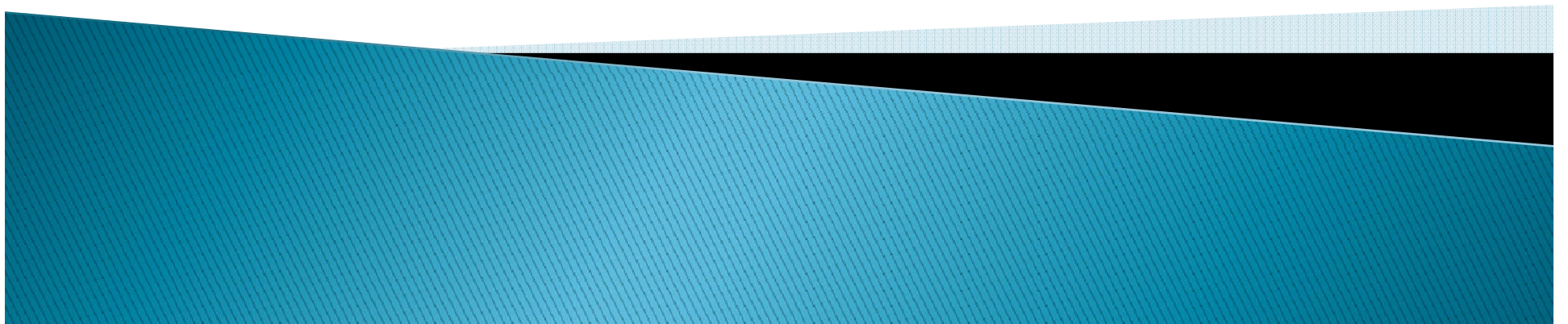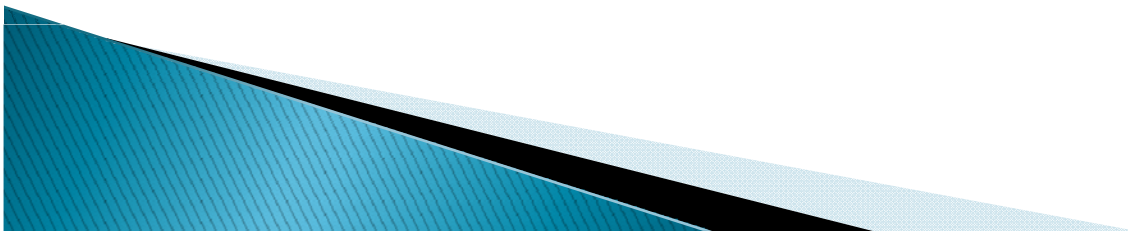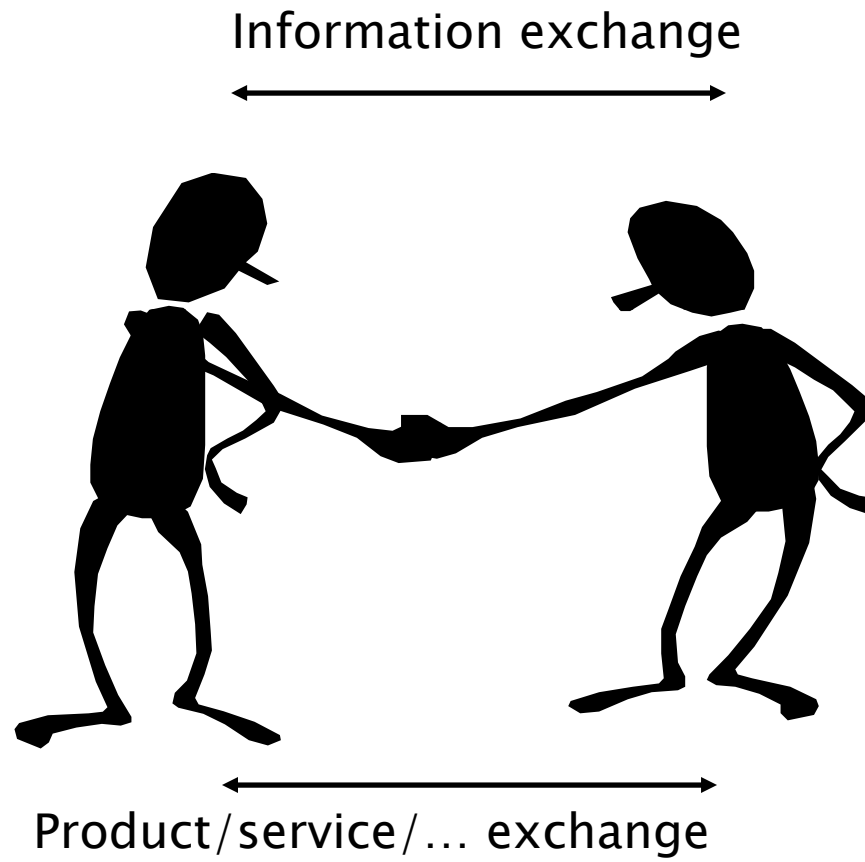# U-IV Electronic Business & Legal Issues

Outline

- Evolution and development in E-commerce
- E-Commerce models- B2B, B2C
- Paper vs paperless contracts
- E security.
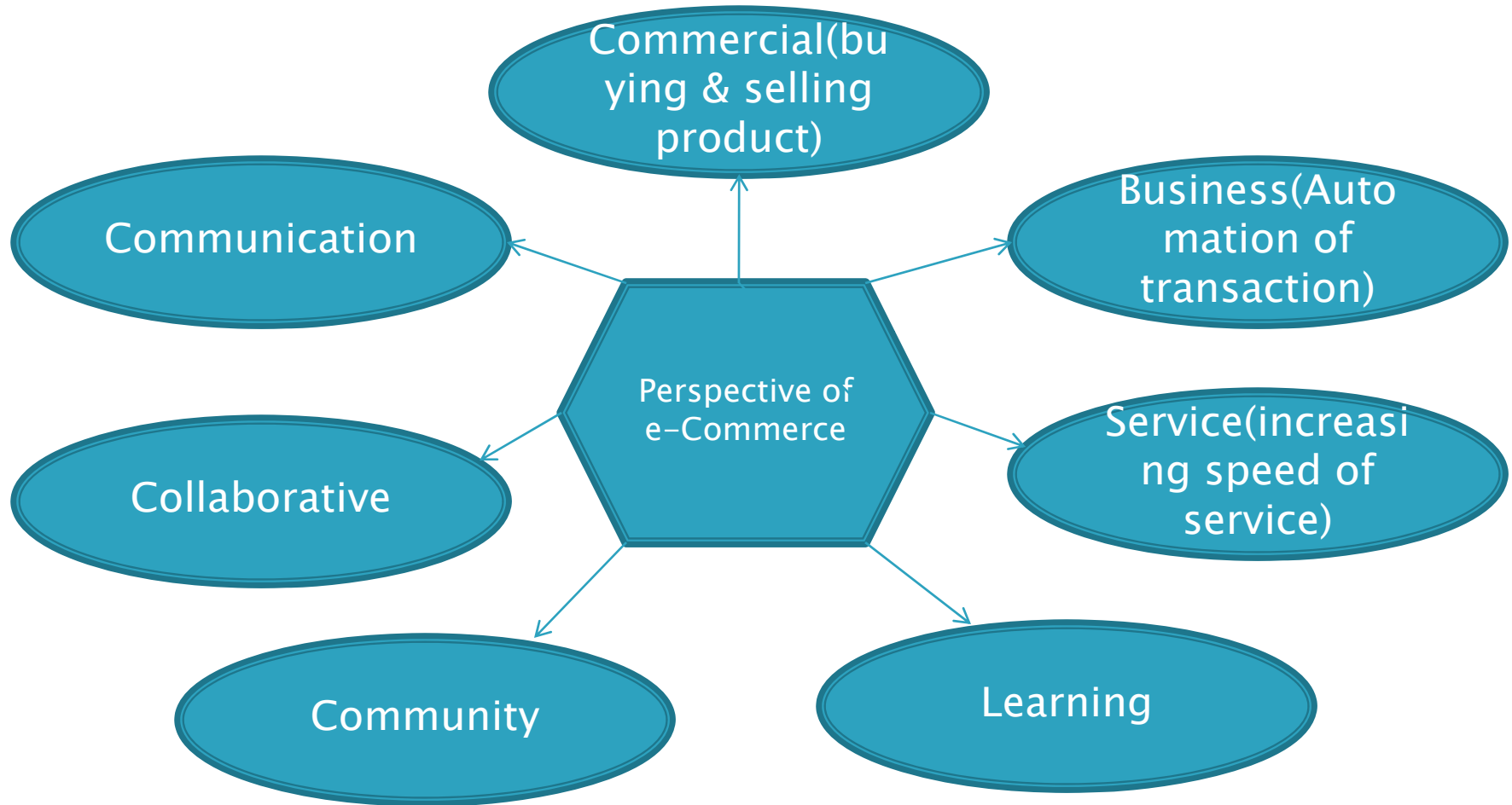
Commerce
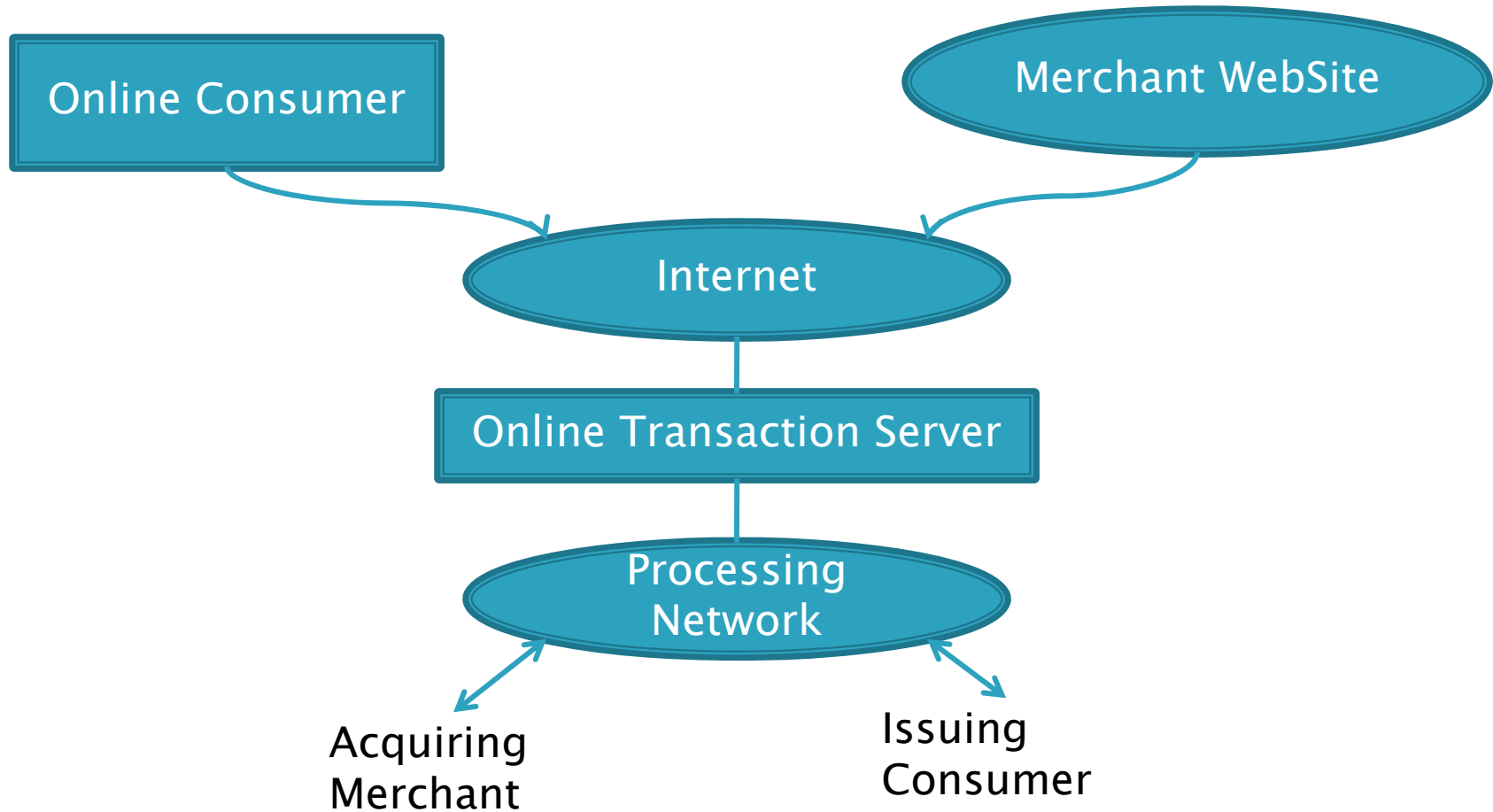
Information exchange

