

**Management**  
**Course Number: 22:620:601**  
**Course Title: Management of Innovation and Technology**

## **COURSE DESCRIPTION**

This course provides an introduction to the strategic management of technology and innovation. “Management of Innovation and Technology” (MI&T) has three broad goals. The first is to understand the strategic dynamics of technology markets. Second, we will examine how firms— both in the technology sector and outside—can leverage technologies and innovate to achieve competitive advantage. Finally, we will discuss how organizations can structure and manage the process of innovation.

The course is a case-based discussion class, and the majority of learning will happen through interactive debate in class. We will be discussing real companies facing real strategic and organizational issues, and our goal in each session will be to conduct a comprehensive analysis of these situations, and to generate tangible recommendations for how the firm should solve these problems.

Specific topics and questions will include:

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

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## **COURSE MATERIALS**

### Cases

This class will be primarily based on in-class case discussions. The casepack is available for purchase through Harvard Business School Press (HBSP):

**Casepack link: <https://hbsp.harvard.edu/import/654878>**

### **Textbook**

There is no “required” textbook for the course, although I will pair chapters from the suggested textbook below with each class as optional pre- or post-class reading. Going over the chapter prior to the class can potentially help in preparing for class discussion, and can also provide a more in-depth discussion of the concepts for those who wish to follow up after class.

Schilling, M.A. 2016. Strategic Management of Technological Innovation. New York: McGraw-Hill, 5<sup>th</sup> edition

You can rent the book at Amazon (roughly \$35 for the semester), or acquire an older edition of the textbook. (Third and fourth editions are perfectly fine, and significantly cheaper.) Again, this is optional for those who find it helpful to have a textbook.

### **Class Website**

Class slides and communication will happen through the class Canvas page (<https://canvas.rutgers.edu>) If you are officially registered for the course, then you will have access to the website based on your Rutgers ID and password. I will be using Canvas to send out class announcements. So if you usually use a NON-Rutgers email account (e.g., gmail, yahoo, your employer), then please make sure to forward your email from your Rutgers account to the email account you actually use.

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## **LEARNING GOALS AND OBJECTIVES**

You should develop the following skills from this course:

### *Business knowledge:*

- Learn to analyze technology markets and diagnose technology trends.
- Understand the conditions under which technologies create “winner-take-all” outcomes, and know how to develop a strategic plan to create or prevent those conditions.
- Understand how technology-driven changes in the external environment determine the optimal organizational structure and processes.
- Better understand how to build more innovative organizations and teams.

### *Critical thinking skills:*

- Identify tradeoffs in strategic plans, and formulate plans to exploit/mitigate strengths/weaknesses.
- Use financial and other quantitative information to support qualitative analyses and arguments.

*Persuasive communication:*

- Learn to frame arguments effectively and analyze other people's assumptions to be more convincing.
- Understand how to support arguments with evidence and logic.

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## **PREREQUISITES**

Students should have taken the Organizational Behavior MBA course prior to enrolling in this class. Prior experience analyzing cases will be helpful for this class. Familiarity with basic financial accounting terms and information is also helpful.

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## **ACADEMIC INTEGRITY**

*I do NOT tolerate cheating.* Students are responsible for understanding the RU Academic Integrity Policy (<http://academicintegrity.rutgers.edu/>)

I will strongly enforce this Policy and pursue *all* violations. On all examinations and assignments, students must sign the RU Honor Pledge, which states, "On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment." I will screen all written assignments through *SafeAssign* or *Turnitin*, plagiarism detection services that compare the work against a large database of past work. Don't let cheating destroy your hard-earned opportunity to learn. See [business.rutgers.edu/ai](http://business.rutgers.edu/ai) for more details.

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## **ATTENDANCE AND PREPARATION POLICY**

Your preparation and contribution during class is essential for the learning of others, so I fully expect everyone to attend all class sessions. If you are to be absent, please reach out to me by email *prior* to class. You can make up for your absence (but not necessarily participation) by submitting a write-up addressing the assignment questions in the syllabus. Unexcused absences will hurt your final grade.

