

Course Outline

BSN 3701 Technological Innovation

(subject to changes)

Lecturer

Wilton Chau

Email: wiltonchau@pavd.info

Course Overview:

Technological innovation is highly diversified and complicated topic. However, it is also a topic that we could not avoid. BSN 3701 Technological Innovation is designed to provide students with a comprehensive understanding of the impact of technology on various aspects of society, business, and innovation. The course aims to explore emerging technological trends, their implications, and the challenges and opportunities they present. Through case studies, discussions, and readings, students will develop critical thinking skills and gain insights into the role of technology in shaping the present and future.

Learning Objectives:

By the end of this course, students are expected to demonstrate a good understanding in articulating the wide-ranging impact and implications of technological innovation and will be able to

1. conduct analysis of the multifaceted effects of technological innovation on individuals, organizations, and society;
2. evaluate the disruptive potential of emerging technologies on traditional industries and business models;
3. comprehend the ethical, social, and legal implications that arise from technological advancements; and
4. apply robust frameworks and strategies for effectively managing technological innovation within organizations.

Course Schedule

Week 1: Technological Innovation Daily

- Case Study: VR, \$\$\$ and Military - The Wall Street Journal: "What does VR do to your body and mind?"
- Discussion: Can VR be real? How VR will change how we see ourselves and therapy? (Link: [Big Think Article](#))
- Exploring the views of the Singapore Government and the Hong Kong Government in fintech development (Link: [HKDTC Research](#)); (Link: [MAS Article](#))
- Examining the impact of the US Presidential Executive Order on the development of digital assets (Link: [White House Article](#))
- Discussion: how the US Presidential Executive Order has changed the global development of CBDC
- Exploring the rapid development of AI weapon systems and their implications (Link: [Wired Article](#), [Book: "Army of None: Autonomous Weapons and the Future of War" by Paul Scharre])

Week 2-5: The Mega Trends of Technological Innovations

1. Digitalization and artificial intelligence

Case Study: Humanized GPT-3 –

2. Biotechnology

Case Study: CRISPR-Cas9

3. Metaverse & digital twin

- Discussion: the potential risks and benefits of AI - IT Pro (Link: [IT Pro Article](#))
- Debate: Will AI threaten the existence of humans? - Bernard Marr (Link: [Bernard Marr Article](#)); BBC (Link: [BBC Article](#)); (Link: [Business Insider Article](#))
- Exploring constraints in AI development - The New York Times (Link: [NY Times Article](#))
- Exploring the concept of the Metaverse - World Economic Forum (Link: [WEF Article](#))
- Understanding digital twins and their applications - BBC (Link: [BBC Article](#))
- Discussion: Analyzing the issues in creating digital twins for a person
- Exploring the combination of IC and biotech in the metaverse platform of singularity - National Library of Medicine (Link: [MedlinePlus Article](#), [BROAD Institute Q&A](#))
- Ten Breakthrough Technologies 2022 - MIT Technology Review (Link: [Forbes Article](#)) and 2023 (Link: [HRO Today Article](#))

Week 6: Project Presentation – Ph

Week 7: Business Model for Technopreneurs

- Case Study: Stitch Fix - Official website (Link: [Stitch Fix](#)); (Link: [Stitch Fix Annual Report](#))
- Discussion: How is Stitch Fix transforming the way people find what they love?
- Comparing the business model of Stitch Fix with traditional business models

Week 8: Managing Technological Innovation

- Case Study: Open Innovation
- Discussion: Open Innovation vs. Closed Innovation
- Exploring different types of open innovation and their models - Harvard Business Review (Link: [HBR Article](#))
- Examining how open innovation helps companies in their innovation journey (Link: [MassChallenge Article](#))

Week 9: Technological Innovation and Society

- Discussion: the impact of disruptive technologies
- Analyzing the influence of technologies and innovations on society - University of California Press (Link: [UC Press Article](#)); (Link: [Brainspire Article](#))
- Maintaining competitiveness in the rapid development of technologies - Harvard Business Review (Link: [HBR Article](#))
- Exploring the impact of AI on Singapore's art scene (Link: [CityLife Article](#))

Week 10: Green Technology and Sustainability

- Case Study: The DUCT model
- Examining how green technology reduces air pollution (Link: [CityLife Article](#))
- Exploring the role of green technology in combating climate change (Link: [CityLife Article](#))

Week 11: Topics that require further clarifications

Week 12: Project Presentation Part 2

Assessment Methods:

To assess students' understanding and mastery of the course material, the following assessment methods will be employed:

Attendance (20%)

Regular attendance is expected. Attendance will be recorded every lecture after the first class. Absences will only be excused for valid reasons acceptable by the Department of Strategy & Planning. A maximum of 2 marks (out of 20 marks) will be given to each student in each week.

Discussion & Participation (20%)

Students are encouraged to actively participate in class discussions as engaging in interactive discussions and debates on various topics will foster critical thinking and knowledge application. Evaluation of this category will be based on your participation during class discussion. Bonus marks will be given to those students contributing insightful comments on the discussion topic. A maximum of 2 marks (out of 20 marks) will be given to each student in each week.

Individual Report (30%)

A report of not more than 1000 words on 'The strategy you will take (or have taken) in keeping your competitiveness in the job market in today's rapid development of technology' to be submitted by the end of Week 11.

Group Report (30%) (a group of 4 students)

This group assignments require research, analysis, and synthesis of course concepts. You are required to choose one of the companies listed in China, Hong Kong, Singapore and United States, and

1. Part 1: identify the technologies that could affect the company significantly in the next 5 year, and present (5-10 mins) your findings in Week 6 (10%);
2. Part 2: present (5 – 10 mins) your recommended solutions to that company with supporting arguments in Week 12 (20%)

In both presentations, each group is required to submit the soft copies of their ppt at least 12 hours prior to the presentation day. As no company can be presented by more than one group, you need to register your company with me asap. The choices of company will be registered based on first-come-first serve basis.

Late Submission

Late submission could be graded with mark deduction penalty.

Class Administration:

In line with the business school standards at the National University of Singapore, the following class administration procedures will be followed:

1. Class Schedule: The course will be conducted over a span of 12 weeks, adhering to the designated class schedule and timing.
2. Attendance: Regular attendance is expected, and students are encouraged to actively participate in class discussions and activities.
3. Please display your name card in the front of your desk for marking attendance and participation. If you forget your name card, please make a temporary name card.
3. Grading Policy: Assessment components will be assigned respective weights, and the final course grade will be determined based on the overall performance.
4. Course Materials: Relevant readings, case studies, and additional resources will be provided to enhance the learning experience.

Please note that additional guidelines and specific class administration details may be provided by the instructor at the beginning of the course to ensure a smooth learning experience.

Reading List:

Relevant links on articles are provided in the course schedule. Students are expected to read the articles in advance of the class. Additional readings and resources may be provided throughout the course to supplement the learning experience and enhance understanding of the topics covered.

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's 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 doubts, you should consult your instructor.

Additional guidance is available at:

<http://www.nus.edu.sg/registrar/adminpolicy/acceptance.html#NUSCodeofStudentConduct>

Online Module on Plagiarism: <http://emodule.nus.edu.sg/ac/>

Wilton Chau

09 June 2023