Course Outline

Course Code   : BSN3701
Course Title   : Technological Innovation
Semester   : Semester 2, Academic Year 2024/2025
Faculty   : Hon Mun Yip
Department   : Strategy & Policy
Email   : honmun@nus.edu.sg
URL   : https://discovery.nus.edu.sg/27977-hon-mun-yip
Telephone   : 98228000

Overview

Technology has played a significant role in shaping societies and businesses. This course aims to provide students with a strong conceptual foundation to understand the dynamic process of technological innovation from a business perspective. Students will gain insight into the importance of technological innovation as a driver of value creation and economic growth.

This course is grounded in theory and research but takes a practice-oriented approach. Students will explore challenges and opportunities in technological innovation through real-world case studies. The course has been updated to include transformative technologies—Artificial Intelligence, Fintech, and Biotechnology—that have profound implications for the future.

Course Objectives

This course develops frameworks for analyzing strategic issues faced by firms in technology-intensive industries. Students will focus on practical strategic issues applicable in the real world rather than on complex technology descriptions. No technical background is required to take this course. However, due to the emphasis on the case method, students should bring a curious mindset and a keen desire to learn. Be prepared for class discussions, debates, and peer-to-peer learning

Who should take this course?

This course is designed for undergraduate students. It can be taken as part of the Minor in Technopreneurship program offered by the NUS Business School. There is no formal prerequisites for this course.

General Guide & Reading (e.g. Case preparation guide, project report guide, main textbook & supplementary materials, etc)

The course requires a good amount of reading and reflection in between classes. Reading material will be provided in each class. There is no required textbook for the course.

You are expected to read the assigned material before each class. During the class, we will focus on discussions, analysis, and reflections.

Assessment

Assessment Components	Weightage
Class Attendance	10%
Class Contribution (Participation and Reflection)	30%
Individual Assignment	20%
Group Project	40%

1. Class Attendance and Class Contribution (10%+ 30%):

This is a case-based course. To prepare for class, you must read and reflect on assignments beforehand. Your participation will be evaluated based on your ability to contribute comments that are insightful, relevant, and progressive comments that build on the discussion and help move it forward rather than simply repeat previous points.

I will be looking for the quality of your contributions, so significant 'airtime' is not necessary to earn a high participation grade. (For example, if you offer a single key insight that adds value to a session, you'll receive the maximum participation grade for that session.)

To assist in your preparation, I will distribute key questions for each case, which will guide the direction of our in-class discussions.

Please come to every class ready to discuss the assigned case. Since a significant portion of your grade is based on class participation, attendance at each session is crucial. Missing a class will impact both your experience and that of your classmates, so attendance will be recorded weekly.

There will also be reflection submissions throughout the course, with more details on the format provided later.

2. Individual Assignment (20%)
The Individual Assignment will be due towards the end of the semester. More details on this will be shared closer to the date.

3. Group Project: Company Assessment (Total: 40%)

In a group of 5 members, you will be asked to perform an in-depth analysis of a company's technology strategy. It is highly recommended that you establish a contact at the company and spend some time interviewing company personnel, although field interviews are not strictly required to complete the assignment.

The deliverables for this project are as follows

Item	Weightage	Due	Focus
Interim Presentation	10%	**Week 7**	*Competitive situations, stage of technology*
Final Presentation	15%	**Week 12**	*Evaluation of Current Technology Strategy & Recommendations*
Project Brief (report)	15%	**Week 13**	*Project Brief covering the content of the 2 presentations, also addressing the queries raised during the presentations. You are encouraged to use infographics to make this brief easy to read.*

Your report should describe the firm's technology strategy and the key strategic issues facing the organization.
Although not all of the following elements may be relevant to the firm you choose, you should identify and evaluate: the firm's competitors, the stage of development in its industry, potential shifts in the industry driven by technological or market changes, sources of innovation within the industry and firm, the firm's intellectual property position, key competencies, product development stage, appropriability regime, financial status (including access to capital and capital structure), characteristics and strengths of its alliance

portfolio, and so forth. Through your analysis, draw conclusions about the attractiveness and sustainability of your company's position and the industry segment it occupies. If helpful, you can assume the role of a consulting team evaluating the company's Technology Strategy and, based on your analysis, recommend next steps for the firm.

The project should provide a critical evaluation, drawing heavily on the theoretical readings and frameworks covered in class.

Academic Honesty & Plagiarism
Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is "the practice of taking someone else's work or ideas and passing them off as one' own" (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

Additional guidance is available at:
- http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct
- http://nus.edu.sg/osa/resources/code-of-student-conduct

About me . . .

Hi, I am an Investor-CEO-turned-Professor with a passion for technology and innovation. Known for bringing creativity into things I do, I draw on real-life experience from both multinational corporations and startups to show you how to turn today's opportunities into successful careers. Join me to learn how technology is reshaping industries—and how you can be part of that change!

