Columbia Business School

TECHNOLOGY STRATEGY (B8570)

Tuesdays and Thursdays, Kravis 870
Section 001: 10:20 PM - 11:50 PM
Section 002: 2:00 PM - 3:30 PM
Section 003: 3:50 PM - 5:20 PM

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Office Hours:
Fridays (2:30 - 4 PM), and by appointment

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COURSE OBJECTIVES AND DESCRIPTION

This course provides an introduction to the strategic management of technology. *Technology Strategy* has three goals, which relate to the three modules of the course. The purpose of the first module, "Technology-based Competitive Advantage", is to understand how technology affects firms' profitability and growth. In the second module, "Technology Platforms and Network Dynamics", we will examine how firms utilize technology to harness network effects, especially in the form of multi-sided platforms, to gain competitive advantage and capture value. In our final module, "Technology Strategy and Society", we will explore how technology can solve some social and business problems but can also create ethical dilemmas. Specific topics and questions include but are not limited to the following:

- How can firms commercialize and protect new innovations or scientific discoveries?
- How should an incumbent firm respond to "disruptive" innovations?
- How do firms leverage network effects to build sustainable competitive advantage?
- What are the optimal strategies for building multi-sided platforms?
- How do new technologies change the way we interact in society, and how should businesses respond?

PREREQUISITES AND CONNECTION TO THE CORE

Prior to taking Technology Strategy, students must have completed Strategy Formulation (B6502). We will use and extend concepts covered in Strategy Formulation. The class will specifically build on concepts such as value propositions (Brooklyn Brewery, Walmart, and Zara cases), diversification (Disney case), network effects (Apple case), the player analysis framework (Airbus vs. Boeing and Maersk cases), and two-sided platforms (Jumia and Uber (A) cases). The class will also integrate material from Marketing, Managerial Economics, Business Analytics, and Operations Management.

REQUIRED COURSE MATERIALS AND READINGS

All cases, required readings, and videos will be made available via links in the Calendar section of the course Canvas page. There is no physical casebook for this course. There are several *optional* books that are relevant to that you might find helpful as well in preparation for those sessions.

Optional, but Highly Recommended Readings

- Agrawal, Ajay, Joshua Gans, and Avi Goldfarb. 2022. *Power and Prediction: The Disruptive Economics of Artificial Intelligence.*
- Chen, Andrew. 2021. *The Cold Start Problem: How to Start and Scale Network Effects*. Harper Business.
- Kearns, Michael and Aaron Roth. 2019. *The Ethical Algorithm: The Science of Socially Aware Algorithm Design*. Oxford University Press.
- McAfee, Andrew and Erik Brynjolfsson. 2017. *Machine, Crowd, Platform: Harnessing our Digital Future*. WW Norton.

COURSE ADMINISTRATION AND GRADING

Grading will be based on the components and weights below to calculate your course grade:

1. Class Participation	40%
2. Class Write-up	10%
3. Autonomous Vehicles Assignment	10%
4. Optional Final Project	40%

All of the graded components above are individual of type C vis-à-vis the honor code.

A student who only participates actively in class, submits all poll question assignments, and does a good job on the case write-up and autonomous vehicles assignment can receive a maximum grade of HP. Students who wish to receive an H must also submit an individual final project as described below in addition to the other requirements. There is no reason to do a final project unless you are going to put forth a serious effort on all components of the grade.

AI (Artificial Intelligence) Assistance Policy

The use of AI-powered writing or reasoning tools, such as OpenAI's ChatGPT or Word Spinner, to complete your assignments *is permitted* in this class; in fact, *it is encouraged* as long as it improves the quality of your work and does not inhibit or misrepresent your thinking and reasoning. The main purpose of the writing assignments below is to help you prepare for in-class discussion, during which you will be called upon to share your thoughts, hear from others, react, and revise or defend your thinking. **The only requirement is that if you do use an AI tool to generate text for your poll question or write-up response, please note it in your response by appending the following text**: [Partially generated by AI] - or - [Entirely generated by AI]
(This will help me better understand how to integrate Generative AI tools in the future, so I appreciate your willingness to be part of the evolution of Technology Strategy.)

