Online Course Syllabus

Course Information

Course Number/Section
BUAN6375/ENTP6375/MIS6375/MKT6375/OPRE6394/SYSM6332.0w1

Course Title	Technology Strategies and New Product Development
Term	Fall 2025

Professor Contact Information

Professor	Rajiv Shah
Office Phone	(972) 883-5904
Email Address	rajiv.shah@utdallas.edu
Office Location	JSOM 4.204
Online Office Hours	Available by Appointment

Course Pre-requisites, Co-requisites, and/or Other Restrictions

There are no prerequisites for this course other than acceptance and enrollment into a graduate program at the University of Texas at Dallas. Course participants are not expected to have a formal business or management background.

Course Description

This course addresses the strategic and organizational issues confronted by firms in technology-intensive environments. The course reflects six broad themes: (1) managing firms in technology-intensive industries; (2) forecasting key industry and technology trends; (3) linking technology and business strategies; (4) using technology as a source of competitive advantage; (5) organizing firms to achieve these goals; and (6) implementing new technologies in organizations. Students analyze actual situations in organizations and summarize their findings and recommendations in an in-depth term project. Overall, students will gain a comprehensive understanding of how successful firms conceive, nurture, and execute innovation. They will acquire insights into the latest industry and technology trends, enabling them to align technology initiatives with overall business strategies. Additionally, the course equips students with decision-making skills essential for tackling the challenges during technology and new product development.

Student Learning Objectives/Outcomes

Upon successful completion of this course, and its comprising assignments and discussions, students should have achieved the following objectives:

1. Understand processes that underpin "technological change" and the implications of technological change across various strata: the macroeconomic context, industry dynamics, and the firm.
2. Develop the acumen necessary to navigate the roles of firm managers or entrepreneurial founders and make important strategic decisions. In particular, they will recognize how to facilitate innovation and superior product development within firms.
3. Be equipped with tools and frameworks that they can apply to evaluate the ever-changing technological landscape.

Course Materials: Required

Required Textbooks and Materials

No textbook is required for this course. *Class lecture materials will loosely draw from several textbooks and articles primarily from Harvard Business Review or MIT Sloan Management Review. The book it will follow most closely is the book "Melissa A. Schilling, Strategic Management of Technological Innovation. ISBN 978-0-07-321058-2. McGraw-Hill Irwin".*

However, what ***is required*** are the following Case Packs from Harvard Business School Publishing:

(a) Case Packet (Ind. In-class Participation): https://hbsp.harvard.edu/import/1302476
(b) Case Packet (Group Write-up & Pres.): https://hbsp.harvard.edu/import/1302478

Instructor Resources

Registrar's Intranet: please log in with your UTD NetID and password to access this site. Information that faculty need about grading, scheduling, and other essential aspects of our responsibilities related to teaching are made available and updated regularly in the Registrar's Intranet. This source of information can only be accessed by logging in with your UTD NetID and password. Many important faculty questions are answered here, and this is information that faculty members are expected to know and understand.

FERPA Guidelines: you will be asked to log in before you access the FERPA Faculty Guidelines webpage on the Registrar's Intranet. If faculty have additional questions about FERPA guidance, please email the Office of the Registrar for the proper student consent forms and further instructions. NOTE: Class recordings from prior semesters may be used as long there are no identifiable student information due to FERPA because instructors will need students' written consent first. Please review your previous class recordings for identifiable student information before using them in the current term. For additional guidance, contact the Office of the Registrar.

Honorlock: Online proctoring tool will be available for fully online courses and for classes with enrolled international students who are not yet in the United States.

UT System Resources for Creating Accessible Course Content: designed to assist faculty with developing course content

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage.

Course Access and Navigation

This course can be accessed using your UT Dallas NetID account on the eLearning website.

Please see the course access and navigation section of the Getting Started with eLearning webpage for more information.

To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Support Center includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication
This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the Student eLearning Tutorials webpage for video demonstrations on eLearning tools.

Student emails and discussion board messages will be answered within 3 working days under normal circumstances.

Distance Learning Student Resources
Online students have access to resources including the McDermott Library, Academic Advising, The AccessAbility Resource Center, and many others. Please see the eLearning Current Students webpage for more information.

Server Unavailability or Other Technical Difficulties
The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online eLearning Help Desk. The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Academic Calendar and Course Outline

Course Outline		
Date	**Topic**	**Assignments**
Session 01 08/28	Lecture- Introduction and Course Overview	(1) Post Self-Intro on eLearning (2) Read Article: Technology Strategy
SECTION-I : INDUSTRY DYNAMICS OF TECHNOOGICAL INNOVATION		
Session 02 09/04	Lecture: Sources of Innovation	(1) Read Case: The Weather Company: Creating Consumer Apps that Leverage its Big Data (2) Groups formed (3) Groups select cases for analysis, write-up and presentations in S04 or S05
Session 03 09/11	Types & Patterns of Innovation	(1) Read Case: Tesla (Act 2): Disruptor or Disrupted? (2) Read Articles: (a) The 4 Types of Innovation and the Problems They Solve (b) What is Disruptive Innovation (3) Watch Video: The Explainer: Disruptive Innovation
Session 04 09/18	Standards Battles and Design Dominance	(1) Read Article: The Emergence of Dominant Designs in Artificial Intelligence (2) **Group 1st Case Analysis, Write-up and Presentation Due**
Session 05 09/25	Timing of Entry	(1) Read Article: Designing the Best Strategy for Your Next Global Product Rollout (2) **Group 1st Case Analysis, Write-up and Presentation Due**