Product/service/... exchange

Electronic Commerce (E-Commerce)

- Commerce refers to all the activities the purchase and sales of goods or services.
    - Marketing, sales, payment, fulfillment, customer service

- Electronic commerce is doing commerce with the use of computers, networks and commerce-enabled software (more than just online shopping)

Perspectives of e-Commerce

Commercial(buying & selling product)

Communication

Business(Automation of transaction)

Perspective of e-Commerce

Collaborative

Service(increasing speed of service)

Community

Learning

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Working of e-Commerce

Brief History

- 1970s: Electronic Funds Transfer (EFT)
  - Used by the banking industry to exchange account information over secured networks
- Late 1970s and early 1980s: Electronic Data Interchange (EDI) for e-commerce within companies
  - Used by businesses to transmit data from one business to another
- 1990s: the World Wide Web on the Internet provides easy-to-use technology for information publishing and dissemination
  - Cheaper to do business (economies of scale)
  - Enable diverse business activities (economies of scope)

E-commerce applications

- Supply chain management
- Video on demand
- Remote banking
- Procurement and purchasing
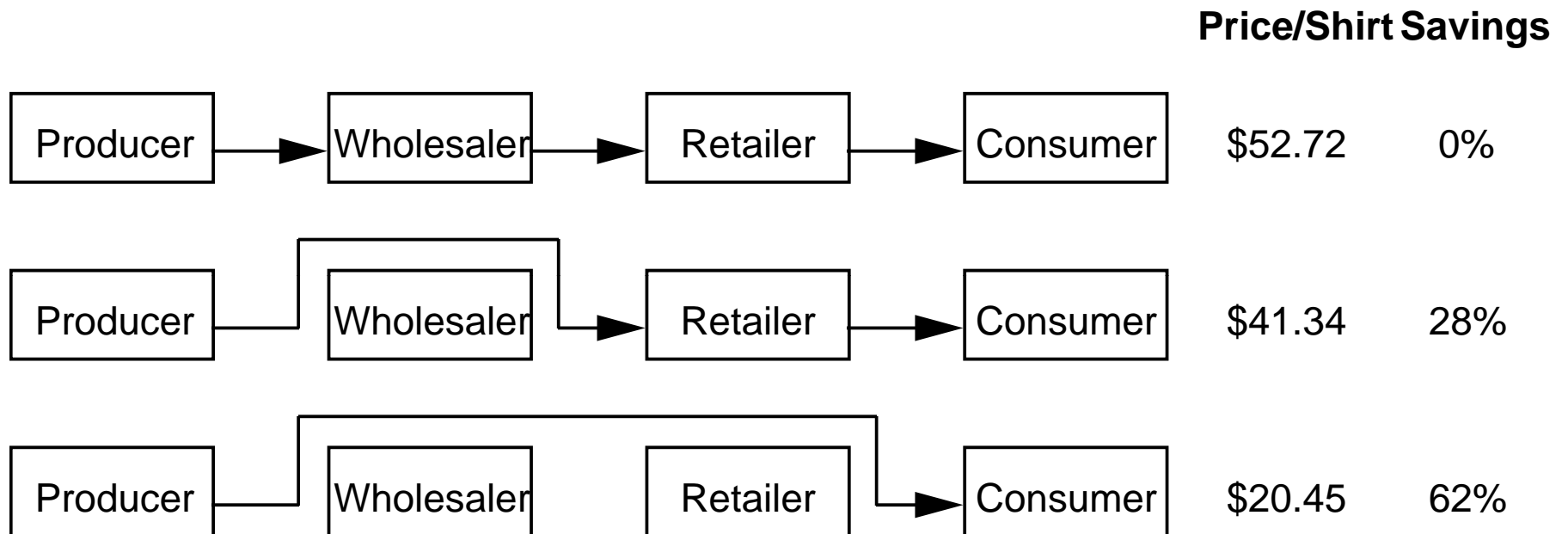- Online marketing and advertisement
- Home shopping
- Auctions

E-Commerce infrastructure

- **Information superhighway infrastructure**
  - Internet, LAN, WAN, routers, etc.
  - telecom, cable TV, wireless, etc.
- **Messaging and information distribution infrastructure**
  - HTML, XML, e-mail, HTTP, etc.
- **Common business infrastructure**
  - Security, authentication, electronic payment, directories, catalogs, etc.
- **Web architecture**
  - Client/server model
  - N-tier architecture; e.g., web servers, application servers, database servers, scalability

The Main Elements of E-commerce

- Consumer shopping on the Web, called B2C (business to consumer)
- Transactions conducted between businesses on the Web is called B2B (business to business)
- Transactions and business processes that support selling and purchasing activities on the Web
  - Supplier, inventory, distribution, payment management
  - Financial management, purchasing products and information

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Disintermediation

				Price/Shirt	**Savings**
Producer →	Wholesaler →	Retailer →	Consumer	$52.72	0%
Producer	Wholesaler →	Retailer →	Consumer	$41.34	28%
Producer	Wholesaler	Retailer	Consumer	$20.45	62%

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Value Gaps

Value Added = A, Value Added = B,
Expense = X Expense = Y

```
source firm  →  distributor  →  retailer  →  customers
```
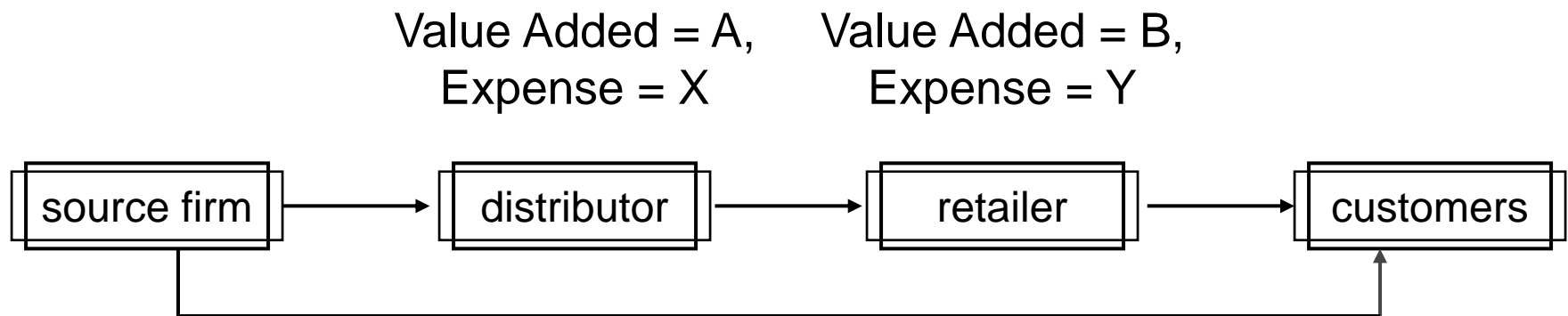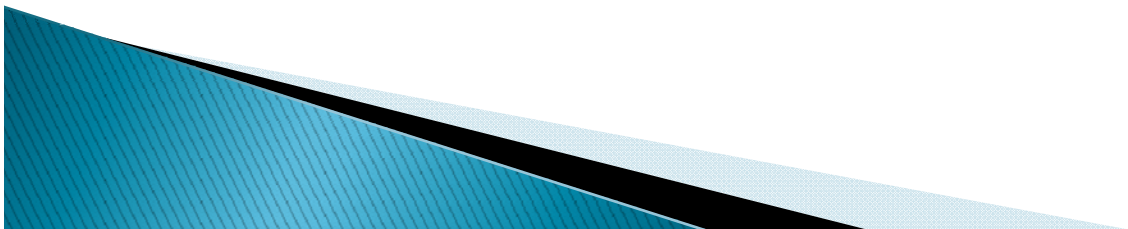
Expense Savings = (X+Y) - Cost of New Effort
Value Gap = (A+B) - Value Added by New Effort