1. Class Participation

Your participation is essential for both your own learning and that of other students. Because Technology Strategy is a case-based course, most of the learning will take place in our class discussion of these very cases. I expect that every student will arrive having done the required readings and able to answer the day's assignment questions. Students should also expect to be cold called in class. 40% of your overall course grade will be your participation grade, which is further decomposed into three components: 1) Poll question completion (10%), 2) Frequency and Quality of participation in class discussion (25%), 3) Slack discussion (5%).

Poll question: There is one poll question for each case and guest speaker in class (starting with session 2, and with the exception of session 4). Poll questions will be posted as assignments in your Canvas Calendar. They require you to read the relevant case or article and give a short response to 1-2 questions. *You must submit your answer to the poll question through Canvas by 9 AM on the day the relevant case or guest speaker is scheduled for class*. **If are you submitting a class write-up (see below) that addresses the poll question, you must still submit an answer to the multiple choice question(s), but you may write "Please see write-up" in the short response section.**

Frequency and quality of class participation: Both the frequency and quality of your class participation will be affected by non-attendance. Obviously, not coming to a class means that you will not have a chance to take part in class discussion, which is a critical component of your overall grade. *In terms of the quality, the best class comments*:

- Articulate a clear stance or argument
- Raise issues from past classes, current events, or other anecdotes that are relevant to the discussion
- Show curiosity and a willingness to experiment
- Use data, examples, or your own personal and professional experience to support arguments
- Are respectful when disagreeing by summarizing the contravening opinion before delivering your own

If you are comfortable with participating in class, I encourage you to help others feel safe about participating by inviting further discussion or referring to points that have already been made by your classmates. Students are also expected to be present, prepared, and participate per the Columbia Core Culture. For excused absences, please submit the OSA administered survey on Canvas before the session you have to miss to make sure that your participation grade does not suffer. *Use of electronic devices in class is not allowed except in answering Poll Everywhere questions during class*.

Participation on Slack: Each section has a separate **private Slack Channel** in the Technology Strategy Slack workspace. Invites will be sent to your *@gsb.columbia.edu* email address. Participation in your section's Slack channel (or in the #general Slack channel, which is visible to all sections) is meant to keep the discussion going between class sessions and should be focused on topics discussed in class. Slack discussions are an opportunity to go beyond the themes, questions, and dilemmas encountered in your cases and in-class discussions. Examples of this include links to news articles about other companies facing similar dilemmas

(that also include your commentary about their relevance), more recent updates on the cases covered, follow-ups about guest speakers, or strategic alternatives that were not considered in class. Reactions to such items that raise new points also can invigorate a discussion.

> **Important:** Slack discussions *should not* be used for answering administrative questions about the class. Students with these questions should reach out to the CA or Professor directly by email.

2. One Class Write-Up

You must complete one write-up, which can take one of two forms. 1) Prepare a case write-up for sessions in which we discuss specific cases. 2) Prepare a guest speaker write-up for sessions in which we have guest speakers. A write-up should address either the "guiding questions" posted in your Canvas Calendar about the case, or it can be a deeper analysis of the poll question posed for the class. Case write-ups should analyze and persuade rather than recite facts. Specifically, for guest speakers, your write-up should summarize what you believe to be a key strategic problem that the guest speaker's company or industry is facing, or a reflection about the readings provided in preparation for the guest speaker. Each write-up should not exceed 600 words, which is approximately equivalent to 2 pages at 12-pt Times New Roman font with 1-inch margins.

If your class write-up focuses on the poll question for the session, please submit a response to the poll question with a note directing me to your class write-up (for example, "Please see my class write-up that addresses this poll question.")

