

# Technologies for E-Commerce

**CAN302**

**Department of Communications and Networking**  
**Xi'an Jiaotong-Liverpool University (XJTLU)**

# About me

Dr. Ping Zhang

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## Background:

PhD, Nanyang Technological University, Singapore.

10+ years' experience on incubating the high-tech ideas.

## Research interests:

MEMS sensors, IoT(Internet of Things) and related topics.



# Outline of introduction to CAN302

1. The aims and objectives of the CAN302
2. The contents covered by the CAN302
3. Teaching and learning strategies and methods
4. Assessment methods

# 1. Aims and Objectives

- To understand how businesses, technologies and society **interacted** with each other.
- To understand the basic **technologies** that supporting e-commerce, and how these technologies fit together. (**Development and maintenance** )
- To understand ecommerce marketing technologies. (**Marketing - Make it known**)
- To introduce ecommerce technologies associated with the issues such as security, privacy and ethics. ( **Security and social issues**)

# 1. Aims and Objectives (cont'd)

Upon completing this module, a student will:

- A. Demonstrate an understanding of the **methods and issues** involved in deploying e-commerce solution to meet business goals.
- B. Demonstrate the ability to use suitable technologies and methods in **developing, deploying, marketing and maintaining** e-commerce solutions.
- C. Demonstrate an awareness of **security issues and solutions** in e-commerce transactions.
- D. Demonstrate an awareness of key **legal, social and ethical issues** as well as methods to account for these in a system design.

## 2. Contents

1. Introduction on Business
2. Technologies for E-commerce
3. Security technologies
4. Marketing and social, ethical issues

# 3. Teaching and learning methods

- Week 1-2, two Lecs per week.
- From week3 and on-going, 1 Lec + 1 Lab in each week .
- Please attend lectures and labs and WRITE down your **questions**!
- Feel free to ask me **questions**, in class or office hour!
- You need to read materials and **write codes** after class.
- *"Talk is cheap, show me the code."* - by Linus Torvalds.
- Spend enough time - 150 hours in total.

# Recommended materials

- Books:

- E-commerce: Business, Technologies, Society

Kenneth C. Laudon and Carol G. Traver (latest edition)

- E-commerce: fundamentals and Applications. Henry Chan, Raymond Lee, Tharam Dillon and Elizabeth Chang
  - Darrel Ince [2004]: Developing Distributed and E-Commerce Applications. (Harlow, England: Addison Wesley). (Second edition).
  - William Stallings [2000]: Network Security Essentials: Applications and Standards. (Prentice Hall)

- Weblinks:

- Embedded in the lecture notes



# 4. Assessment

- Three components split into 15%, 15% and 70%.
- Two assessments 15% each.
  - CW1: a project design (PRD file)
  - CW2: develop the design in CW1 (PHP + MySQL).
- 70% written examination.
- Do **NOT** fail the module and tell me your have a master offer ...

# Lec 1 – What is e-commerce?



# Outline of Lec1

1. Commerce vs. business
2. The definition of e-commerce
3. A brief history of e-commerce
4. Summary

# Commerce vs. Business

- Commerce:

The **exchange** or buying and selling of commodities on a large scale **involving** transportation from place to place.

<https://www.merriam-webster.com/dictionary/commerce>

- Business:

The activity of **making**, buying, or selling goods or providing services in exchange for money

<https://www.merriam-webster.com/dictionary/business>

# Widely used e-business systems:

- MIS (Management Information System)
- MRP (Material Requirements Planning)
- ERP (Enterprise Resources Planning)
- CRM (Customer Relationship Management)
- HR (Human Resources)
- OA (Office Automation)
- BI (Business Intelligence)
- RAMI4.0 (Reference Architecture Model Industrie 4.0)