SECTION-II: FORMULATING TECHNOLOGICAL INNOVATION STRATEGY		
Session 06 10/02	Defining the Organization's Strategic Direction	(1) Read Case: Lingban: AI Content Generation in the Audio Industry (2) Read Article: Effective Innovation Begins with Strategic Direction (3) **Group Project Proposal Submission**
Session 07 10/09	Choosing Innovation Projects	(1) Read Case: Concorde 2.0: Reinventing Supersonic Technology (2) Read Articles: (a) How to Decide Which Innovation Projects to Greenlight (b) A New Approach to Strategic Innovation
Session 08 10/16	Collaboration Strategies	(1) Read Case: Preferred Networks: A Deep Learning Startup Powers the Internet of Things
Session 09 10/23	Framework for Product Management	(1) Read Case: OpenAI: Creating the Product Roadmap for ChatGPT (2) Read Article: Moving Beyond Stage-Gate Project Management
SECTION-III: IMPLEMENTING TECHNOLOGICAL INNOVATION STRATEGY		
Session 10 10/30	Protecting Innovation	(1) Read Case: How to See a Secret? IP Protection in Startup Entrepreneurship (2) Read Article: Intellectual Property in Tough Tech Ventures
Session 11 11/06	Organizing for Innovation	(1) **Group 2nd Case Analysis, Write-up and Presentation Due**
Session 12 11/13	Managing the New Product Development Process	(1) Read Case: Product Development at StubHub: Don't Stop Believin' (2) Read Article: Managing Innovation: A Process Perspective (3) **Group 2nd Case Analysis, Write-up and Presentation Due**
Session 13 11/20	Managing the New Product Development Teams	(1) Read Quick Case: Immerse VR: In Too Deep? (2) Read Article: How Great Managers Facilitate Collaboration
11/27	**Thanksgiving Break**	
Session 14 12/04	Crafting a Deployment Strategy	(1) Read Case: Reimagining a Tech Giant: The IBM Digital Transformation Blueprint (2) **Group Project Reports and Presentations Due**
	Peer Evaluations Due via eLearning Dropbox	
This course schedule is not absolute. While every effort will be made to follow the schedule as listed, changes may be made as needed. It is the student's responsibility to track changes that are announced.		

Class Materials & Lecture Notes
The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be

downloaded during the course; however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments except to implement an approved AccessAbility Resource Center accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Participation
Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the **Student Code of Conduct**.

Class Recordings
Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the AccessAbility Resource Center has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved AccessAbility Resource Center accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

About the Instructor
Dr. Rajiv R. Shah is a Professor of Practice in the Innovation and Entrepreneurship area within Organizations, Strategy & International Management, at the Jindal School of Management, where he has been teaching since 2008, and has created and or taught about a dozen different undergraduate and graduate courses. He is also the Founder and Director of the Systems Engineering and Management (SEM) Program, which he was primarily instrumental in creating and was launched in 2010. In 2015, he also published a book, *"Innovation, Entrepreneurship, and the Economy in the US, China and India: Historical Perspectives and Future Trends*", by Rajiv Shah, Zhijie Gao and Harini Mittal, published by Elsevier, Academic Press.

He spent about 30 years in Corporate America, prior to joining UTD, and in his last corporate position, before embarking on a consulting career, he served as CTO for Alcatel North America, a $ 2B subsidiary of Paris-based, $ 15 B Alcatel Inc, as VP of Research and Network Strategy and was the VP in charge of the Corporate Center for Research & Innovation in the US for four years. Prior to that he held senior management positions at MCI Worldcom for five years and before that he was at Texas Instruments as Program Manager for seventeen years and Senior Member of Technical Staff. He has served as the General Chair for Globecom 2004 and chaired sessions at the Supercomm for the International Engineering Consortium (IEC) from 2001 through 2004. He has an MS and Ph.D. in Electrical Engineering, specializing in Applied Physics, from Rice University, was on the Faculty of the California Institute of Technology (Caltech) as Dr. Chaim Weizmann Post Doctoral Research Fellow for 2 years, has over 50 publications, and 25 issued patents, and also has an Executive MBA from SMU. He got his B.Sc. in physics, mathematics and statistics from Pune University in India.

The Case Method
This course is intended to help equip students with the insights, tools, and mindset needed to develop, and critically evaluate, and understand the process of Corporate Innovation and

Entrepreneurship. As such, it **relies heavily on case-based** learning. Before each case-based class, students are expected to thoroughly read and prepare the case and its supplements (if applicable). Preparation includes: (1) being well-versed in the general facts of the case (e.g., the firm, the key actors, and so on); (2) identifying the central decision to be made by the actors; (3) how frameworks and concepts discussed in the course can help make that central decision; and (4) identifying preliminary responses to the discussion questions provided. Students should, therefore, be prepared at any point of time in class to provide their opinions and any supporting evidence. It is important to deeply consider the decisions made and provide a constructive evaluation or critique. The purposes of the cases are to provide a practice environment that can mirror future professional contexts.

Grading Policy

Component:	*% Total Grade*
1. Online ***Active & Constructive*** Case Discussion Participation	30 %
2. Group Case Presentation & Write-up - 1st Assignment	15 % (*)
3. Group Case Presentation & Write-up - 2nd Assignment	20 % (*)
4. Group Project – New Product Deployment Strategy for Chosen Industry	35 % (*)
(*) ➔ (1) Due Dates for (2) through (4) indicated in Course Outline **(*) ➔ (2) Peer Evaluations will impact grades on all Group Assignments**	100 %

GRADE SCALE:

A - = 90 to 92%	**A = 93% or greater**	
B - = 80 – 82%	**B = 83 to 86%**	**B+ = 87 to 89%**
C - = 70 to 72%	**C = 73 to 76%**	**C+ = 77 to 79%**
D - = 60 to 62%	**D = 63 to 66%**	**D+ = 67 to 69%**

Peer Evaluation **-** A peer evaluation process will be utilized to adjust individual grades on all group assignments. The peer evaluation form (Guidelines are provided on the eLearning Discussion page) should be completed individually and submitted via dropbox created for it before last day of classes.