Please indicate the session for which you plan to do your write-up via the survey link on Canvas by ***Friday, January 27*** (you are not obligated to stick to these choices). Write-ups should be uploaded to Canvas by 9 AM on the day the relevant case or guest speaker is scheduled.

3. Autonomous Vehicles Assignment

There is a data-related exercise that you should complete prior to our session on Autonomous Vehicles (**Tuesday, February 21**). You'll find all of the relevant materials in a folder in the "Files" section of Canvas called "Autonomous Vehicles Assignment." The assignment will walk you through the process of analyzing a dataset collected from a survey of American adults about their attitudes toward autonomous vehicles. Your familiarity with the dataset and the insights you will glean from completing the assignment will form the basis of a discussion that we will have in class, so it is imperative that you complete the assignment.

4. Optional Final Project

The final project is for students hoping to receive an H in the course. However, doing a final project does not guarantee that a student will receive an H, and receiving an H also requires doing well in participation and the two write-ups.

For the final project, I ask that you analyze and evaluate a particular strategic decision or (set of decisions) facing a company or industry using the concepts from the course (essay form, 1,800 word limit, including all exhibits). While providing some details is necessary, you should emphasize analysis over description. Do not use cases covered in this course or other courses at Columbia Business School. You are welcome to make use of industry contacts. I am also happy to provide a real-world 'case' if you have trouble deciding on your own.

Students who wish to do a final project must sign up on Canvas by ***Friday, February 10*** to confirm the project's topic. Not signing up with a proposal by **February 10** means that you will not have an opportunity to submit a final project. Discussing your topic with me in advance is advised but not required. The optional final project is due *on* ***Thursday, March 9, at 11:59 PM***.

CLASS SESSIONS

Session	Date	Module	Key Concepts	Cases and Readings*
1	Tuesday, Jan-24	Technology-based Competitive Advantage	Introduction and Overview	**Tinder: From Swiping Right to Scaling Up** (Read Case) [no poll question]
2	Thursday, Jan-26		Protecting Innovation	**Lego: Publish or Protect?** (Read Case, Watch Videos) [Optional Reading: **Lego (A)**] [Class write-up survey due **tomorrow, Jan 27**]
3	Tuesday, Jan-31		Disruptive Innovation	**Netflix: Continuous Innovation or Self Destruction?** (Read Case)
4	Thursday, Feb-02		Managing Innovation	**Food Truck Challenge** (In-Class Group Simulation Exercise) [no poll question]
5	Tuesday, Feb-07	Technology Platforms and Network Dynamics	Platform Synergies	**LinkedIn Learning** (Read Case)
6	Thursday, Feb-9		Platform Competition	**Uber: New Roads Ahead** (Read Case) [Optional Final Project Proposal due **tomorrow, February 10,** at **12 PM**]
7	Tuesday, Feb-14		Platform Initiation	**Alphabet** (Read Case)
8	Thursday, Feb-16		Platform Diversification and Monetization	**KakaoTalk** (Read Case) or **Twitch** (Read Case)
9	Tuesday, Feb-21	Technology Strategy and Society	Technology Stakeholder Strategy	**Autonomous Vehicles: Futurist Technologies in Markets and Society** (Read Case) [AV data exercise due at **9 AM** today]
10	Thursday, Feb-23		Creating Value through Social Technologies	Guest Speakers (depending on section): Su Sanni (**Founder and CEO of Dollaride**) *or* Iva Gumnishka (**Founder and CEO of Humans in the Loop**) [Readings: See Canvas]
11	Tuesday, Feb-28		The Value of Personal Data Privacy	Guest Speaker (depending on section): Brian Croll (**Former VP of Product Marketing at Apple**) [Reading: **Apple's Privacy Strategy** (case)]
12	Thursday, Mar-02		Social Platform Experimentation	**Meta's Role in Society** (Read Case)

* Columbia cases highlighted in **blue**.