Everyone should be fully prepared to provide in-depth analyses of the strategic issues facing the company we are discussing for each session. You should also be prepared to share your thoughts on the assignment questions listed below. I will be cold-calling students, so please familiarize yourself with all the case facts and exhibits.

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## **CLASSROOM CONDUCT**

All classroom participants should treat each other with respect. This means that you should be polite when engaging in debates, and minimize any disruptions during class. Using cell phones or laptops to email/message during class time is a distraction to all participants, so please refrain from doing so.

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## GRADING POLICY

Course grades are determined as follows:

Participation	40%
Case Write-ups (2)	10% (5% each)
Team Presentation	20%
Final Paper	30%

### 1. Class Participation

An important course requirement is active involvement in class discussion. Your participation is essential—for both your own learning and that of other students. Because the class is a case-based course, much of the learning will take place in our collective discussion of the business cases.

The best class comments:

- Make or raise issues that are relevant to the current focus of the class
- Show curiosity and a willingness to experiment
- Use data or examples to support conclusions
- Take into consideration the ideas offered by others
- Offer support for arguments
- Help others feel safe about participating <sup>[L]</sup><sub>SEP</sub>

It is essential that you participate often enough so that I can assess the quality of your thinking. Once you pass a certain quantity threshold, your participation grade hinges solely on quality.

### 2. Case Write-Ups

There are two case write-ups to be submitted. There is no need to summarize the case or provide background info in the write-up. The write-up should focus on addressing the strategic/organizational dilemma central to the case. (No need to address the assignment questions noted for that session.) Alternatively, you can pose a strategic/organizational decision for the company based on more contemporary data or issues. You should clearly outline the different options available to the company/protagonist and then make the case for why you

choose one option over another. Bonus points will be awarded to write-ups that use data in the case, or any other outside data sources, to generate a simple calculation/quantification to support an argument or recommendation. The write-ups will be evaluated in terms of their creativity and clarity in using data—the ideal analysis will be something that shapes the in-class discussion by shedding light on an important issue facing the company. Each write-up should be submitted electronically before 4 pm on the day the associated case is covered in class.

### **3. Team Presentation/Debate**

The primary objective of this assignment is to work together in a team to do an in-depth analysis of a technology area that is relatively new and has potential. (Examples include autonomous vehicles, gene editing, blockchain, etc.) For each topic, two teams (of up to 4 people) will be assigned.

Each team will analyze the market potential of a given technology, the competitive landscape, current and future technology trends, and market projection based on data. Teams will be asked to put together a detailed proposal to implement the given technology, and prepare a detailed projection of the costs and returns of the recommended proposal. Each team will have 10 minutes to “pitch” the case to the class, followed by a Q&A.

### **4. Final Paper**

Each student should analyze a company, and propose a detailed technology/innovation strategy, ideally by using the concepts and ideas from the course. There is a 2500 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 Rutgers Business School. You are welcome to make use of industry contacts. A one to two paragraph synopsis of the final paper will be due for the instructor’s approval on Week 8.

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## **COURSE SCHEDULE**

### **• Week 1 [ ] Introduction**

**Case:** eHarmony

Please read the eHarmony case and think about the following questions prior to class:

1. Does eHarmony have a competitive advantage? If so, where does it come from?
2. How serious is the competitive threat to eHarmony?
3. Which of the four options should Waldorf pursue?

**Additional Reading:** *The Bakeoff* (<http://gladwell.com/the-bakeoff/>)

**Optional Reading:** Textbook Chapter 1 and 2

- **Week 2 [] Types and Patterns of Technology**

**Case:** Tesla Motors

1. Should BMW expect Tesla to grow into a strong direct competitor like Audi, versus Tesla being limited to a niche or being just a flash in the pan? Is Tesla at a competitive advantage or disadvantage? How will that evolve?
2. What do you think of Tesla's entry strategy? What barriers did it have to overcome? Will other firms follow in Tesla's footsteps?
3. Do you think Tesla's secret plan was really a plan or an ex-post rationalization? Would it matter?