Advantages of Electronic Commerce

- Increased sales
  - Reach narrow market segments in geographically dispersed locations
  - Create virtual communities
- Decreased costs
  - Handling of sales inquiries
  - Providing price quotes
  - Determining product availability
- Being in the space

Disadvantages of Electronic Commerce

- Loss of ability to inspect products from remote locations
- Rapid developing pace of underlying technologies
- Difficult to calculate return on investment
- Cultural and legal impediments
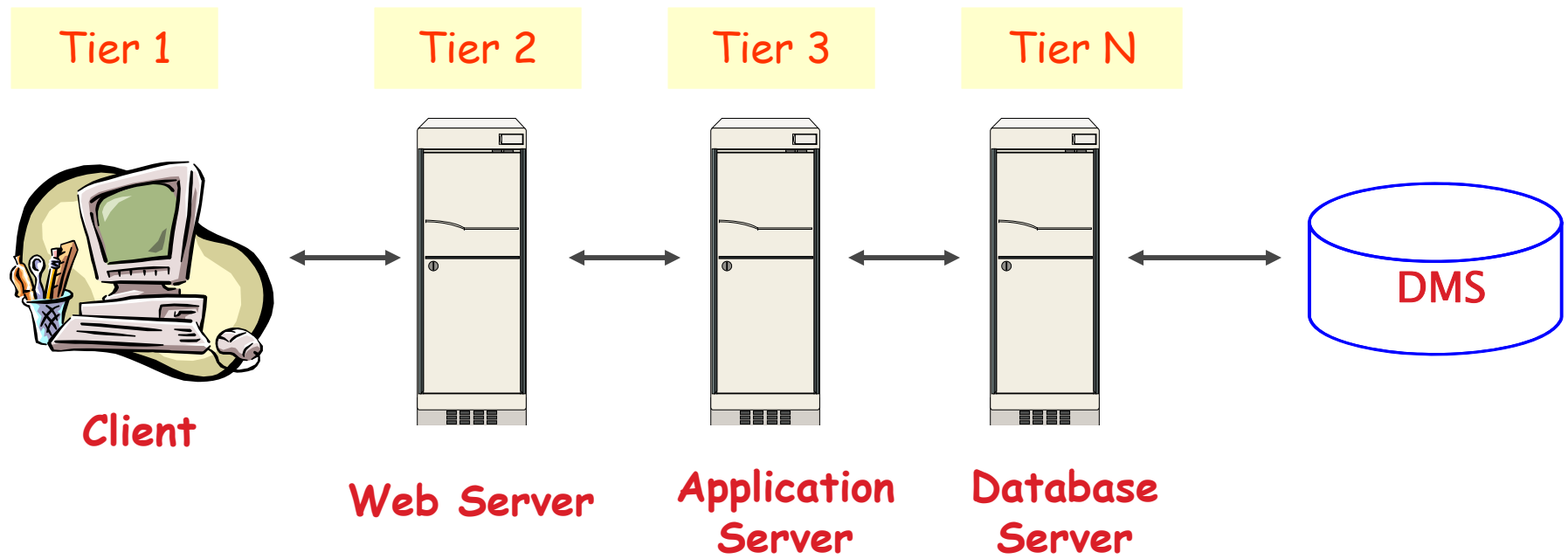
The process of e-commerce

1. Attract customers
   - Advertising, marketing
2. Interact with customers
   - Catalog, negotiation
3. Handle and manage orders
   - Order capture
   - Payment
   - Transaction
   - Fulfillment (physical good, service good, digital good)
4. React to customer inquiries
   - Customer service
   - Order tracking

E-commerce Technologies

- Internet
- Mobile technologies
- Web architecture
- Component programming
- Data exchange
- Multimedia
- Search engines
- Data mining
- Intelligent agents

- Access security
- Cryptographic security
- Watermarking
- Payment systems

Web-based E-commerce Architecture

Tier 1	Tier 2	Tier 3	Tier N

Client

Web Server

Application Server

Database Server

DMS

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E-Commerce Software

- Content Transport
  - pull, push, web-caching, MIME
- Server Components
  - CGI, server-side scripting
- Programming Clients
- Sessions and Cookies
- Object Technology
  - CORBA, COM, Java Beans/RMI
- Technology of Fulfillment of Digital Goods
  - Secure and fail-safe delivery, rights management

System Design Issues

▶ Good architectural properties
  ◦ Functional separation
  ◦ Performance (load balancing, web caching)
  ◦ Secure
  ◦ Reliable
  ◦ Available
  ◦ Scalable

Creating and Managing Content

- What the customer see
- Static vs. dynamic content
- Different faces for different users
- Tools for creating content
- Multimedia presentation
- Integration with other media
- Data interchange
- HTML, XML (Extensible Markup Language)

What is for Sale

- Physical media
  - Books, parts, cars, music, antiques, junque, etc.
- Virtual media
  - Programs, memberships, searches, greeting cards, money, etc.
- Advertising
  - Anyone can be a publisher!

Window 1: Yahoo! FareChase

Cheap Airfares and Hotel Rooms on Yahoo! FareChase - Mozilla Firefox

File   Edit   View   Go   Bookmarks   Tools   Help

Yahoo!   My Yahoo!   Mail   Make Yahoo! your home page

YAHOO! FARECHASE BETA   Sig... New

Flight Results
Results **1** - **20** of **19...**

Flights | **Hotels**

▸ Change Your Search

Fort Myers Flight:
Save on Fort Myers
Fort Myers flights b...
www.travelzoo.com

Spirit Airlines - Flig
Get great flights an
the official site of S
www.spiritair.com

Refine Results:

Flight Times	from
DEPARTURE	
☑ 5am - 9am	$303
☑ 9am - 3pm	$380
☑ 3pm - 9pm	$474
RETURN	
☑ 5am - 9am	$383
☑ 9am - 3pm	$380
☑ 3pm - 9pm	$303

Sort by: **Low pric**

$303
per person

Spirit
8:30a-
5:00p-
Book it
spiritai

$380
per person

Amer
12:04p
2 retur

Airports
☑ Boston - BOS
☑ Manchester - MHT
☑ Providence - PVD

Transferring data from us.i1.yimg.com...

Window 2: Build your own trip - BOS to RSW

Build your own trip - BOS to RSW - Mozilla Firefox

File   Edit   View   Go   Bookmarks   Tools   Help

Boston, MA (BOS) to Fort Myers, F

Start search over

Change your search

Departure airport:
BOS (Boston) ▾

Destination airport:
RSW (Fort Myers) ▾

Travel Dates:
Specific | Flexible
Departing: (mm/dd/yy)

	All Results	American Airlines	Continental
Nonstop	---	---	---
1 stop	from $355 see below	from $355	See flights
2+ stops	from $373 see below	from $388	from $373

Window 3: Kayak.com Flight Results

Kayak.com Flight Results - Mozilla Firefox

File   Edit   View   Go   Bookmarks   Tools   Help

615 of 615 results shown   show all

ℹ Use the controls to the left to s

Stops
☑ nonstop   ☑ 1 stop   ☑ 2+ stops

Airlines
select all | clear   nonstop   1+
☑ AirTran $236
☑ America $380
☑ Contin
☑ Delta
☑ JetBlu
☑ Multipl
☑ Northw
☑ Song

$236   BOS > SRQ   AirTran
       SRQ > BOS
buy at: 1800CheapSeats.com

$284   BOS > SRQ   AirTran
       SRQ > BOS

Window 4: Boston, Fort Myers - Google Search

Boston, Fort Myers - Google Search - Mozilla Firefox

File   Edit   View   Go   Bookmarks   Tools   Help

Flights from **Boston, MA** to **Fort Myers, FL**

Departing: 02/08   Returning: 02/15

Search: Expedia Hotwire Orbitz Priceline Travelocity

E-Commerce Technologies

Diagram: Venn diagram of three overlapping circles labeled "Electronic Markets", "EDI", and "Internet Commerce".
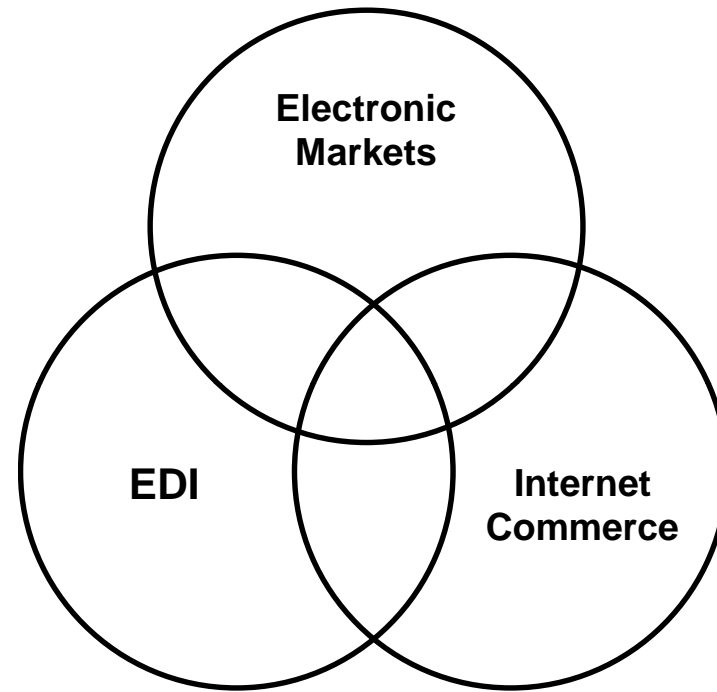
▸ The three e-Commerce technologies are:
  ◦ Electronic Markets
  ◦ Electronic Data Interchange
  ◦ Internet Commerce

Compiled by: Mr. D. P. Mishra, Reader, Deptt of CSE, BIT

Electronic markets

- The use of ICT enable:
  - The purchaser to compare the prices
  - Make a purchase decision.