Course Policies

Late Work

Work submitted after the deadline will not be accepted.

Class Participation

Students are required to log in regularly to the online class site. The instructor will use the tracking feature in eLearning to monitor student activity. Students are also required to participate in all class activities such as discussion board, chat or conference sessions and group projects.

Classroom Citizenship

The same guidelines that apply to traditional classes should be observed in the virtual classroom environment. Please use proper netiquette when interacting with class members and the professor.

Self-Introduction

Each student should post a Self-Introduction in the Discussion area of eLearning prior to the first class-session, and no later than the end of the first session week as noted in the Assignments and Academic Calendar. Guidelines are provided in the course. This information will assist in the formation of groups for the course.

Further elaboration of how course grades will be assessed follows:

1. Online Class Session Discussions Participation (30%)

- **Online Participation:** Students will be expected to participate regularly in online discussions. A great deal of learning takes place when you share your experiences with others. The professor will post questions and comments to each session discussion board related to the lectures, assigned cases or assigned videos which you can respond to. It is absolutely necessary that you participate regularly. To receive participation points you must post 1-2 value-added comments in the weekly discussions. You will not get full credit for posting comments many times in the last few sessions.

- **Case Discussion Questions:** These will be available on eLearning for all cases, in the case pack designated for individual class participation.

- **Active and constructive** engagement in the course plays an integral role in the learning process for you and your peers and can be achieved through online discussion participation and in your assignment groups. Class participation will be evaluated as a function of the following:

- **Contribution to class and case discussions:** A critical component of the course experience will be rigorous and spirited discussion. All students are expected to be well prepared for each class, having studied the required pre-class material and analyzed assigned cases. Students who make consistent, meaningful contributions to the online class discussions will receive better class participation grades. The quality of comments is evaluated based on the clarity and coherence of arguments, application of theoretical frameworks, and the ability to support claims with quantitative or qualitative evidence from the course materials (e.g., slides, cases, readings).
  Consistent and high-quality contributions to class and case discussions are required throughout the semester in order to receive full participation points. Sporadic contributions, contributions regurgitating case facts rather than opinions, or contributions without evidence will merit a few but not full participation points. *(See Discussion Board Participation Rubric below)*.
  - **Discussion Board Participation Rubric:** The participation rubric serves as a guide for grading your participation.

Expectations/ Components	Exceeds Expectations	Meets Expectations	Performs below Expectations
Consistency of Response	✓ Frequent & even distribution of entries throughout module ✓ Consistently initiates discussion ✓ Responds to discussion in timely fashion	✓ Uneven distribution of entries ✓ Occasionally initiates discussion ✓ Responds to most discussion	✓ Uneven & infrequent entries ✓ Little or no initiation of discussion ✓ Seldom responds

Degree of Engagement	✓ Interacts freely and encourages others ✓ Frequently generates further discussion ✓ Provides leadership to group	✓ Participates in ongoing discussion ✓ Occasionally evokes further discussion ✓ Active group member	✓ Not actively involved in discussion ✓ Not engaged ✓ No contribution to group
Evidence of Understanding	✓ Uses resources beyond those required by course **(No texts from other courses)** ✓ Knowledge gained well incorporated into responses ✓ Consistent reflection of course content	✓ Uses required readings & course materials ✓ Ideas stated clearly with some connection to readings. ✓ Some reflection of content	✓ Readings & course materials not reflected ✓ Opinions not informed by readings ✓ Remarks unrelated to topic
Depth of Commentary	✓ Provides examples that enhance topic understanding ✓ Analyzes issues and implications arising from topic ✓ Reflects insight into own learning	✓ Restates ideas from resources that clarify topic ✓ Identifies issues and implications arising from topic ✓ Little insight into own learning	✓ Comments limited to agree or disagree ✓ No issue identification ✓ No evidence of insight into own learning

Group Assignments

- **Group Formation:** Much of the work in this course will be performed in groups. Early in the semester, by the start of the 3rd session, the class will be divided into roughly equal-sized groups. Group size will be communicated by session-2, and students will be able to choose their group members. It is important that students select their group to include a diverse set of skills. With the self-introduction information referenced, which is accessible via the eLearning system, each student should join a group. The Group Case Assignments and Project Selection will occur in later sessions.

- **Web Teleconferences for Groups:** A web conferencing tool, Blackboard Collaborate, will be used in this course for real-time communications and interaction for group meetings related to the Group Project. This powerful tool combines Voice over Internet Protocol (VoIP) application and desktop sharing, instant messaging and whiteboard functionality to create a powerful, easy-to-use, collaborative learning environment. ***There will be two class web conference sessions for the group project presentations, as indicated in the syllabus.*** See Assignments and Academic Calendar section for more details, and see the following link for web conference resources: http://www.utdallas.edu/elearning/resources/web-conference.html

- **Group Assignments:** Two class activities will be performed in groups – (a) Group Case Assignments – Case Analysis, Write-up and Presentations, twice in the semester – once in the 1st - half and the other in the 2nd- half, and (b) Group Project about designing and crafting the deployment strategy for a new product into an industry, which will begin early in the semester and will be due towards the end of the semester.

- **Guidelines for Written Group Assignments:** .

  - **Assignment Submission Instructions**: Written assignments and presentations are to be submitted in **electronic form using the assignment dropbox links within the eLearning course site.** Group assignments are to be submitted only by one member of the group. The team will receive the results and feedback on the assignment from the instructor.

  - **Due Dates and Late Paper Policy**: **Written assignments are due on the date assigned. Late papers will not be accepted.**

- **Peer Evaluation:** A peer evaluation process will be utilized to adjust individual grades on all group assignments. The peer evaluation form (attached under submission link) should be completed individually and submitted through eLearning online using the Peer Evaluation assignment by the end of the semester due date. At the end of the semester, students will be required to submit peer evaluations for their group assignments. These will have an impact on each student's grade for that specific group assignment.

