Course Syllabus

ISOM2400 Global Information Infrastructure and Policy

- Winter Semester 2024/25
- Instructor: Prof. Xu Yan
- Office: 4074, LSK Business Building, E-mail: xuyan@ust.hk, Office Phone: 2358 7640
- Teaching Assistant: TBC

Course Description

An information infrastructure encompasses various communication platforms such as the Internet, mobile Internet, social networks, and the Internet of Things. Its primary purpose is to facilitate interactions among individuals, organizations, and objects. In today's information society, the presence of a robust and efficient information infrastructure is of paramount importance, as it directly impacts businesses, economies, and overall quality of life.

To ensure the effectiveness of an information infrastructure, three key elements play a vital role:

Firstly, technology serves as the foundation. It is essential to explore the characteristics of the next generation infrastructure. What distinguishes optical fiber as a powerful medium for high-speed signal transmission? What makes 5G technology unique and impactful?

Secondly, innovative business strategies are crucial. For instance, it is important to identify business models that can facilitate the widespread adoption of mobile data services. Additionally, leveraging Web 2.0-enabled social networks for business innovation can yield significant benefits.

Lastly, a well-crafted policy framework is critical. Policymakers grapple with a range of issues, including whether the network should be operated by a monopoly or opened up for competition. They also consider whether the government should own the network or allow private and foreign investors to operate it. Furthermore, ensuring access to the network for low-income individuals is essential to bridge the gap between the information rich and the information poor.

This course aims to provide a comprehensive overview of the global information infrastructure from various perspectives, including technology, social dynamics, business strategies, and policy considerations. Key topics covered will include universal service, digital convergence, next-generation information infrastructure, cloud computing,

network interconnection, the WTO's agreement on telecommunications, spectrum auctions, and digital transformation. The course will also emphasize the growing importance of Web 2.0-enabled platforms in driving business innovation.

Designed as a three-credit **Common Core Course**, this class is suitable for students from all backgrounds, as no prerequisite courses are required. It offers a broad understanding of the intricacies and significance of information infrastructure in today's interconnected world.

Learning Outcomes

Upon completion of this course, students are expected to be able to:

- recall and state fundamentals of information infrastructure from technology, social, business and policy perspective
- explain and interpret information infrastructure strategies from technology, social, business and policy perspectives
- analyze and evaluate the strengths and weaknesses of each information infrastructure strategy from technology, social, business and policy perspectives
- address business needs by formulating part of the corporate and public information infrastructure strategy from technology, social, business and policy perspectives

Teaching Approach

- Introducing the basic concepts of information infrastructure from technology, social, business and policy perspectives in lectures
- Using practical cases to interpret and illustrate policies, social implications and business applications of information infrastructure
- Discussions and simulations will be conducted so as to enhance students' understandings of information infrastructure

Assessment Scheme

- The mid-term assignment and the final exam will include multi-choice and filling the blank questions so as to test if student can recall or state knowledge of the fundamentals

- In addition to multi-choice and filling the blank questions, part of the short questions in the mid-term assignment and the final exam are designed to test student's ability to explain and interpret information infrastructure-related issues

Students will be graded on the basis of

a) a mid-term assignment (50%);
b) a final exam (50%).

Textbook:

Due to the extensiveness of this course, it is hard to recommend an appropriate textbook. Instead, suggested readings will be available in books reserved in the library or assigned on the course website throughout the lectures.