- The usual example of an electronic market is an airline booking system.

- There is the potential for new electronic markets to be created using Internet technologies.

Electronic Data Interchange (EDI)

▶ EDI provides a standardised system for coding trade transactions so that they can be communicated directly from one computer system to another.

▶ EDI removes the need for printed orders and invoices and avoids the delays and errors implicit in paper handling.

▶ EDI is used by organisations that make a large number of regular transactions. Examples are the large supermarket chains and the vehicle assemblers which use EDI for transactions with their suppliers.

Internet commerce

- ICT can also be used to advertise and make sales of a wide range of goods and services.

- This type of e-Commerce is typified by the commercial use of the Internet.

- The Internet can, for example, be used for the purchase of books that are then delivered by post

- It is to be noted that the Internet is not the only technology used for this type of service.

The trade cycle

- Conducting a commercial transaction involves the following steps:
  - Pre-Sale:
    - Search – finding a supplier
    - Negotiate – agreeing the terms of trade
  - Execution:
    - Order
    - Delivery
  - Settlement:
    - Invoice
    - Payment
  - After-sales, e.g. warrantee and service

Generic trade cycles

- The trade cycle varies depending on:
  - The nature of the parties to the transaction
  - The frequency of trade exchanges
  - The nature of the goods or services being exchanged.

- Three generic trade cycles can be identified:
  - **Regular, repeat transactions** between commercial trading partners (Repeat)
  - **Irregular transactions** between commercial trading partners (Credit)
  - **Irregular transactions in once-off** trading relationships (commercial or retail) (Cash)

Generic trade cycles

Trade Cycle: Repeat	Credit	Cash	
Search			Pre-Sale
Negotiate			
Order			Execution
Deliver			
Invoice			Settlement
Payment			
After Sales			After Sale
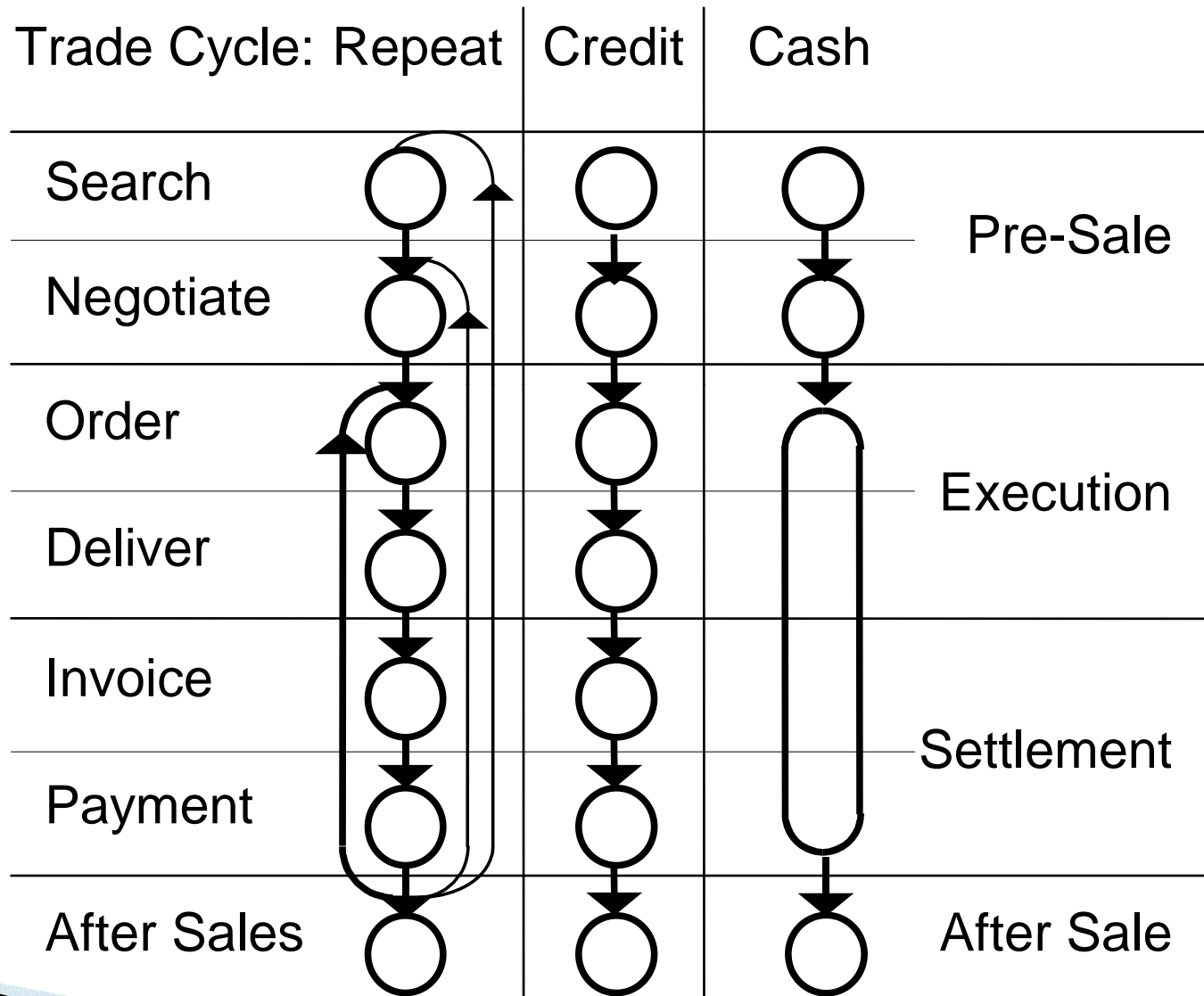
Electronic markets

▶ Emphasis on the search phase of the trade cycle
▶ Typically an inter-organisational credit trade cycle

Search		Pre-Sale
Negotiate	EM	
Order		Execution
Deliver		
Invoice		Settlement
Payment		
After Sales		After Sale
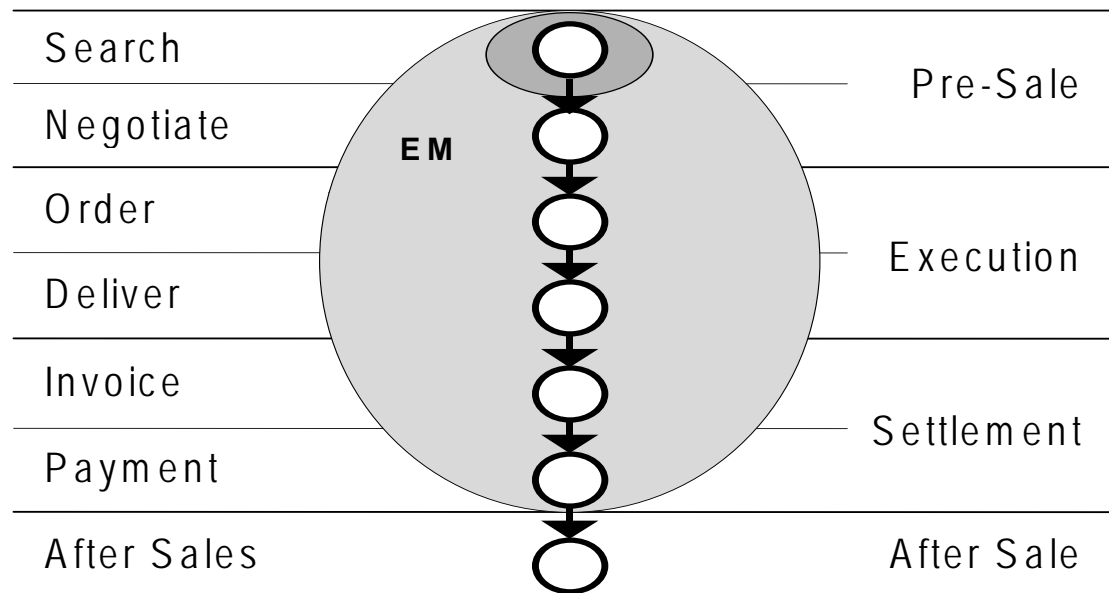
▶ Limited applications – airline seat bookings and financial sector – the operation of the electronic market is not necessarily in the vendor's interests.

Electronic Data Interchange

▸ Used for standardised, repeat, inter-organisational transactions

Search		Pre-Sale
Negotiate		
Order		Execution
Deliver	**EDI**	
Invoice		
Payment		Settlement
After Sales		After Sale
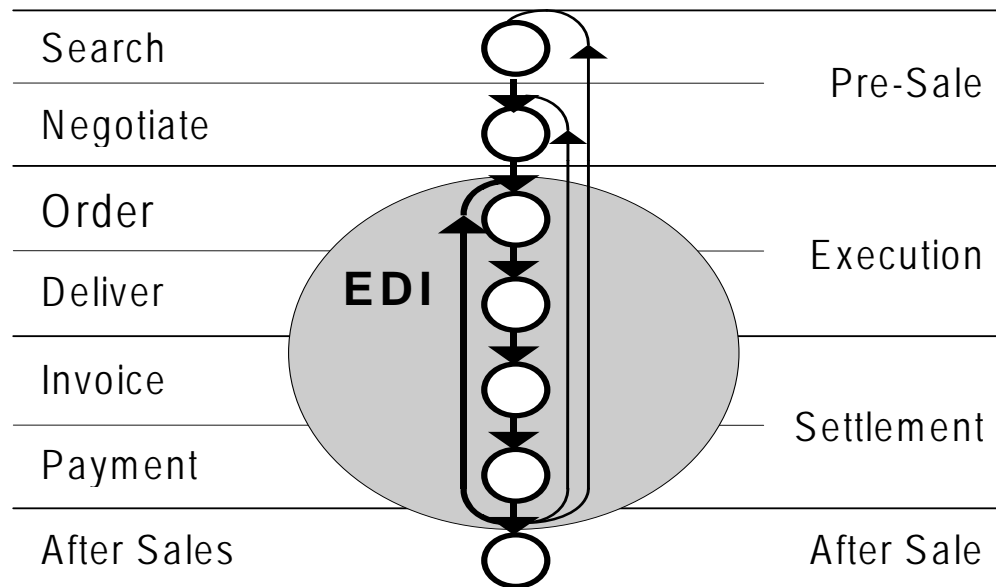
▸ Notable users of EDI are vehicle assemblers, component supplier's, and supermarkets (and other multiple retailers), ordering the goods to restock their shelves.