2. Group Case Assignments (35%)

- **Group Case Assignments:** Case Analysis, Write-up and Presentations, ***twice in the semester*** – ***once in the 1st - half (15%) and the other in the 2nd – half (20%).***

- **Group Case Choices:** All cases are in the course pack designated for group case analysis. Each group will choose one case ***from the 1st four cases*** during the 1st half of the semester by the date designated in the class schedule and get approval from the instructor of their choice. Similarly, each group will choose one case ***from the 2nd four cases*** during the 2nd half of the semester by the date designated in the class schedule and get approval from the instructor of their choice . Case discussions will be presented on the date discussed in class. Additional details to guide group case analysis and presentation will be provided as needed via eLearning

- **Case Discussion Questions:** These will be available on eLearning for all cases, in the case pack designated for group case analysis.

- **Group Case Analysis:** Students must demonstrate (i) their understanding of the key frameworks, perspectives, concepts, ideas and tools introduced in the course, (ii) their ability to relate these frameworks, perspectives, concepts, ideas and tools to one another, and (iii) their ability to creatively apply these frameworks, perspectives, concepts, ideas and tools in differing contexts. Group case analysis will be evaluated based on the clarity and coherence of arguments, application of theoretical frameworks, and the ability to support claims with quantitative or qualitative evidence from the course materials (e.g., slides, cases, readings).

- **Group Case Analysis Content:** Questions for each case have been posted on eLearning, although by no means should the case discussion be confined to these questions - students are expected to determine the key issues in the case.

  - Before beginning to respond to the questions posed for the case the group has chosen, it is expected that the group will begin the Case Discussion Analysis write-up and PPT ***with a high-level summary of the company being discussed and the essence of what the case is about*** and then proceed to respond to the questions.

- Likewise, after all questions have been responded to, ***towards the end of the case analysis the team is expected to provide a summary and conclusion in the form of key learning and the key takeaways from the case***.

- Case Discussions are expected to focus on the facts in the case, in the timeframe of the case, and no Google searches are expected or needed, and in fact, are strongly discouraged.

- The job of the group in the Case Discussion Analysis will be to highlight the key issues, key decisions and key points of interest that need to be addressed.

- **Group Case Analysis Deliverables**: Each group will provide Case Discussion Analysis for their chosen case by the date designated in class schedule, the following items for these to be graded by the instructor –

  (a) a written 10-to-12-page case analysis (MS-Word DOC, in outline format, (see examples of outline format, and writing style examples posted on eLearning), single-spaced, 10-11 size font, 1-inch margins)
  (b) a MS PPT slide deck, and
  (c) Oral Presentation Recording with PPT Post (35 – 60 min max), with each member presenting at least 5 min. Please record your Team Presentation using MS Teams and then post the links on eLearning Dropbox along with your Word doc and PPT.

3. Group Project (35%):

- **Assignment**: In this assignment, students will work in their group to design and craft the deployment strategy for a new product into an industry. In particular, you will choose an existing or emerging industry and identify a new product that could be launched in that industry. You are encouraged to pick an industry that is of professional interest (e.g., one that you have worked in in the past or look forward to working in in the future).

- **Group Project Presentation**: These will be presented on the date indicated in the course timeline, towards the end of the semester, and will consist of a write-up, and a slide presentation on a web conference call. (See note under **Web Teleconferences for Groups)**

- **Group Project Content:**
  - Section-1: Should begin with a brief discussion of the industry the group is considering. Evaluate the industry's structure, competitive conditions, and other aspects of its innovation ecosystem. This background should be about two to three pages.

  - Section-2: The body of the paper should then follow. Identify and conceptualize a new product relevant to that industry. Propose a complete strategy for the new product launch in that industry by considering multiple strategic decisions discussed in this class (e.g., potential for disrupting the existing industry, entry timing, collaboration strategy, intellectual property strategy, go-to-market strategy, and more). This section should be five to seven pages.

  - Section-3: Critically assess the practical challenges associated with their product launch strategy, including budget constraints, regulatory hurdles, and potential consumer adoption barriers, to ensure their analysis is both thorough and grounded in real-world applicability. This section should again be about five to seven pages.

- Section-4: Should then close with a section of about two to three pages summarizing and concluding the entire paper.

- So, the whole report should be about 15 - 20 pages (including figures, graphs, charts, etc.), written in Outline Format. Example of Outline Format posted on eLearning, in the instructions folder.

- The project should be well-researched and based on an extensive review of publicly-available information as well as additional databases available via UTD's libraries. Students should also deeply consider relevant concepts and frameworks from class.

- Each group will first provide a 2-page proposal that would be evaluated for suitability and provided with initial feedback. Please submit your proposal in PDF format via an email to me. **Only one submission is needed per group** but make sure to include all group members 'names in the document. The proposal should include the following:
  - Project motivation
  - Brief overview of chosen industry
  - Brief overview of 2-3 potential new products you are considering for the industry
  - Brief overview of preliminary product launch strategy
  - General list of sources of data that the group expects to use

- **Group Project Deliverables**:
  There are two core deliverables.
  - First, each group will submit a **slide deck** with about 20-25 slides. Students will present their analysis to the class during the assigned ***Web Teleconference Session, referenced previously.*** Each group will have 30 minutes to present (20 mins for slides; 10 mins for Q&A in class). The slides should be readable (i.e., font should not be too small, or too much material should not be packed into each slide). If visuals are used, ensure they are appropriate for a professional audience. Make sure to provide appropriate attribution for any third-party images that are used. Students will be graded primarily on answering the above items, but a portion of the grade will be allocated to the quality and cohesiveness of their presentation delivery. Students groups are encouraged to practice the delivery of their presentation at least 3-4 times prior to the final presentation in class. Student presenters should be clear and engaging while also delivering the material at an appropriate pace without rushing or speaking too slowly. High-quality delivery also includes good engagement with the audience during Q&A and finishing within the allocated time. Slides should be submitted on eLearning prior to the session in which the group will present.