Schedule and Outline

Week 1	**Introduction to Technological Innovation** Topics: Overview of technological innovation, definitions, types of innovation (incremental vs. radical), and its importance in business. Readings: • "The Innovator's Dilemma" by Clayton Christensen (Chapters 1-3) – Understanding disruptive innovation. • Article: "What Is Disruptive Innovation?" – *Harvard Business Review*. Case Studies: • Kodak and Digital Imaging – Discuss why Kodak struggled despite being a pioneer in digital technology. • Tesla's Road to Success – How Tesla disrupted the automotive industry
Week 2	**Theories and Models of Innovation** Topics: Exploration of key theories (e.g., S-curve, diffusion of innovation) and frameworks (e.g., the Technology Adoption Lifecycle, Open Innovation). **Readings**: • "Crossing the Chasm" by Geoffrey A. Moore (Chapters 1-2) – On the adoption lifecycle of technology. • Article: "Open Innovation: The New Imperative" – *Research-Technology Management*. **Case Studies**: • **Apple and the iPhone Launch** – Discuss the timing and approach to market entry. • **Dyson's Innovation Strategy** – Review Dyson's approach to product development and market entry.
Week 3	**Innovation in Emerging Technologies (1/3)** BioTech (Including Climate Tech & Food Tech) **Topics Covered**: Exploring recent technological advancements of BioTech and their business impact. **Readings**: • "The Fourth Industrial Revolution" by Klaus Schwab (Chapters 2-3) – Understanding the impact of new technologies. • "The Climate Technologies Needed for NetZero: McKinsey.com **Case Studies**: • Alternative Protein Case Study
Week 4	**Innovation in Emerging Technologies (2/3)** **Artificial Intelligence**

	Topics Covered: Exploring recent technological advancements of AI and their business impact. **Readings**: • Article: "The AI Disruption Wave" – *MIT Technology Review*. • Book: **Artificial Intelligence: The Insights You Need from Harvard Business Review** By: Harvard Business Review; Thomas H. Davenport; Erik Brynjolfsson; Andrew McAfee; H. James Wilson **Product:** 10281-PDF-ENG • **Case Studies**: o **IBM Watson in Healthcare** – How AI is transforming industries. Due Finalize Project Group Topic ** Submit your project teams – Min of groups of 6 *
Week 5 (10 Feb)	**Innovation in Emerging Technologies (3/3)** **Fintech** **Topics Covered**: Exploring recent technological advancements of Fintech and their business impact. **Readings**: • "The Fintech Revolution: A Catalyst for Financial Inclusion" (World Economic Forum) • How Fintech Is Reshaping the Financial Industry" (Harvard Business Review) **Case Studies**: • **Ant Financial:** Flourishing Farmer Loans and the Transformation of China's Financial Sector" (Harvard Business School) • "Revolut: Building a Global Fintech Super App" (INSEAD)"
Week 6 (17Feb)	**Business Models and Technological Innovation** **Topics Covered**: How technological innovations enable new business models (e.g., platform business models, subscription services). **Readings:** • "Platform Revolution" by Geoffrey G. Parker, Marshall W. Van Alstyne, and Sangeet Paul Choudary (Chapters 1-3) – Understanding platform-based business models. • Article: "Business Models for the Digital Economy" – *McKinsey & Company*. **Case Studies:** • Netflix: Streaming and Subscription Business Model – How Netflix disrupted traditional media.

	• Airbnb's Platform Strategy – Review how technology enabled a new business model.
22Feb-2Mar	***** Recess *****
Week 7 (3Mar)	**Interim Presentation**
Week 8 (10Mar)	**Technological Innovation and Market Strategy** • **Topics Covered**: Market entry strategies, timing of entry, and the role of partnerships in technology innovation. • **Readings**: o "Blue Ocean Strategy" by W. Chan Kim and Renée Mauborgne (Chapters 1-3) – On creating uncontested market space. o Article: "When to Enter New Markets" – *MIT Sloan Management Review*. • **Case Studies**: o **Spotify's Market Entry Strategy** – Timing and strategic partnerships for rapid growth.
Week 9 (17Mar)	**The Future of Technological Innovation** **Topics Covered**: Emerging trends, ethical considerations, and sustainability in technological innovation. **Readings**: • "Exponential Organizations" by Salim Ismail (Chapters 5-7) – How companies are adapting to the fast pace of technological change. • Article: "Ethics and Governance of AI" – *World Economic Forum*. **Case Studies**: • **DeepMind and AI Ethics** – Exploring ethical issues in artificial intelligence. • **Patagonia's Sustainable Innovation** – How companies can innovate while focusing on sustainability.
Week 10 (24Mar)	**Reinvention in the face of Technology** **Topics: The Reinvention of Koda** **Readings** • Melissa A. Schilling, "Chapter 5: Timing of Entry" in Strategic Management of Technological Innovation, 5th ed. • Cohen and Levinthal, Absorptive Capacity, A New Perspective, Administrative Science Quarterly **Case Study:**

	• The Reinvention of Kodak (HBR) https://www.hbs.edu/faculty/Pages/item.aspx?num=55806 **Case Question** On 3 September 2021, Kodak announced it had emerged from Chapter 11 bankruptcy. Six months later, Kodak's board announced that former Silicon Valley executive Jeff Clarke would become the company's next CEO and charged him with leading one of the most complex corporate turnarounds in recent history. Consider the following questions as you review the case: 1. How did Kodak go from being a giant in the film industry to facing bankruptcy? 2. What are the leadership challenges facing Clarke as he attempts to bring Kodak out of bankruptcy? 3. What trade-offs does Clarke face? Be specific. 4. What is the biggest mistake he could make as Kodak's newly appointed CEO?
Week 11 (31Mar)	** NUS Holiday Hari Raya Puasa ***
Week 12 (7Apr)	**Final Presentation**
Week 13 (14 April)	**Course Review and Discussion**