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Internet commerce

- Used for once-off transactions – consumer or inter-organisational transactions.

Search		Pre-Sale
Negotiate		
Order	Internet	Execution
Deliver		
Invoice		Settlement
Payment		
After Sales		After Sale
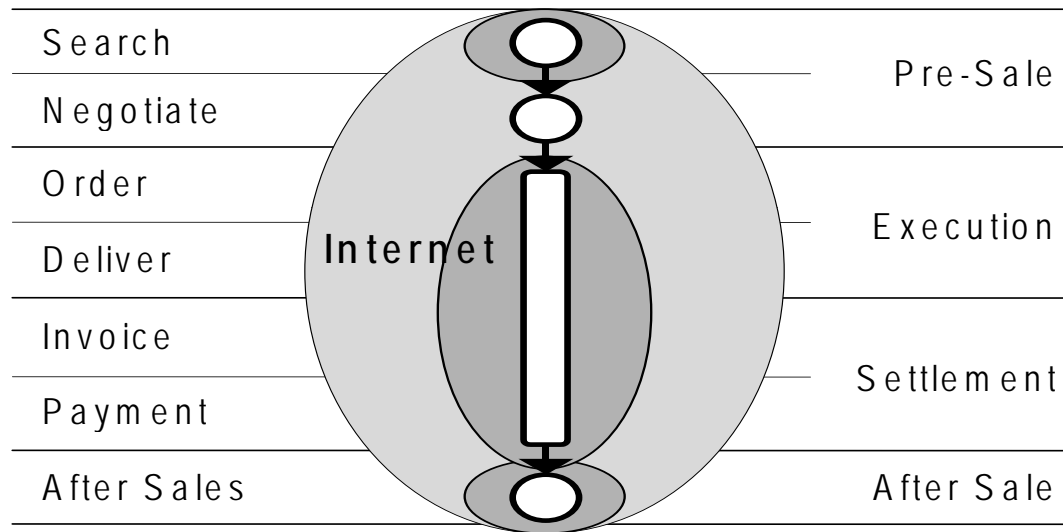
- Can apply to Search, Execution / Settlement and / or After Sales.
- Consumers pay at time of ordering – businesses may have credit arrangements with the suppliers.

e-Commerce in perspective

▸ e-Commerce is not appropriate to all business transactions and, within e-Commerce, there is no one technology that can or should be appropriate to all requirements.

Electronic

Markets

EDI

Internet Comerce
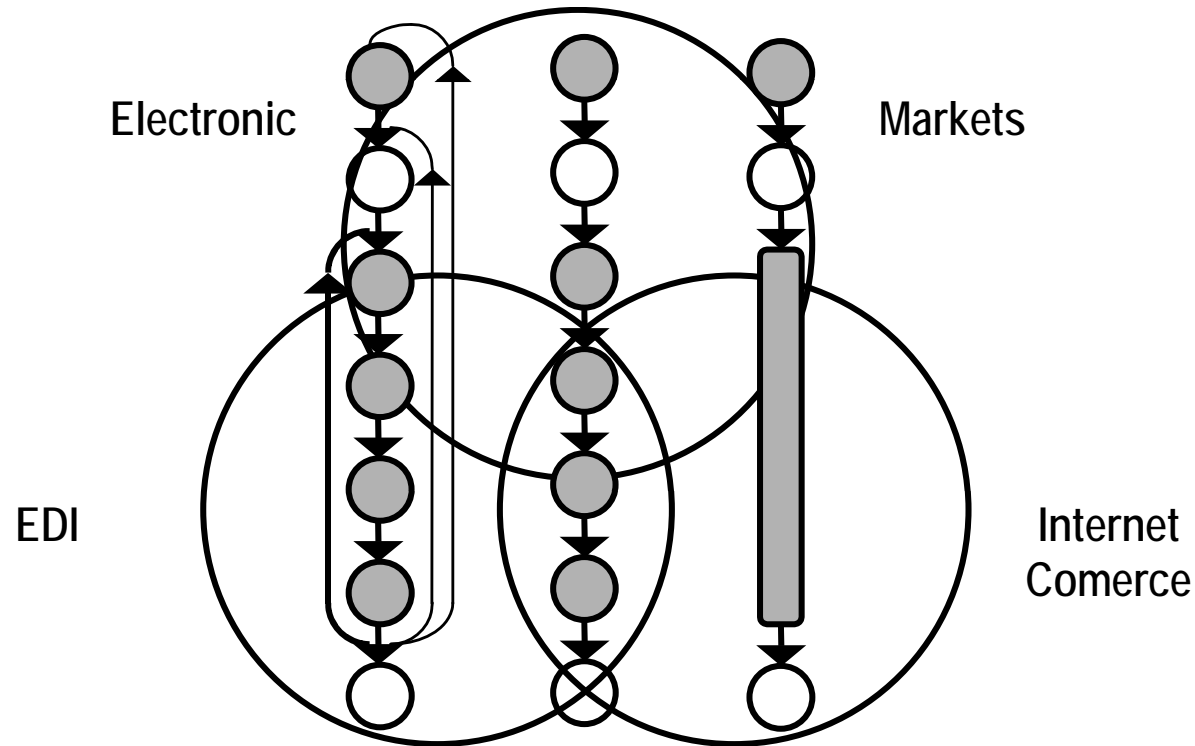
e-commerce Models

- B2C (Business to Consumer)
- B2B (Business to Business)
- C2C/P2P (Consumer to Consumer/Peer to Peer)
- C2B (Consumer to Business)
- B2G (Business to Government)

B2C e-commerce

- One of the most common model
- Applies to any business or organization that sells its product or service to consumer
- Provides direct sale between supplier & consumer
- It is also refer as e-tailing (electronic retailing)
- B2C started in 1995 when companies like ebay.com , amazon.com launched

Major Activities

Ordering

Service & Support

Fulfillment

B2C e-COM

Information Shairing

Payment

- Company Website
- Online Catalog
- E-mail
- Advertisement
- Message Board

- Credit Cards
- Electronic Cheques
- Digital Cash

Compiled by: Mr. D. P. Mishra, Reader, Deptt of CSE, BIT
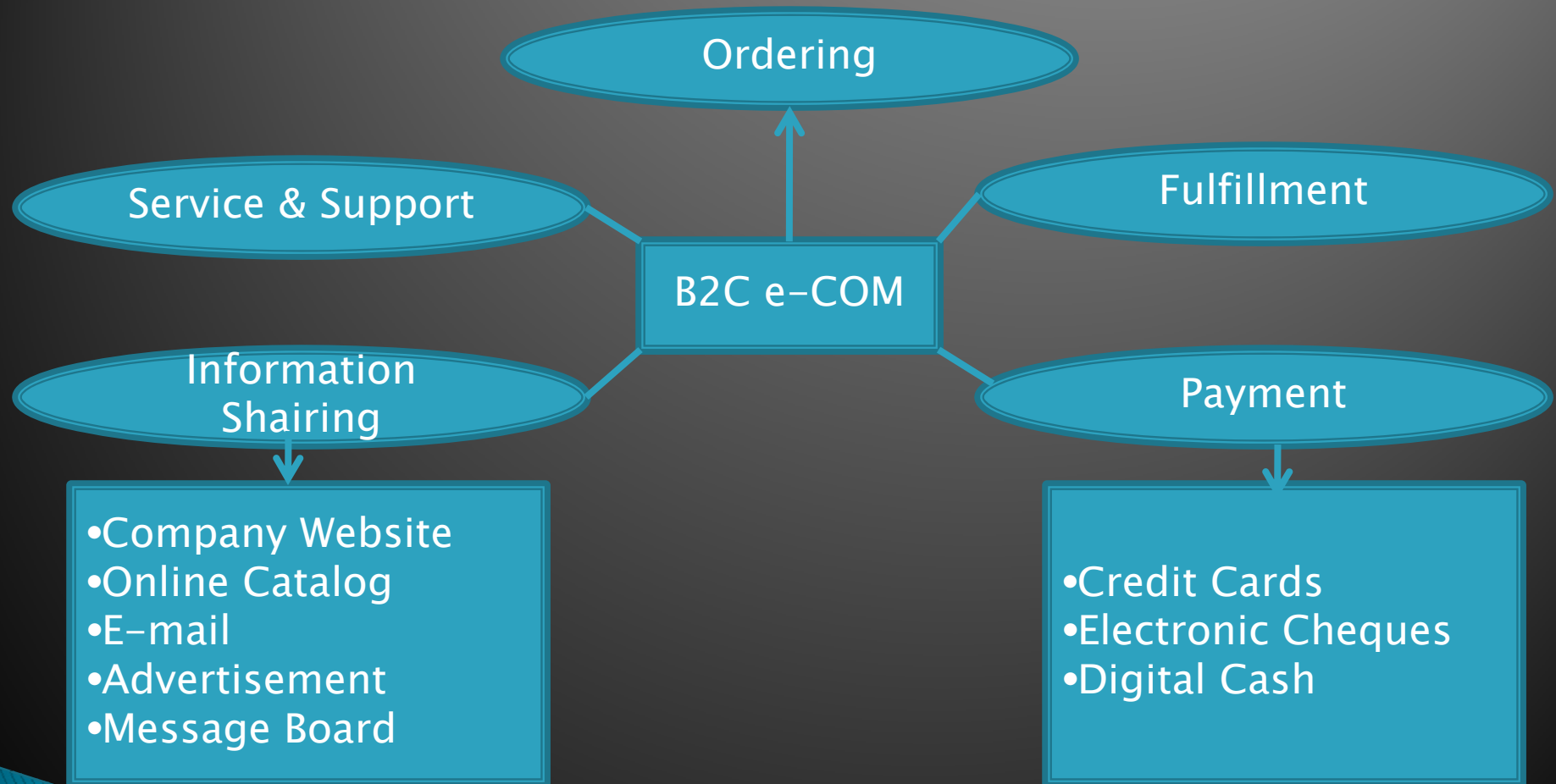
Major Challenges in B2C e-Com

- Getting Browsers to buy things

- Building customers trust/Privacy

- Building customer loyalty

- Fulfillment

B2B e-commerce

The important differentiating factor is:

▸ The vendor and the buyer of the goods or services involved in a transaction are both business organisations rather than individual customers who are the end users of the goods purchased.