  - Second, each group will submit a 15–20-page **report.** Report should be submitted on eLearning prior to the session in which the group will present.

- **Group Project Evaluation**: Projects will be evaluated based on the clarity and coherence of arguments, application of theoretical frameworks, and the ability to support claims with quantitative or qualitative evidence from the course materials (e.g., slides, cases, readings).

- **The breakdown of grades** is as follows: out of the 35 % of the overall course grade allocated to the project, 20% for material in presentation slides and written report; 10% for quality of slides, verbal delivery of presentation, and report formatting; and 5% for project proposal.

- **Additional** details, as needed, to guide group project write-up and presentation will be provided via eLearning.

OTHER CLASS POLICIES

1. **The Use of Generative AI Tools in the Classroom:**

   – On some assignments, students may use generative AI platforms (e.g., ChatGPT, Claude, or similar). When appropriate, they can be used to: brainstorm ideas, explore possible responses to questions, revise and edit your written work, fix citations, and so forth. When the use of generative AI is *not* permitted in an assignment, that will be indicated to you. If you are in doubt, please reach out to me.

   – It is important to note that generative AI may occasionally generate incorrect or misleading information or produce offensive or biased content. As such, do not rely on them without doing your own independent research. You will be responsible (and graded accordingly) for any material that is AI-generated that you include in your submissions.

   – When submitting work in which generative AI has been used in *any capacity*, students must cite the text generated by AI. If the above policies are violated, I reserve the right to prohibit the use of generative AI tools in any or all assignments. Should UT-Dallas' official policy on the use of generative AI change over the course of the semester, we will defer to it immediately.

2. **The Use of Smart Devices in the Classroom:** The use of electronic devices can disrupt learning for everyone in the classroom. Devices must be turned off and put away, except in cases of personal emergency. Laptops and tablets can be used for note-taking and referring to the case contingent on them not becoming a distraction to the class. In the event that appropriate use is not followed, the student's participation points will be reduced.

3. **University Course Policies:** Information contained in the following link constitutes additional University's policies and procedures. Please go to UT Dallas Syllabus Policies webpage for these policies (https://go.utdallas.edu/syllabus-policies).

4. **Honor Code:** As members of the UT Dallas community, all students are expected to uphold the Comet Creed: *"As a Comet, I pledge honesty, integrity, and service in all that I do."* Severe implications will exist for plagiarism in any capacity, unethical academic behavior, or violations of UT Dallas' official student code of conduct. In the event of a violation of the honor code, we will follow UT Dallas' official reporting process for investigation.

5. **Accommodations for Students with Disabilities:** The University of Texas at Dallas is committed to providing reasonable accommodations for all persons with disabilities. The syllabus is available in alternate formats upon request. If you are seeking classroom accommodations under the Americans with Disabilities Act (2008), you are required to register with the Accessibility Resource Center (ARC), located in the Administration Building, Suite 2.224. Their phone number is 972-883-2098, email: studentaccess@utdallas.edu and the website is https://accessability.utdallas.edu/. To receive academic accommodations for this class, please register and request services by completing the Request for Services form with

the proper documentation and meeting with the Director of ARC at the beginning of the semester.

6. **Expectations for Learning Environment in the Classroom:** We encourage a learning environment where individual differences are understood, respected, appreciated, and recognized as sources of strength. It is critically important that every member of the class feels safe and welcome to participate, regardless of race, gender, national origin, sexuality, disability, mental health, class background, or anything else. I expect that students will respect differences and demonstrate diligence in understanding how classmates' perspectives, behaviors, and worldview may be different from their own.

7. **Syllabus:** We reserve the right to make any changes to the syllabus, including projects due dates, test dates, and course policies. These changes will be announced as early as possible and indicated on the syllabus with the latest version always posted on eLearning.

Comet Creed
This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Accommodations for Students with Disabilities
Please review the section within the UT Dallas Syllabus Policies and Procedures webpage.

Academic Support Resources
Please visit the Academic Support Resources page to view the University's academic support resources for all students.

UT Dallas Syllabus Policies and Procedures
Please visit the Syllabus Policies page to view the University's policies and procedures segment of the course syllabus.

Please review the catalog sections regarding the credit/no credit or pass/fail grading option and withdrawal from class.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

DESCRIPTION OF CASES : FOR INDIVIDUAL CLASS PARTICIPATION

Introduction: Technology Strategy

1. Introduction

Article: Strategy Reading: Technology Strategy

This Reading examines how firms can use new technology to compete successfully. It starts by distinguishing how technology strategy is different from conventional competitive strategy. The Reading then describes how technology leaders can develop strategies to manage technology risks, identify market needs, commercialize new technologies, and compete successfully in a market. The author also identifies various factors that determine whether it is better for a firm to lead or follow when introducing a new technology to a market. Such factors include whether a new technology affects only current offerings in an existing industry, or whether it creates an entirely new offering for a new industry. The Reading then considers how a business can position itself to exploit the next new technology. A Supplemental Reading section explains the importance of platform technologies and the strategies that can help a firm succeed in platform competition. The Reading includes the Interactive Illustration "The Chasm in the Technology Adoption Life Cycle" and a video about disruptive innovation.