# Definition of e-Commerce

- **Electronic commerce (EC)**

**Electronic** enabled commercial transactions between and among organizations and individuals

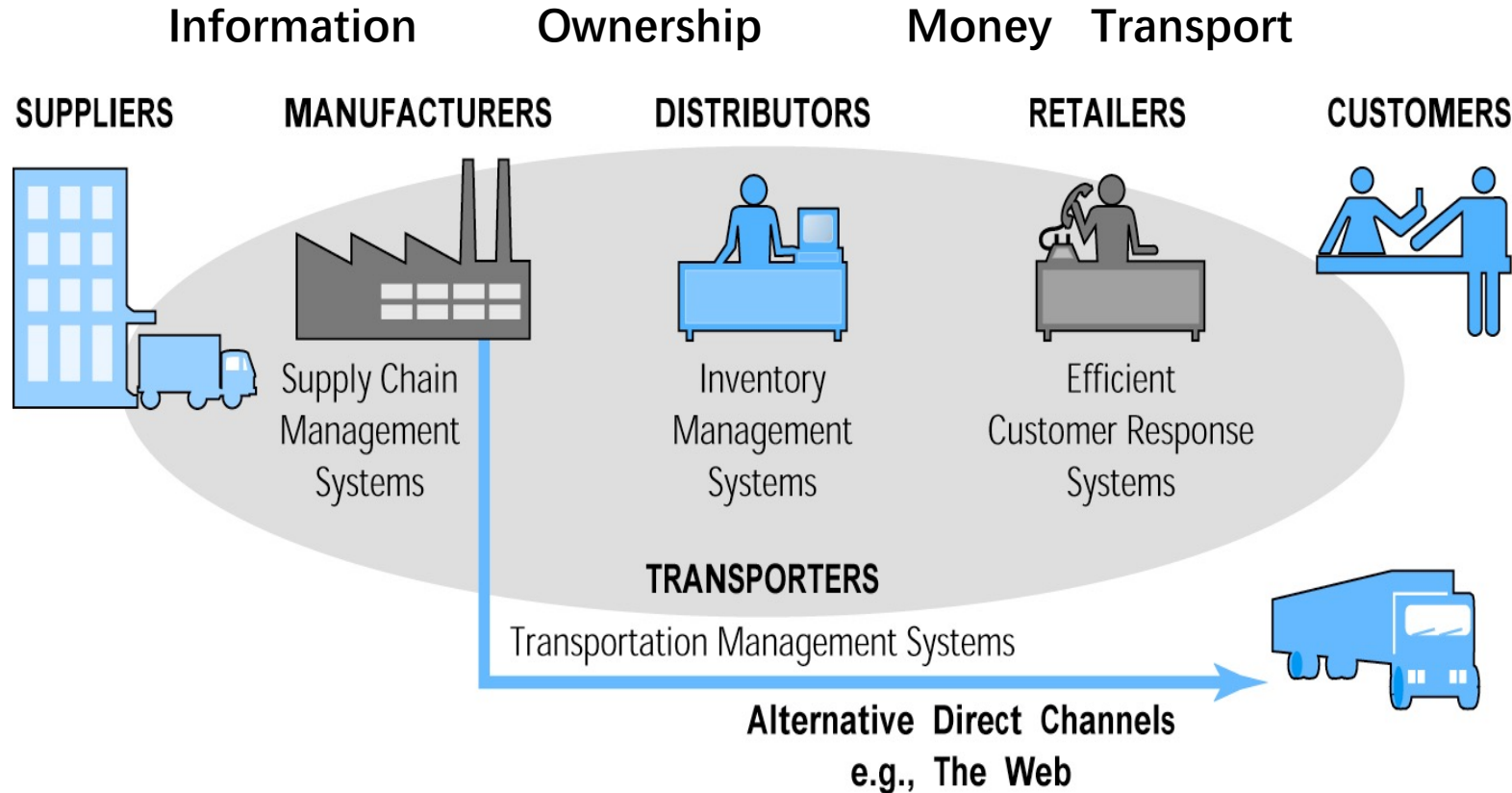
- **Internet commerce (Web commerce)**

The process of buying, selling, or exchanging products, services, or information via **Internet**

- **E-business**

It involves using information technologies in all aspects of the business.

# Typical processes of one commerce session



- Search for goods
- Put the order
- Pay the order
- Receive the goods
- Customer services

- Broad definition: any process by computer (electronic) would be e-commerce
- Narrow definition: the order process should be in e-format.