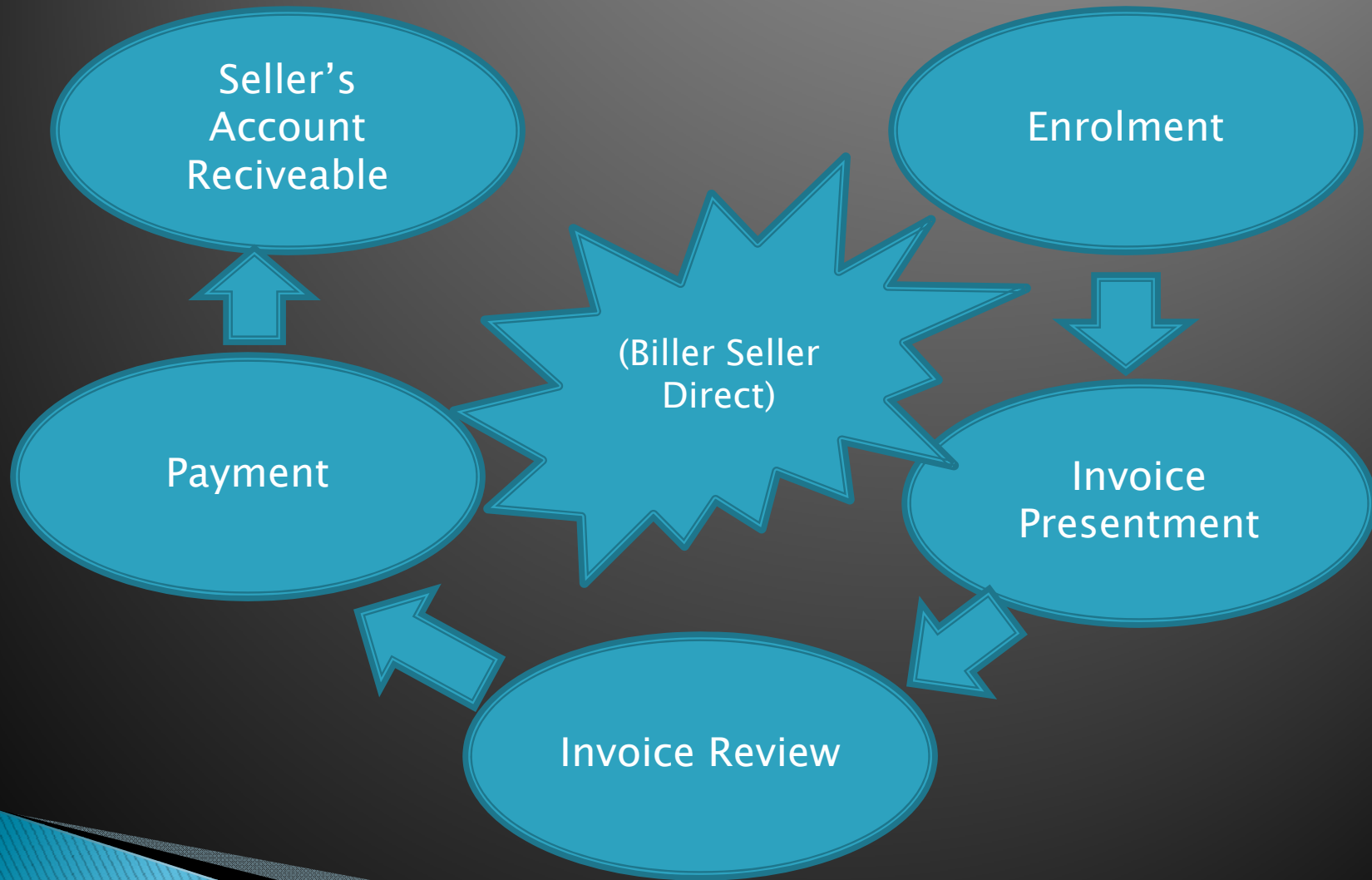# Advantages of B2B e-commerce

In e-commerce we normally argue for:

▸ Global rather than local sales;

▸ Global purchasing;

▸ Ability to buy/sell

▸ Savings of staffing, premises, showrooms;

▸ Better customer service.

Biller Seller Direct Model(B2B)

Seller's Account Receiveable

Enrolment

(Biller Seller Direct)

Payment

Invoice Presentment

Invoice Review

Advantages of B2B e-commerce

More significant advantages arise from the factors of:

- Automating Supply Chain Management (SCM) and Demand Chain Management (DCM);
- Automation of the business processes within a business enterprise;
- Integration of back-office systems resulting in Enterprise resource planning (ERP);
- Integration between the front-end and internet, and web-server systems and backend systems;
- Just-in-time (JIT) manufacture and delivery, mass customisation and Data warehousing.

Features of B2B e-commerce

B2B is characterised by a number of features:

- High volume of goods traded;
- High net value of goods traded;
- Multiple forms of payment methods involving bank instruments and schemes;
- Agreements and contracts between partners;
- High level of information exchange between different trading partners involved in the business cycle;
- Multiple levels of authorisation of purchases;
- Different types of taxation regimes are the subject of a transaction.

Business models

For tangible goods we can distinguish between:

▸ A buyer-oriented e-commerce system;

▸ A seller-oriented e-commerce system;

▸ A virtual market place with multiple buyers and sellers.

Focus is on purchase requisition and purchase order submission.

Business models

For services we also need to include:

▸ Actual delivery of the service;

▸ Monitoring of the stages of the service and its status at any time;

▸ Invoicing and payment on completion of the service.

Buyer-oriented e-commerce

Buyer-oriented e-commerce models suit large volumes of items of different types:

▸ Maintenance, repair, and operating goods;

▸ Products needed to service a given product;

▸ Components of raw materials used in a manufacture;

▸ Goods traded by a wholesaler;

▸ Large, less frequently ordered capital items.

E-Procurement

Starts with purchase requisition and involves:
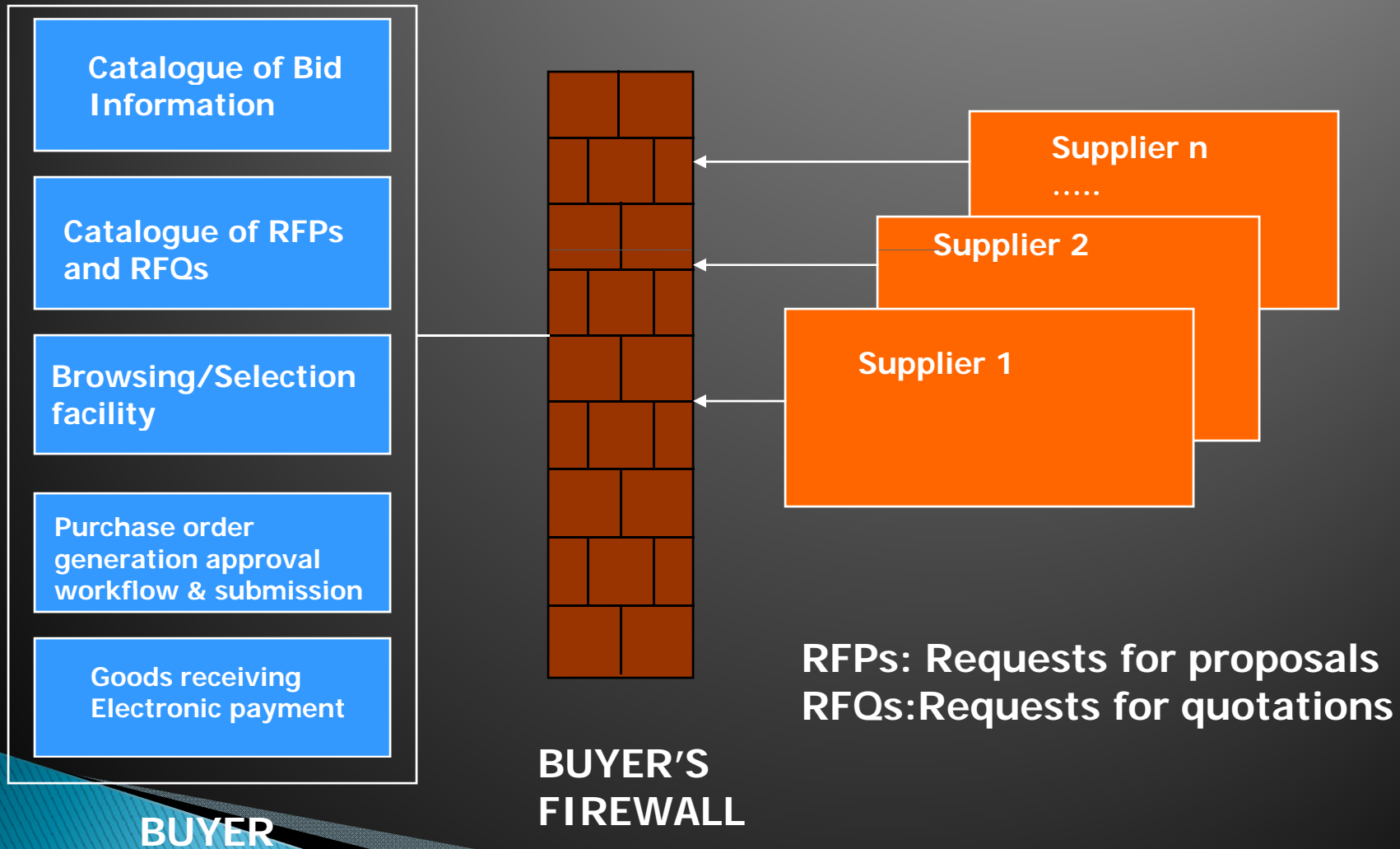
▸ Different levels of authorization;

▸ Selection of suppliers;

▸ Requests for quotations;

▸ Monitoring the order fulfilment;

▸ Payment.