Section I: Industry Dynamics of Technological Innovation

2. Sources of Innovation

(1) Case: The Weather Company: Creating Consumer Apps that Leverage its Big Data

The Weather Company (TWC) was innovating by leveraging its big data on weather to create new consumer products. Weather was the original big data problem and over the years, TWC has capitalized on this data with its engaging TV coverage on The Weather Channel, as well as its popular website and mobile app. Recently, looking for new uses for its weather data, the company decided to build weather-related apps targeting outdoor enthusiasts. To crowd-source ideas for these apps, TWC invited all employees to a company-wide "hackathon" where they were asked to create a mobile app prototype for a segment of this population. At the end of the three-day event, everyone demonstrated their prototypes, and the company executives decided to pursue OutSider, a mobile app for runners. Like most media sites, TWC employed an advertising-based revenue model. While TWC had millions of TV viewers and website visitors, it had limited information about them. However, with the profile information offered up by runners when they registered to use the OutSider app, as well as the data gathered by the smartphone sensors, TWC was poised to charge a premium for the vendor advertisements placed within the app. As well as illustrating the significance of leveraging data assets to create new products and services, the case also provides an example of the intersection of mobile and big data. When asked to name an innovative company, TWC would most likely not be top-of-mind for most individuals, yet the 30-year-old company was very entrepreneurial in its approach to consumer mobile app development. In addition to outlining TWC's ideation process, the case describes the composition of the mobile app development team, the implementation of agile software development methods, and its use of modern big data technologies.

3. Types and Patterns of Innovation

(2) Case: Tesla (Act 2): Disruptor or Disrupted?

The Tesla case provides multiple opportunities to discuss core strategy and innovation topics, such as: • Patterns of innovation, e.g., new technologies competing to replace older generations • Types of disruption, e.g., low-end versus high-end • The innovation ecosystem, e.g., thinking beyond a single technology to the interdependence of an ecosystem of supporting technologies • Systems strategy, e.g., thinking beyond the product to understand the role of technology architecture and

systems • The innovation process, e.g. learning under conditions of uncertainty, scaling up for execution.

4. Standards Battles & Design Dominance

5. Timing of Entry

Section II: Formulating Technological Innovation Strategy

6. Defining the Organization's Strategic Direction

(3) Case: Lingban: AI Content Generation in the Audio Industry

Beijing Lingban AIaaS Technology Co., Ltd. ("Lingban") was founded in 2014 with a focus on intelligent speech technology. In its early years, the company explored various application scenarios before deciding to concentrate on developing intelligent conversational robots, which quickly received positive market feedback. In 2020, as demand surged for remote education and entertainment due to the COVID-19 pandemic, Lingban expanded into the field of artificial intelligence generated content (AIGC) and embraced the intelligent production of audio content. This shift led to the launch of Guagua version 1.0, which was later redefined from a tool-based platform to a software-as-a-service (SaaS) model with the release of Guagua version 2.0. This transformation, alongside the company's intelligent conversational services, aimed to create an intelligent human-machine collaborative innovation platform. This case explores how Lingban successfully commercialized its technology and the factors driving the transformation of its business model after entering the AIGC field. Looking forward, the case asks how the company can strategically develop its human-machine collaborative innovation platform within a multi-participant ecosystem, and what management mechanisms will enable it to effectively compete with traditional industry models.

7. Choosing Innovation Projects

(4) Case: Concorde 2.0: Reinventing Supersonic Technology

The Concorde, a British-French supersonic jet, captured the hearts and minds of aviators, business professionals, and celebrities around the world through its iconic design, superior features, and unique inflight experience. Despite its transcendent appeal, the jet became surrounded by controversy, catastrophe, an environmental movement, and changing consumer trends, all of which led to its grounding in 2003. In almost two decades, no aerospace program had been successful in recreating commercial supersonic air travel. The Concorde's story showed that these non-technical aspects of technology adoption and diffusion were strong enough to force the retirement of a superior, breakthrough technology and replace it with an inferior one. In 2021, did it make sense to aim to commercialize supersonic travel by imitating the good in the Concorde and tweaking the downsides, or was there a hidden reason why the Concorde had failed and supersonic transport had not been recreated?

8. Collaboration Strategies

(5) Case: Preferred Networks: A Deep Learning Startup Powers the Internet of Things

Preferred Networks, Inc. (PFN), a start-up specialized in deep learning technologies, a branch of artificial intelligence (AI) research, differentiated itself early on by aligning with Japan's

manufacturing might and bringing deep learning to the internet of things (IoT). The case follows the start-up as it evolves into a highly valued company with over 200 employees and global partners across various industries. It offers an overview of the AI business landscape and an explanation of deep learning. PFN's trajectory shows how technology-heavy research firms spark innovation, attract business partners and collaborators, manage as they grow, and decide what business model best suits their needs.

9. Framework for Product Management

(6) Case: OpenAI: Creating the Product Roadmap for ChatGPT

In April 2024, Xander Griffin, Head of Consumer Innovation at OpenAI, was preparing for a roadmap review with CEO Sam Altman. Responsible for the company's generative artificial intelligence (genAI) flagship products ChatGPT and ChatGPT Enterprise, Griffin faced the challenge of maintaining OpenAI's leadership amid slowing product improvements and rising competition. ChatGPT quickly became the market leader in conversational AI after its November 2022 launch. It excelled at generating human-like text responses to user inputs by supporting use cases in virtual assistance, content generation, tutoring, coding, information retrieval, and multilingual communication. Griffin's task was to develop a compelling roadmap for ChatGPT's future releases, particularly GPT-5 and its subsequent iterations. Griffin was considering enhancements in multimodal interaction, customization, accuracy, integration, and bias mitigation. While creating their roadmap, they used ChatGPT to suggest future development themes and sprints. The results underscored AI's potential and limitations in strategic planning. Griffin needed to add their domain expertise and insights to ChatGPT's responses to create a product roadmap to ensure the company's sustained innovation and market leadership.