**Discussion:** Try to give some scenarios that are **NOT** e-commerce at year 2022.

# The revolution of payment



**Discussion:** which one is the first e-payment?

<https://cj.sina.com.cn/article/detail/6137509981/195123>



# **Security** is always the No.1 issue

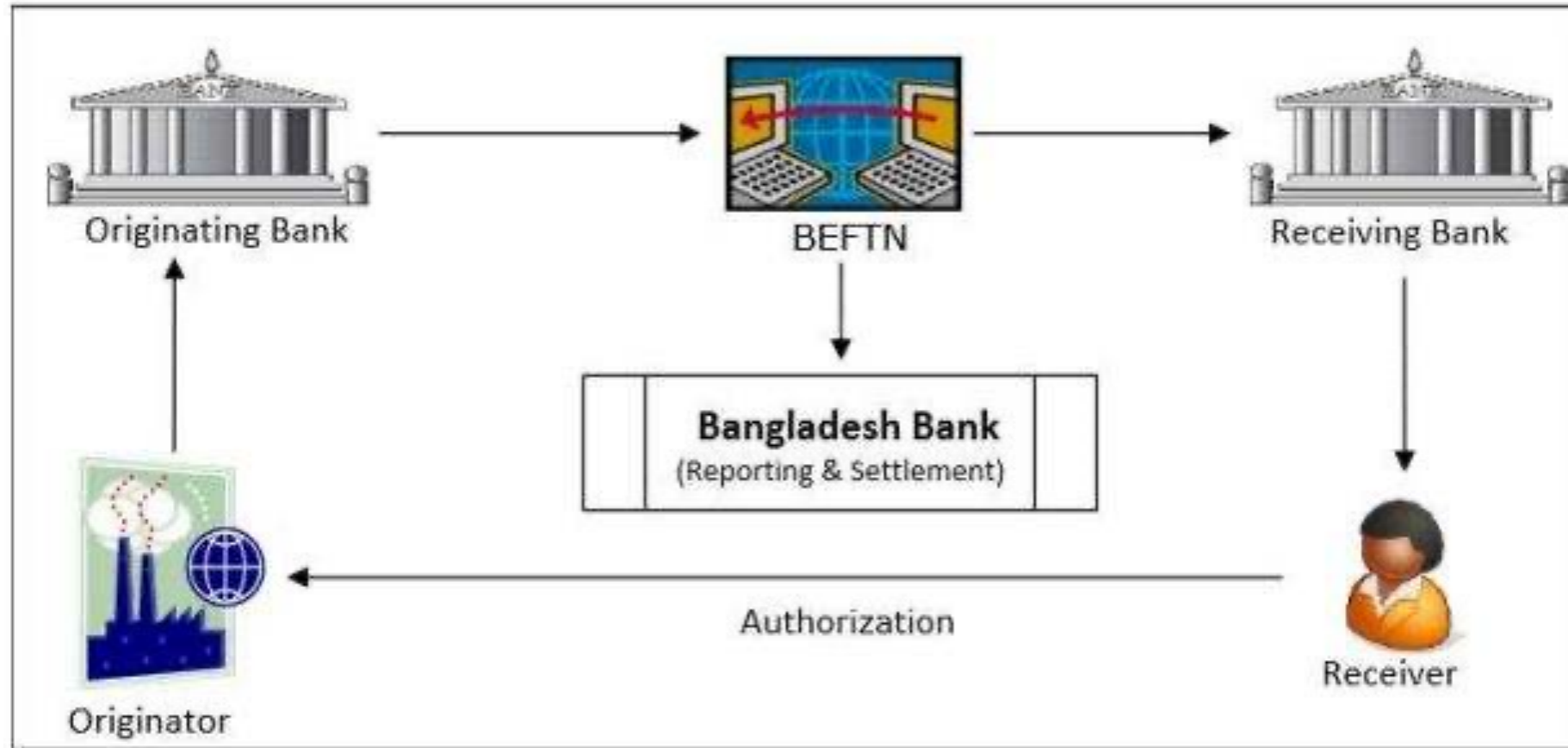


Catch me if you can



Entrapment

# EFT: electronic fund transfer



*Figure: Process flow of the EFT system*

# EDI: Electronic Data Interchange

- EDI made the e-commerce **beyond** e-payment.
- EDI is the intercompany communication of **business documents** in a standard format.
- The simple definition of EDI is a standard electronic format that replaces paper-based documents such as **purchase orders** or **invoices**.
- EDI is an old but **still** mainstream technology in **B2B**.

<https://www.digitalcommerce360.com/2020/06/01/why-edi-still-has-a-big-role-to-play-in-b2b-ecommerce/>

<https://wenku.baidu.com/view/d585c486b9f67c1cfad6195f312b3169a451ea8c.html>

<https://www.comarch.com/trade-and-services/data-management/news/why-edi-is-still-in-use/>

<https://wenku.baidu.com/view/19e13edbf6ec4afe04a1b0717fd5360cba1a8dec.html>

<https://www.ibm.com/topics/edi-electronic-data-interchange>



# The beginning of internet e-commerce



- 11<sup>th</sup> Aug, 1994, a CD was sold through [www.netmarket.com](http://www.netmarket.com)
- \$12.48+shipping
- The credit card No. was encrypted in the purchasing process.