Two distinct classes of activities:

▸ Intra-company activities;

▸ Inter-company activities.

Buy-side e-commerce system

Catalogue of Bid Information

Catalogue of RFPs and RFQs

Browsing/Selection facility

Purchase order generation approval workflow & submission

Goods receiving Electronic payment

Supplier n
.....

Supplier 2

Supplier 1

RFPs: Requests for proposals
RFQs:Requests for quotations

BUYER'S FIREWALL

BUYER

Purchasing in "buy-side e-commerce"

Compiled by: Mr. D. P. Mishra, Reader, Deptt of CSE, BIT
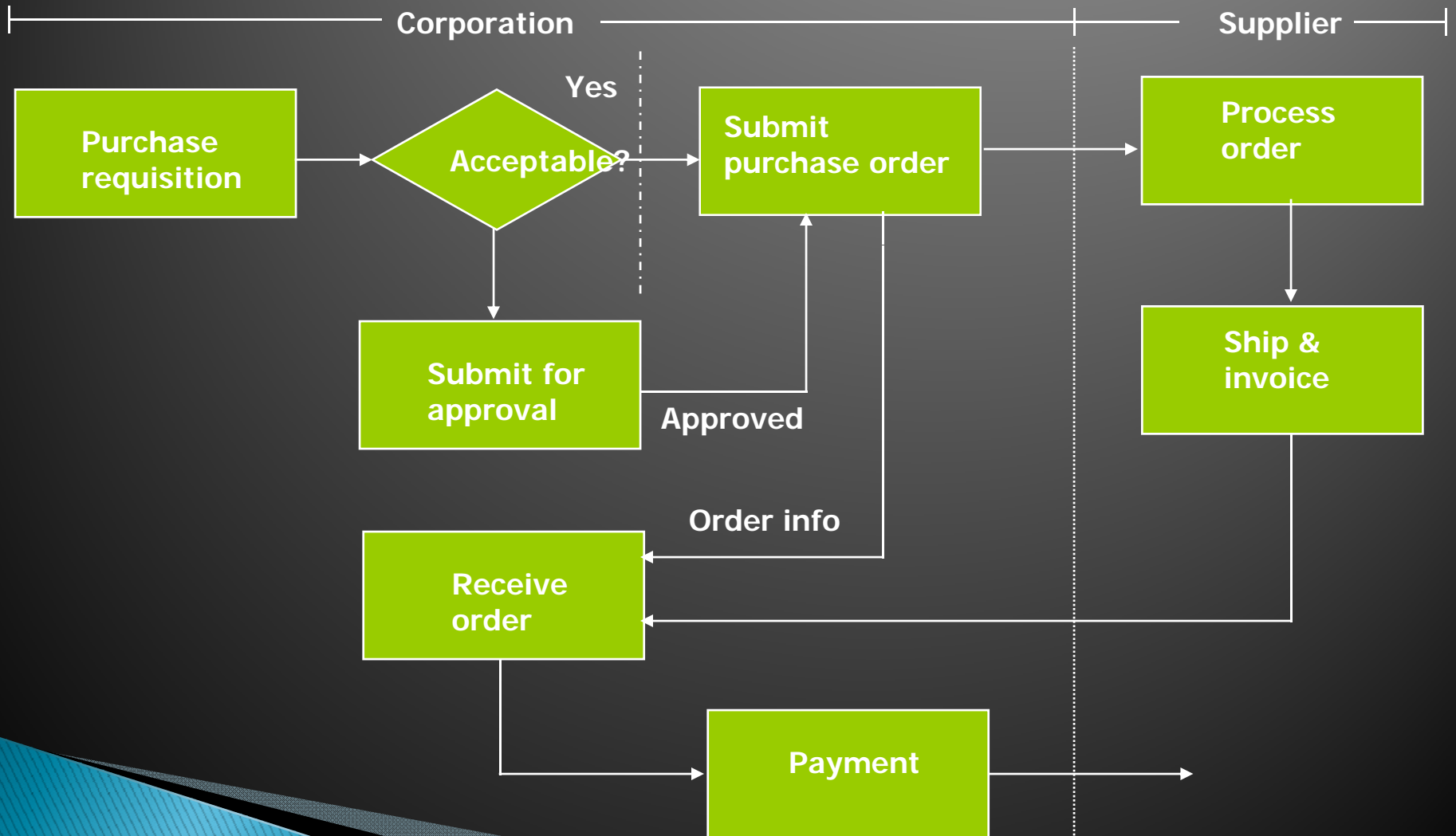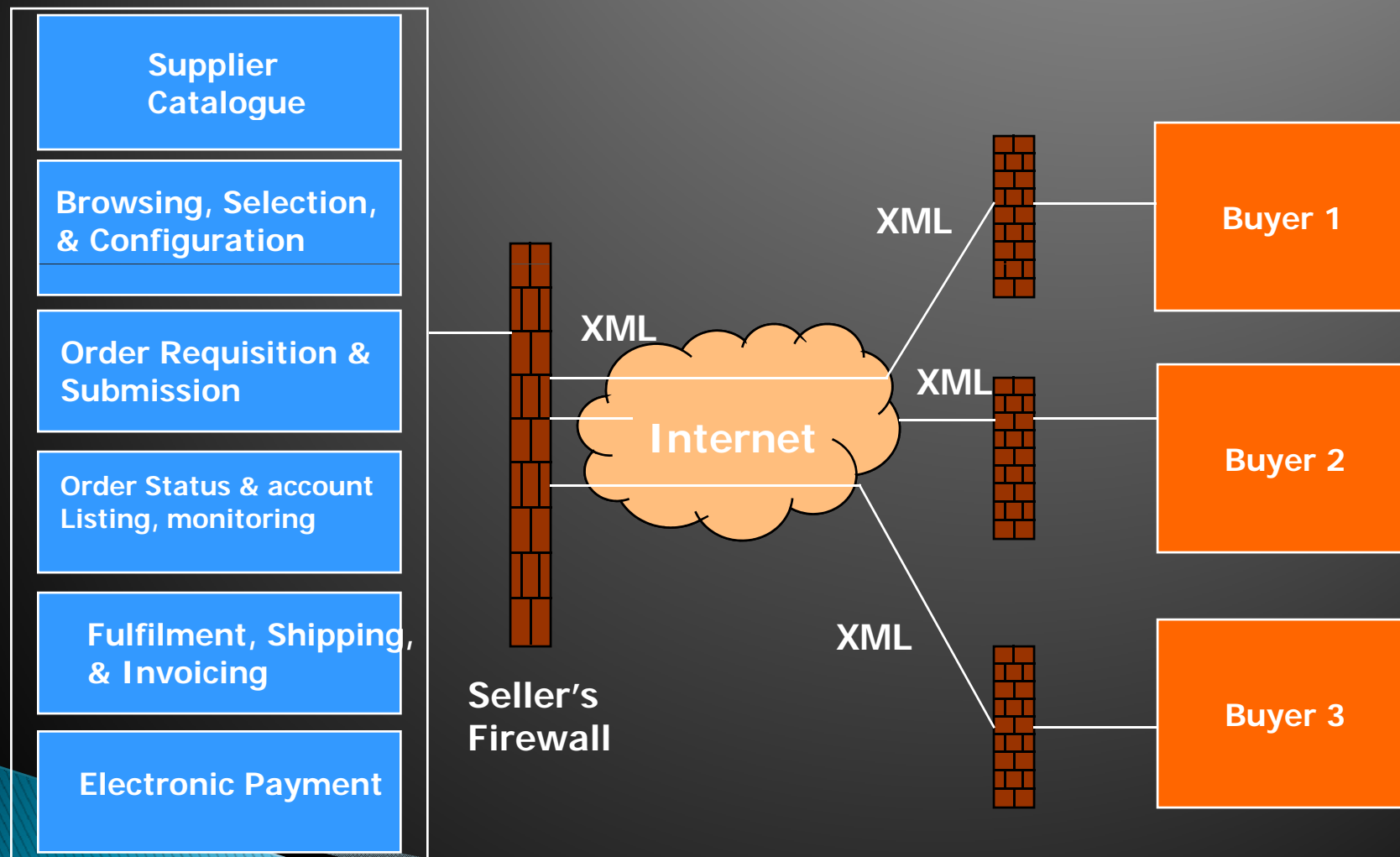
Sell-side e-commerce

A supplier-to-buyers system providing:

▸ Product catalogue;

▸ Product configuration;

▸ Business roles (for automating approval & ordering);

▸ Customer service;

▸ Fulfilment and shipping;

▸ Accounts receivable/invoicing and e-payments;

▸ Monitoring of order status and history.

Sell-side e-commerce system

E-commerce Application

- Supplier Catalogue
- Browsing, Selection, & Configuration
- Order Requisition & Submission
- Order Status & account Listing, monitoring
- Fulfilment, Shipping, & Invoicing
- Electronic Payment

Seller's Firewall

XML

Internet

XML

XML

XML

Buyer 1

Buyer 2

Buyer 3

Sell-side Software Platforms

Systems include:

▸ sell.com - a platform that allows one to build a sell-side system;

▸ WebDB - a front-end to Oracle DBMS, which allows one to build a portal that communicates with Oracle DB.

Virtual Markets

Meeting places for vendors and buyers:

- Digital market places;
- Infomediaries;
- Vertical portals.