Section III: Implementing Technological Innovation Strategy

10. Protecting Innovation

(7) Case: How to sell a secret? IP protection in startup entrepreneurship

The case examines the entrepreneurial journey of Antonella and Kathrine, who developed a solution to reduce plastic waste in construction and logistics. The case follows their process of identifying the problem, engaging with industry stakeholders, and refining the design in multiple iterations. It then discusses whether their company, Evewave, should pursue patent protection for their solution. The case weighs the benefits of obtaining a patent, such as safeguarding the company's market position and signaling professionalism and commitment, against the drawbacks, such as high costs, a lengthy application process, and the need for secrecy, which could hinder collaboration with industry partners and potential investors. The study highlights the dilemma start-ups face in disclosing design details during the patenting process and explores how patents can serve as valuable assets, including during exits. Ultimately, the case emphasizes the importance of making well-informed decisions about intellectual property (IP) protection in a start-up's early stages.

11. Organizing for Innovation

12. Managing the New Product Development Process

(8) Case: Product Development at StubHub: Don't Stop Believin'

Arnie Katz, chief product and technology officer at StubHub (SH), was helping to lead a contest intended to result in innovative and valuable new ideas. Product managers presented more than 100 new business initiative proposals to create new value for customers and provide additional revenue streams and differentiation opportunities. The secondary-ticket (resale) market in the United States was becoming increasingly fragmented, and SH was losing market share. It was imperative to move SH from being a trusted platform for conducting ticket-resale transactions to becoming an integral part of fans' experience of live events. This case is intended to be used in conjunction with a technical note on product-market alignment (PMA): ""Product-Market Alignment"" (UVA-OM-1706). Katz and his teams conduct successive rounds of investigation and data gathering across the three dimensions of PMA: defining the customer need, identifying business value, and evaluating operational capabilities. This case also presents a bridge between high-level operations strategy and a more granular discussion of process capabilities. Agile software development is discussed.

13. Managing New Product Development Teams

(9) Quick Case: Immerse VR: In Too Deep?

Potential virtual-reality unicorn startup, Immerse VR has talented employees and is developing software with much potential. However, they are behind schedule going to market. There is also considerable tension among employees in different functions that prevent them from agreeing on the product. Felicia Montero, vice president of product development at Immerse, must quickly chart Immerse's product path to becoming a USD $1 billion unicorn before investors start backing out and funding runs dry. This Quick Case introduces students to how organizational structure channels attention and action along three dimensions (the "three Is") that reflect how most employees experience their daily work: Identity/Interests, Information, and Incentives.

14. Crafting a Deployment Strategy

(10) Case: Reimagining a Tech Giant: The IBM Digital Transformation Blueprint

This case examines IBM's digital transformation journey, highlighting the strategic imperative to evolve from a hardware-centric business model to a service-oriented approach. The transformation aimed to leverage emerging technologies such as cloud computing, artificial intelligence, and blockchain to enhance IBM's competitive edge. This case delves into the cultural and operational challenges faced during this transition, the strategic investments in new technologies, and the restructuring of business units. It provides a comprehensive overview of how IBM redefined its market position and influenced industry trends.

DESCRIPTION OF CASES TO CHOOSE FROM: GROUP ANALYSIS & PRESENTATION

1st Half of the Semester

(1) Case: EZ-Link and NETS E-Payment: Creating a Standard and Building a Platform Innovation

The e-payments landscape in Singapore was previously dominated by two major card issuers with non-interoperable cards. The Infocomm Development Authority launched an initiative to develop an innovative standard that would provide an interoperable platform in order to boost local micropayments and open up e-payment services for consumers. The result was a pioneering ISO

standard - the Contactless e-Purse Application Standard (CEPAS). This open standard, with unique security and high-performance features, enabled multiple payment applications offered by different issuers to be on a single smart card, which consumers could use for bus, taxi, and rail transport, car park and road usage charges, and retail micropayments. The case examines the significant challenges and trade-offs in the development and deployment of this platform innovation - such as orchestrating the efforts of multiple stakeholders and balancing various stakeholders' legitimate interests; incentivizing investment in supporting infrastructure and complementary innovations; as well as promoting the adoption and diffusion of the cards by consumers and merchants. The CEPAS platform was also being leveraged for the next generation of e-payment innovations, such as payments via Near Field Communication-enabled mobile phones.

(2) Case: Protean Electric: Innovation Upon Innovation

The case is intended as a vehicle for analysis of the challenges involved in launching an innovative product. It is set against the background of the wave of innovation in the vehicle market, as manufacturers race to replace internal combustion engines (ICEs) with electric power. Protean Electric, a company of British origin but now Chinese-owned, aims to introduce another level of innovation by introducing its in-wheel motor (IWM) technology to electric vehicles (EVs). Instead of simply replacing an internal combustion engine with an electric battery unit, Protean technology dispenses with the central powertrain and mounts electric power units in some or all of the wheels of the vehicle. The company is committed to being part of the entry into the mainstream passenger EV market of Evergrande, its Chinese owners, but has historically also looked at other sectors such as urban shuttles and delivery fleets and has retained the ability to continue to develop products for those sectors. It also has to consider the emerging consensus that the transport market of the future will shift away from individual ownership towards a model known as CASE (connected, autonomous, shared, electrified). The contrast between the 'niche' IWM innovation and the market-wide electric revolution highlights the key concepts in new-product market analysis.

(3) Case: OpenAI and the Large Language Model Market

This case study centers on Sam Altman, the CEO of OpenAI, as he faces critical decisions regarding the company's future direction in the rapidly growing large language model (LLM) market. With the success of GPT-4, OpenAI became a prominent player in the industry, and Altman must develop a comprehensive strategy to maintain this position while navigating a complex array of challenges. The case explores key issues such as competitive dynamics, fostering an application development ecosystem, ethical considerations, regulatory challenges, balancing profitability with OpenAI's mission, and talent acquisition and retention. By examining these topics, students will gain insights into the strategic decision-making process and factors that influence the direction and success of a company operating in a rapidly evolving and competitive market. This case can be particularly relevant for courses related to artificial intelligence and technology, entrepreneurship, business strategy, and ethics.

