



Digital Technology and Strategic Management

Prof. Dong-hyu Kim, University of Glasgow

SHORT COURSE DESCRIPTION

This course focuses on the understanding and application of strategic planning tools (e.g., technology roadmapping) to generate strategic plans in line with the future directions of digital technologies. The course also covers the knowledge foundations of emerging digital technologies and businesses (e.g., artificial intelligence (AI), blockchains and cryptocurrencies, FinTech and the Internet of things (IoT)). Moreover, the course offers students with frameworks to analyse the competitive and collaborative strategies of firms (e.g., start-ups and incumbents) revolving around digital tech-driven opportunities.

READING MATERIALS

Week 1

- Christensen et al. (2015) What is disruptive innovation? *Harvard Business Review*.
- Downes & Nunes (2017) Is Tesla Really a Disruptor? *Harvard Business Review*.
- Phaal et al. (2004). Technology roadmapping – a planning framework for evolution and revolution. *Technological Forecasting and Social Change*, 71(1-2), 5-26.
- Phaal & Muller (2009). An architectural framework for roadmapping: Towards visual strategy. *Technological Forecasting and Social Change*, 76(1), 39-49.

Week 2

- Teece (2017). 5G Mobile: Disrupting the Automotive Sector. Tusher Center Working Paper No 22.
- Iansiti & Lakhani (2017). The truth about blockchain. *Harvard Business Review*.
- Tapscott & Tapscott (2017). How blockchain is changing finance. *Harvard Business Review*.
- Yoffie (2020). Ripple: The Business of Crypto. *Harvard Business Case*.
- Lee & Shin (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*.

Weeks 3 & 4

- Iansiti & Lakhani (2020). *Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World*. Harvard Business Review Press (Book Chaps 6 and 7).
- Porter & Heppelmann (2014). How smart, connected products are transforming competition. *Harvard Business Review*, 92(11), 64-88.
- Johnson et al. (2017) Alibaba PESTEL Case. *Exploring Strategy*. Pearson.
- Parker et al (2016). STRATEGY: How Platforms Change Competition. *Platform Revolution* (Book Chapter 10).
- Grindley (1995). *Standards, Strategy, and Policy: Cases and Stories*. Oxford (Book Chaps 1 and 2).
- Iansiti & Levien (2004). *The Keystone Advantage*. Harvard Business School Press (Book Chap 4).
- Jacobides (2019). In the Ecosystem Economy, What's Your Strategy? *Harvard Business Review*.

COURSE REQUIREMENTS AND GRADING

- Attendance: 10%
- Team Project (Presentation and Report): 40%
- Final Essay Exam: 50%

COURSE SCHEDULE

- WEEK I -

Monday (26 June)

- Course Introduction:
 - o Course Assignment and Assessment
 - o Theory of Disruptive Innovation
 - o Case of Tesla

Tuesday (27 June)

- Technology Roadmapping_1
 - o Concept and Framework
 - o Examples

Wednesday (28 June)

- Technology Roadmapping_2
 - o Use of Miro, an online collaboration tool
- Internet of Things (IoT)_1
 - o Concept

Thursday (29 June)

- Internet of Things (IoT)_2
 - o Cases
 - o Business Strategy

- WEEK II -

Monday (3 July)

- 5G and Connected & Autonomous Vehicles
 - o Concepts and Cases
 - o Business Strategy

Tuesday (4 July)

- Blockchains and Cryptocurrencies_1
 - o Concepts
 - o Cases, including Luna/Terra and FTX

Wednesday (5 July)

- Blockchains and Cryptocurrencies_2
 - o Business Strategy: Case of Ripple
- FinTech
 - o Concepts and Cases

Thursday (6 July)

- Machine Learning (ML)_1
 - o Concept and Cases, including Decision Tree
 - o Practice in R

- WEEK III -

Monday (10 July)

- Machine Learning (ML)_2
 - o Concept and Cases, including Recommender Systems
 - o Practice in R
- ML/AI
 - o Concepts and Cases, including ANN, RNN/LSTM
 - o Practice in R

Tuesday (11 July)

- Artificial Intelligence (AI)
 - o Concept and Cases
 - o Business Strategy
- Ethical AI
 - o Concept and Cases
 - o Guidelines

Wednesday (12 July)

- Digital Regulations
 - o EU Digital Regulations, including AI Act
 - o AI Policies and Strategies

Thursday (13 July)

- Analytical Frameworks of Business Environment
 - o PESTEL
 - o Industry Analysis
- Macroenvironmental Trends
 - o ESG (Environmental, Social, Governance)

- WEEK IV-

Monday (17 July)

- Platform Competition
 - o Concepts and Cases
 - o Business Strategy
- Standards and Standardisation_1
 - o Concept

Tuesday (18 July)

- Standards and Standardisation_2
 - o Cases
 - o Business Strategy
- Innovation and Ecosystems
 - o Concept and Cases
 - o Business Strategy

Wednesday (19 July)

- Technology Roadmapping Team Project Presentation