<https://www.smithsonianmag.com/smart-news/what-was-first-thing-sold-internet-180957414/>

# Some famous e-commerce players



# Two guys of Alibaba





# “ChanYe” e-commerce



<http://www.100ec.cn/detail--6592123.html>

# The e-commerce market of China

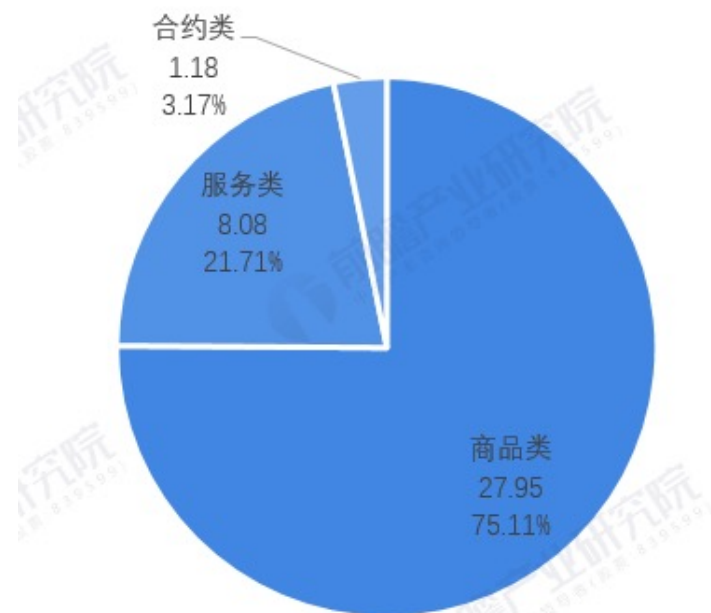
图表1：2011-2020年中国电子商务交易额及其增长情况(单位：万亿元，%)



资料来源：商务部 前瞻产业研究院整理

@前瞻经济学人APP

图表2：2020年我国电子商务主要细分市场市场结构图(单位：万亿元，%)



资料来源：商务部 前瞻产业研究院整理

@前瞻经济学人APP

<https://baijiahao.baidu.com/s?id=1715483848491075248&wfr=spider&for=pc>



# The forecast market of China



<https://www.snhtdc.com.cn/articles/131492.html>

# Most new format of e-commerce

2019-2020年中国直播电商用户常用直播平台TOP 10



2019-2020年中国直播电商用户常用直播平台TOP 10  
TOP 10, Common Live Platform for China's Live E-commerce Users in 2019-2020



数据来源：艾媒数据中心 (data.iimedia.cn)

样本来源：草莓派数据调查与计算系统 (Strawberry Pie)