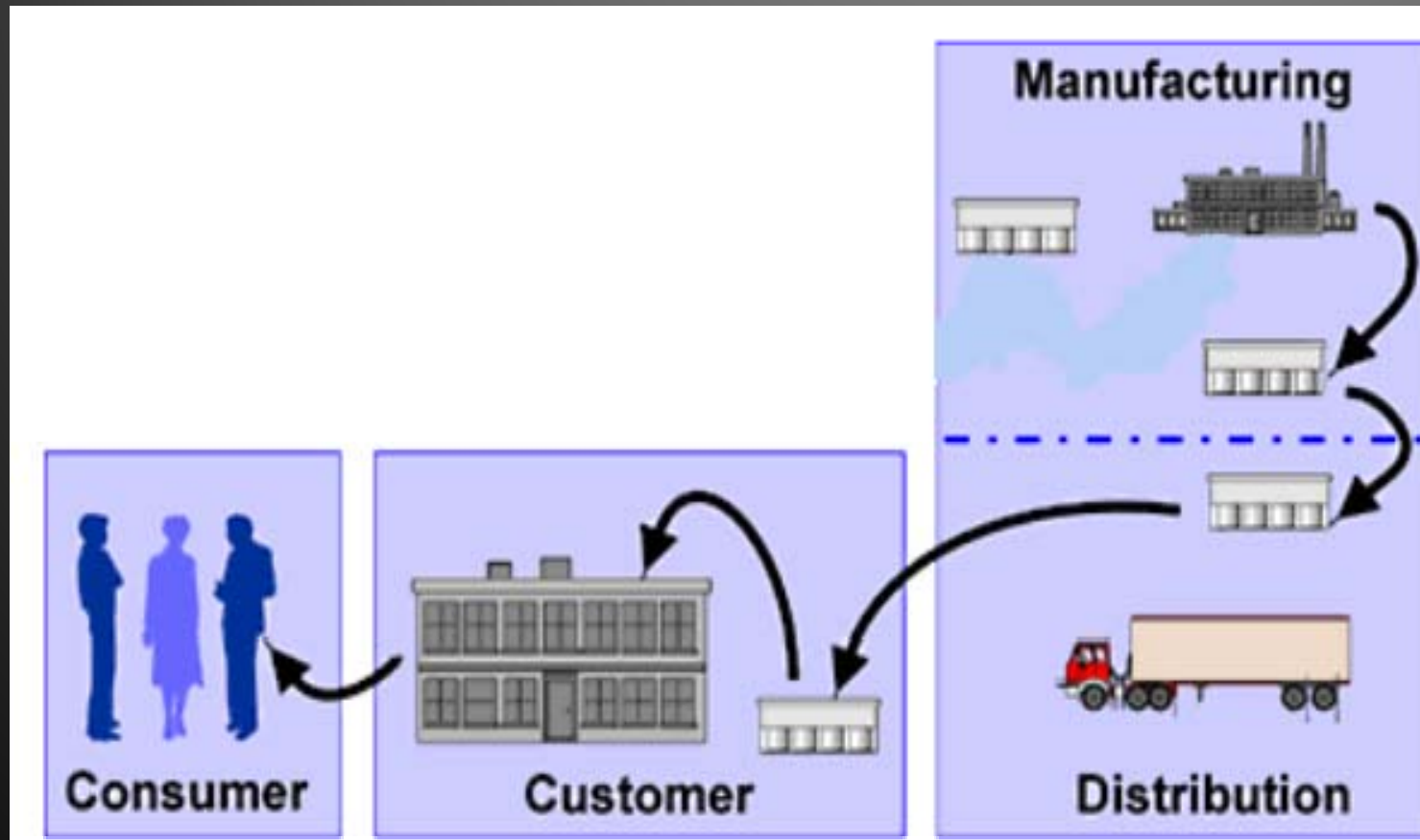E.g. Boeing's PART – allows airlines to purchase spare parts from different suppliers.

Supply Chain optimisation

Raw Mat'ls · Supplier · Manufacturing · Consumer · Customer · Distribution
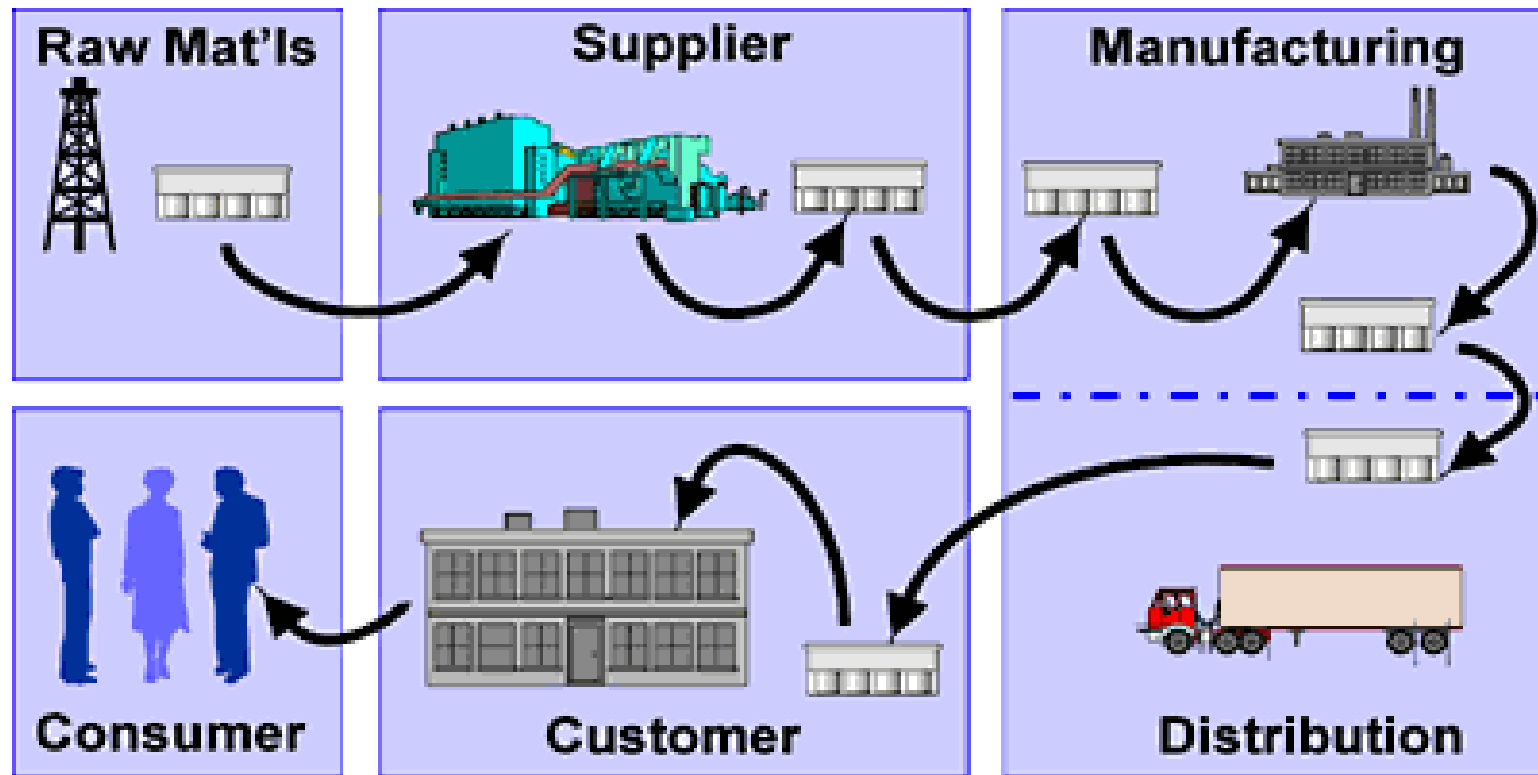
So many steps...so many inventories...so much time!

Downstream without e-commerce

Downstream with e-commerce

Integration Issues

B2B requires that companies integrate their systems:

- Intercompany Integration
  - Need of standards and overcome problems with EDI and VPNs.
  - Interoperation using XML (which acts as a business connector).

- Intracompany Integration
  - Seamless integration of orders and back-end systems;
  - Standardisation of information processes (e.g. through ERPs)
    - Order entry & fulfilment;
    - Logistics;
    - Inventory;
    - Production planning and monitoring;
    - Accounting entry and financial systems;
    - Human resources and payrolls.

Questions

(1) What is the important differentiating factor of B2B e-commerce.

(2) What are the advantages of B2B e-commerce.

(3) Briefly explain what are the characteristic features of B2B e-commerce.

(4) In B2B e-commerce, what kind of business models can we distinguish for tangible goods? What additions do we require for services of items?

(5) Which types of items is a buyer-oriented system suitable for? Briefly explain the different types of items.

(6) Explain the features provided by a sell-side B2B system.

(7) What is a virtual market? How does it optimise the supply chain?

(8) What are the integration issues of B2B e-commerce?

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Paperless Transaction / Contracts

- EDI is used for paperless transactions/contracts
- Minimizes the amount of time used in inventory
- Helps in Minimizing the cost
- EDI is commonly applied in execution and settlement phase of trade cycle
- EDI can be used for Pre –Sale transaction there should be EDI messages developed for transaction of such contracts
- Can be used for after sales transaction but only if we standardize the formats

Proper working of EDI following things are required

- Transaction format & data should be standardized
- Special Software should be developed for converting the message into a form suitable to other company
- Value added Network with mailbox
- Certain transaction would be still required to write in hard form

Components used in EDI

- Trade agreement
- Standard document format
- EDI translation management software – Converts your application/document to agreed standard format
- Communication Software – Programming tool that enables you to write communication protocol or a separate application
- VAN (Value added Network)

EDI Standards

- EDIA (Electronic data interchange association) is non-profit organisation set out to serve as administrator for several industry group
- UCS –uniform communication standard
- ANSIX12
- EDIFACT
- EDI Data Standards
  - DES (Data Encryption Std.)
  - RSA (Rivest Shamir Adleman)

Reasons for slow acceptability of EDI

- Too many standards –ex. your company uses X12 std. while your trading partner follow EDIFACT
- Changing Standards–Each year most standard bodies publish revision to standards this creates problem to EDI Users
- EDI is too Expensive–Some companies do business with others who use EDI so in order to do business need to implement EDI
- Limits your trading Partners

E-Security

- Authentication
- Access Control
- Encryption
- Firewall
- IDS (Intrusion Detection System)
- IPS (Intrusion Prevention System)
- Client Server Security
- Biometric Security
- Digital Identity & Digital Signature
- AV Software