating the Internet and E-commerce software with some existing applications and databases

♦ The need for special Web servers and other infrastructures, in addition to the network servers (additional cost)

♦ Possible problems of interoperability (some E-commerce software may not fit with some hardware, or may be incompatible with some operating systems or other components)

# Organizational limitations

The cost of developing E-commerce in house can be very high:
- home page system development and maintenance
- server and network acquisition and operation
- merchandising
- order fulfillment
- collection of payment
- changing the way of doing business

Mistakes due to lack of experience may result in:
- delays
- lost customers
- loss of reputation

To justify an E-commerce investment, one needs to deal with some intangible benefits that are difficult to quantify.

# Security and Privacy

**Privacy of Personal Behaviour**

People's 'private space' is invaded by the intrusions inherent in most direct marketing techniques.

**Privacy of Personal Data**

Threatened for example by endeavours on the part of marketers to convert hitherto anonymous transactions into identified ones, through such means as so-called 'loyalty' schemes.

**Consumer Profiling**

- accumulation, acquisition and cross-referencing of data about individuals, possibly combined with geo-demographic data

- use of such data for various micro-marketing purposes.

# Lack of trust and user resistance

Customers often have trouble trusting:
- an unknown faceless seller,
- paperless transactions,
- electronic money.

**Factors influencing trust:**

## Credibility

  e.g.   backing up objective content with data and references
      acknowledging content sponsored by or affiliated to other parties

## Transparency

  e.g.   displaying cost prominently and early in the process

## Service-orientation

  e.g.   providing feedback about the order
      facilitating the return of products and refunds

# Other limitations of E-commerce

♦ Lack of touch and feel online

♦ Many unresolved legal issues

♦ Rapidly evolving and changing markets

♦ Lack of support services

♦ Insufficiently large number of sellers and buyers

♦ Breakdown of human relationships

♦ Expensive and/or inconvenient accessibility to the Internet