样本量=1983; 调研时间：2020年1月22日-2月3日

2020H1中国直播电商平台生态链布局及典型案例数据分析报告

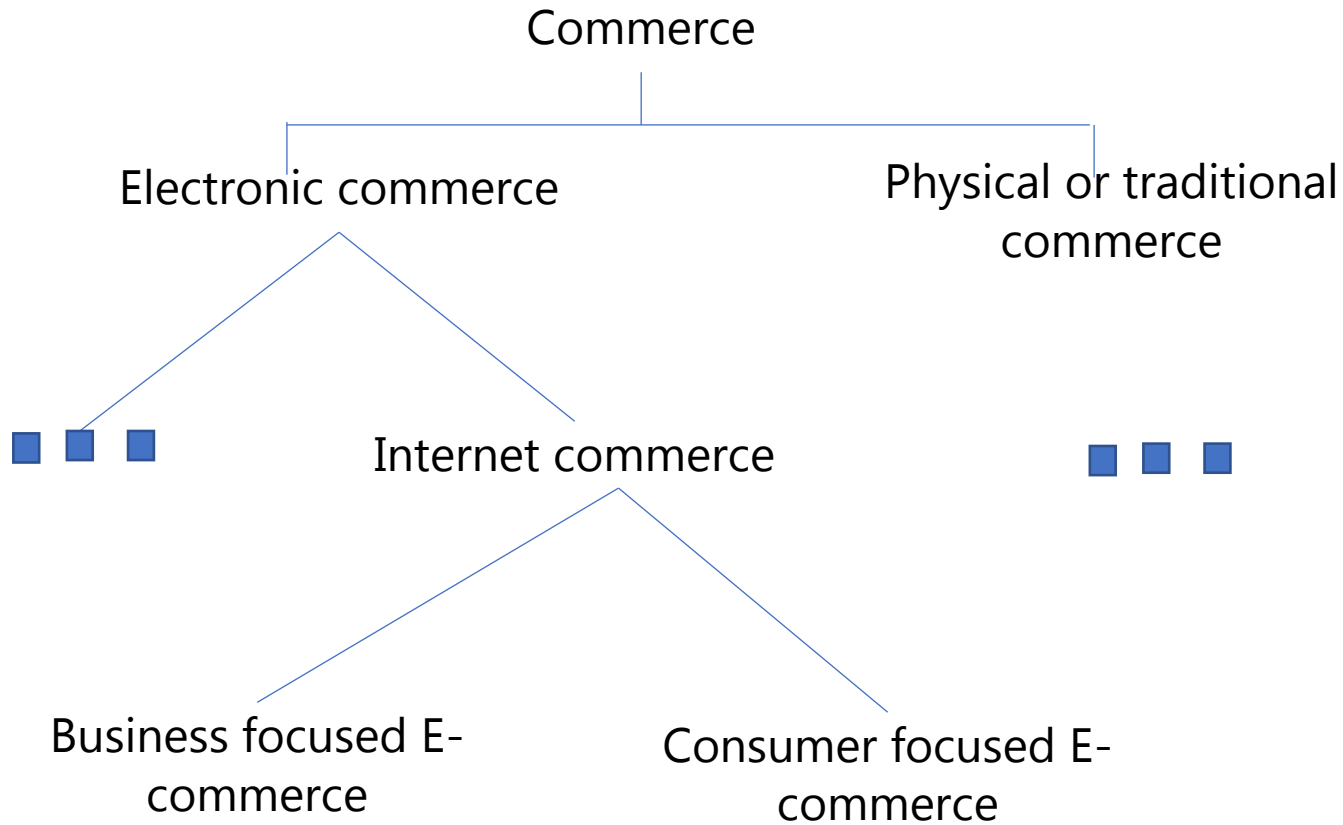
艾媒报告中心: report.iimedia.cn ©2020 iiMedia Research In

[https://www.sohu.com/a/394623312\\_728793](https://www.sohu.com/a/394623312_728793)

# The framework of e-commerce



# Summary



## Types of Ecommerce Models

- Business 2 Business
- Business 2 Customer
- Customer 2 Customer
- Customer 2 Business

Many terms on different point of view:

O2O (网上与网下相结合) M-B (移动电子商务) B2G (政府采购) SoLoMo (社交+本地化+移动)

Sharing Economy: P2P B2P

<https://www.shopify.com/encyclopedia/what-is-ecommerce>

FIGURE 2.4

HOW E-COMMERCE INFLUENCES INDUSTRY STRUCTURE





## Eight unique features of e-commerce technology

TABLE 2.6	EIGHT UNIQUE FEATURES OF E-COMMERCE TECHNOLOGY
FEATURE	SELECTED IMPACTS ON BUSINESS ENVIRONMENT
Ubiquity	Alters industry structure by creating new marketing channels and expanding size of overall market. Creates new efficiencies in industry operations and lowers costs of firms' sales operations. Enables new differentiation strategies.
Global reach	Changes industry structure by lowering barriers to entry, but greatly expands market at same time. Lowers cost of industry and firm operations through production and sales efficiencies. Enables competition on a global scale.
Universal standards	Changes industry structure by lowering barriers to entry and intensifying competition within an industry. Lowers costs of industry and firm operations by lowering computing and communications costs. Enables broad scope strategies.
Richness	Alters industry structure by reducing strength of powerful distribution channels. Changes industry and firm operations costs by reducing reliance on sales forces. Enhances post-sales support strategies.
Interactivity	Alters industry structure by reducing threat of substitutes through enhanced customization. Reduces industry and firm costs by reducing reliance on sales forces. Enables differentiation strategies.
Personalization/ Customization	Alters industry structure by reducing threats of substitutes, raising barriers to entry. Reduces value chain costs in industry and firms by lessening reliance on sales forces. Enables personalized marketing strategies.
Information density	Changes industry structure by weakening powerful sales channels, shifting bargaining power to consumers. Reduces industry and firm operations costs by lowering costs of obtaining, processing, and distributing information about suppliers and consumers.
Social technologies	Changes industry structure by shifting programming and editorial decisions to consumers. Creates substitute entertainment products. Energizes a large group of new suppliers.