(4) Case: Mobileye 2021: Robotaxi and/or Consumer AV?

In March 2021, Amnon Shashua, co-founder and CEO of Israel-based Mobileye, was preparing to meet with Intel's new CEO, Pat Gelsinger, to review plans for the future. Mobileye had been acquired by California-based Intel in 2017 but still operated independently. Mobileye was the global leader in vision technology for Advanced Driver Assistance Systems (ADAS) with a 70% market share and $1 billion in revenue. However, for Shashua, ADAS was just the first step towards his dream of leading the autonomous vehicle (AV) revolution. It was this vision that led Intel to acquire Mobileye for $15.3 billion. Shashua's challenge was that consumer AVs were still years away due to concerns over safety, regulation, cost, and consumer acceptance. A nearer term use case for AVs was the robotaxi market-fully autonomous, driverless taxis. Shashua and his team were excited about the potential of robotaxis to change the future of mobility, projecting that the

market would grow to $160 billion globally by 2030. Mobileye believed that it could generate at least $15 billion in annual robotaxi revenue by the end of the decade. Equally important, Shashua viewed robotaxis as a necessary first step toward consumer AVs. Mobileye could use its experience in robotaxis to improve AV technology, address regulatory challenges, and build high-definition maps. The long-term question facing Mobileye was whether to: 1) invest billions of dollars to build-out a global, vertically integrated robotaxi business; 2) use robotaxis as an opportunity to learn and then revert back to a horizontal supplier of AV chips and software; and/or 3) do both? During most of Intel's history, the company had been a horizontal semiconductor company which avoided vertically integrating into its customers' businesses. Should Shashua make the case that it was time for a change-and Intel should run a full-stack vertical robotaxi company? Each strategic choice had different capital requirements, risk profiles, and margin opportunities. Shashua needed to decide which direction to recommend to Gelsinger.

2nd Half of the Semester

(1) Case: "Kickboxing" Around the World: An Intrapreneurship Revolution?

Adobe's "Kickbox" system of grassroots innovation garnered headlines and then, through an open-source community, found its way into hundreds of companies and other organizations of all types. A group of Kickboxers from Swisscom are inspired to take the methods and technology to the next level, hoping to foster new waves of employee-led innovation. Their new venture, "rready," has gained the support of Kickbox's inventor and aims to productize the Kickbox innovation approaches. But can the founders prioritize growth and stay true to the open-source ethos of Kickbox? This case is a sequel to "Kickboxing" at Adobe Systems.

(2) Case: DJI Innovations: Product Development in Start-ups

DJI, founded by 24-year-old Frank Wang Tao in 2006, grew rapidly from an unknown startup in China to a leading global player in the Unmanned Aerial Vehicles (UAVs) market for hobbyists within seven years. DJI saw its revenue soar 79 times in three years (2010-2013) and its staff grow 50 to 1,500 across Asia, Europe and the USA. The case describes how a tech entrepreneur started serving a niche segment moved towards a broader consumer market, by opening up new horizons for aerial photography and videos enabled by its innovative products. The case outlines DJI's product development strategy to establish its competitive advantage and the entrepreneurial process for taking a technology concept from initial idea to developing the prototype and subsequently launching the new product in the market. The post-startup issues encountered by a growing technology venture and the challenges faced in an evolving marketplace.

(3) Case: Innovation at Uber: The Launch of Express POOL

Set in March 2018, the case follows ride-sharing company Uber as it develops and launches a new product called Express POOL. This product offers a reduced price to riders willing to carpool, walk a short distance to/from their pick-up and drop-off points, and wait a few minutes before being matched to a driver. Two weeks after the launch of Express POOL in six U.S. cities, Uber's product managers discover that if riders are made to wait five minutes to be matched to a driver-rather than the standard two minutes-rider cancellation rates increase, but Uber's costs per ride are reduced. Together with data scientists, engineers, and product operations specialists, the product managers must decide whether to keep rider wait times at two minutes or increase wait times to five minutes in the six newly launched cities. The decision is complicated by the fact that Uber's data science team normally places a five-week moratorium on changes to any new product, to allow robust data to be collected on its performance. This case is paired with a supplementary dataset from Uber (courseware no. 619-702). In advance of the class discussion, students can analyze the data and

draw their own conclusions about the trade-offs of maintaining the standard wait times or increasing them.

(4) Case: NVIDIA's Future Strategy: Can It Sustain Its Blue Ocean?

The public release of ChatGPT in late 2022 marked a watershed moment in AI, transforming it from a specialized technology into a mainstream phenomenon. The sudden surge in interest in AI is directly linked to NVIDIA's bottom line and its unprecedented rise to the ranks of the most valuable companies in the world by 2024. Companies scrambling to develop and deploy their own AI models have had no place to go other than NVIDIA's cutting-edge AI solutions. Yet, NVIDIA is now faced with numerous challenges, and also an intriguing paradox: its largest customers are increasingly becoming potential competitors. Companies like Google, Microsoft, and Meta, which buy huge quantities of NVIDIA chips, are developing their own AI accelerators. On top, there is the recent release of DeepSeek. This case discusses how NVIDIA succeeded in creating a new market space for AI data centers and whether it can continue to stay on a sustainable, high-growth path, in light of the emerging challenges. Can it continue to swim in a blue ocean devoid of any competition, or will the sharks lurking nearby soon turn the ocean bloody red? A salient feature of this case is that, unlike most other cases that focus on a decision that happened years ago, this case deals with a contemporary business issue - one that is on track to transform our society in a significant way.