Class Hours and Venue:

- 2-4, 6-10 January 2025, 14:00-17:20
- 11 January 2025, 9:30-12:50; 14:00-17:20
- Class room: TBC

Schedule:

January 2: **Introduction to the Information Infrastructure**
Reading:
1. Carr I Snyder (2003) *Management of Telecommunications*, McGraw-Hill Irwin: Boston, Chapter 1, 2, 3 (pp.71-94) (*For reference)*
2. Reading-1 ICT Facts Figures 2023

January 3: **Digital Convergence; Wireless Communications and Spectrum Regulation**
Reading*:*
1. Carr I Snyder (2003) *Management of Telecommunications*, McGraw-Hill Irwin: Boston, Chapter 3 (pp.94-123) (*For reference*)

January 4: **The Next Generation Information Infrastructure;**
Reading: Handout

January 5-8: **Mid-term Assignment** (opening of on-line assignment at the end of lecture 3 and closing by noon of January 8; covering the first five lectures)

January 6: **Business and Socioeconomic Implications of Information Infrastructure**
Reading: Handout

January 7: **Web 2.0 and Innovation**

Readings:

1. Schoshana Zuboff and James Maxmin (2002) The Support Economy: Why Corporations are Failing Individuals and the Next Episode of Capitalism *(For Reference)*
2. Eric Von Hippel (2005) *Democratizing Innovation*, MIT Press, downloadable for free from *http://web.mit.edu/evhippel/www/democ1.htm*, Chapter 1 (For Reference)

January 8: **Diffusion of Telecommunications Services; Case Study: SMS Adoption in Hong Kong and China**

Readings:

1. Everett M. Rogers (2003) *Diffusion of Innovation*, New York: Free Press, **Chapter 5** *(For Reference)*
2. Reading 2 - SMS in HK and China

January 9: **Theoretical Framework of Information Infrastructure Deregulation**

Readings:

1. Geroski, *Barriers to Entry and Strategic Competition* 1990 (On reserve in the UST Library), Part II, III, IV *(For reference)*
2. Reading 3 - Competition Theory

January 10: **Organizational Restructuring of Information Infrastructure**

Readings*:*

1. Black, S.K. (2002*) Telecommunications Law in the Internet Age*, Morgan Kaufmann Publishers: San Francisco, Chapter 1,2 (*For reference)*
2. Fransman, Martin **(**2002) *Telecoms in the Internet Age: from boom to burst to--?* Oxford University Press: Oxford, *(For reference)*
3. Reading 4 - Divestiture of AT&T
4. Reading 5 -Telecom Restructuring-Martin Franceman

January 11am: **Network Interconnection; Local Network Competition in Hong Kong**

Readings:

1. Black, S.K. (2002*) Telecommunications Law in the Internet Age*, Morgan Kaufmann Publishers: San Francisco, Chapter 4 *(For reference)*
2. Reading 6 - Type III Interconnection (*For reference*)

January 11pm: **Foreign Direct Investment in Telecommunications and WTO's Basic Telecommunications Agreement**

Reading: Reading 7 - China's telecom and the WTO (*For reference)*

January 15: **Final Exam** (14:00-18:00)

Links to Related Websites

Government Sites

(1) Office of the Communications Authority at http://www.ofca.gov.hk

(2) Commerce and Economic Development Bureau (Communications and Creative Industries Branch) at https://www.cedb.gov.hk/ccib/

(3) Ministry of Industry and Information Technology (MIIT) of China at https://www.miit.gov.cn (Chinese only)

(4) Audit Commission of Hong Kong SAR Government at http://www.info.gov.hk/aud

Operators in Hong Kong SAR

FTNS operators

(1) HKT at http://www.hkt.com

(2) HGC Global Communications Limited at http:// https://www.hgc.com.hk/

(3) Hong Kong Broadband Network Limited at http://www.hkbn.net

Mobile Network Operators

(1) Hong Kong CSL Limited at www.hkcsl.com

(2) China Mobile (HK) at http://www.hk.chinamobile.com

(3) Smarton Mobile Communications Limited at http://www.smartone.com

(4) 3 Hong Kong at http://www.three.com.hk

Operators in China

(1) China Telecom at http://www.chinatelecom.com.cn

(2) China Unicom at http://www.chinaunicom.com.cn

(3) China Mobile at http://www.chinamobile.com

Other Relevant Websites:

(1) International Telecommunications Union at http://www.itu.int

(2) Communications Association of Hong Kong at http://www.cahk.hk

(3) China Communications Professional Website at http://www.c114.com.cn/