**Optional Reading:** Textbook Chapter 3

- **Week 3 [] Complements, Standards and Network Effects**

**Case:** Apple Inc in 2015: Vision and Strategy (Columbia Caseworks)

**(Note: This case is not in the HBS casepack.)**

1. Why was Apple one of the most profitable computer companies in the world in the late 1980s and early 1990s? Why was Apple a "troubled" company for much of the rest of the 1990s?
2. How did Apple turn things around in the 2000s? What strategic changes did they make?
3. What is your assessment of Tim Cook's tenure as CEO of post-Jobs Apple?

**Optional Reading:** Textbook Chapter 4

- **Week 4 [] Platforms and Two-sided Markets**

**Case:** Google, Inc. 2014

1. Google currently enjoys approximately 70% market share of US searches, and well above 90% in many other countries. Do you expect the search business to become more concentrated (i.e., dominated by fewer firms)? Is search winner-take-all business?
2. What are Google's core competencies? What are the company's competitive advantages over its rivals in its main market?
3. Currently 95%+ of Google's revenue comes from online advertising. How important is it for Google to pursue alternative revenue streams? Which alternatives are the most promising?
4. Do you view Alphabet's (i.e. Google's holding company) distinctive governance structure, corporate culture, and organizational processes as strengths or potential limitations?

**Optional Reading:** Strategies for Two-Sided Markets, *Harvard Business Review*, [Oct 2006](#) (Access the article from Rutgers Library by searching for "Harvard Business Review" in the Journal tab, and clicking on Full Text from EBSCOhost.)

- **Week 5 [] Disruptive Innovation**

**Case:** Netflix: Continuous Innovation or Self-Destruction? (Columbia Caseworks)

1. Why did Blockbuster struggle to respond to Netflix? Could they have done something differently to thwart Netflix?
2. Was streaming a disruptive innovation in the movie rental market? How did Netflix cope with this new technology?
3. What is the logic behind Netflix's foray into original content production?

**Optional Reading:** Disruptive Technologies: Catching the Wave, *Harvard Business Review* [Jan 1995](#) (Access the article from Rutgers Library by searching for Harvard Business Review and clicking on Full Text from EBSCOhost)

- **Week 6 [] Licensing and Alliances**

**Case:** Abgenix and the XenoMouse

1. Does Pharmacol or BioPart represent a better way to go for Abgenix? Why?
2. What factors would you focus on in choosing a partner? Which of these factors are most important? Why?
3. What should Scott Greer do?
  - go it alone through the end of Phase II trials?
  - sign with Pharmacol?
  - sign with BioPart?                      - something else?

4. What are the major risks you see in your decision? How can these be managed?      **Optional**

**Reading:** Textbook Chapter 8

- **Week 7 [] Intellectual Property Guest Speaker**

**Optional Reading:** Textbook Chapter 9

- **Week 8 [] Innovation and Creativity**

**Case:** IDEO

1. How would you characterize IDEO's process, organization, culture and management?

2. Should IDEO accept the Visor project as is (on a dramatically reduced schedule)? Should they try to persuade Handspring's management to change its aggressive launch schedule? Or should they simply decline the project? In your discussion, please consider the IDEO and Handspring perspectives.

**Optional Reading:** Textbook Chapter 11

- **Week 9 [] Managing Project Portfolios**

**Case:** Le Petit Chef

1. What should Gagné do? Specifically, which projects should she fund and why? How should she handle the executive meeting?
2. What factors explain Le Petit Chef's poor performance? What actions would you recommend to remedy the situation?

**Optional Reading:** Textbook Chapter 7

- **Week 10 [] Managing Global Innovation**

**Case:** P&G Japan: The SK-II Globalization Project

1. As Paolo DeCesare, what factors do you need to consider before deciding what to recommend in your SK-II presentation to the global leadership team (GLT)? What kind of analysis will you need to do in preparing for that meeting?
2. Does SK-II have the potential to become a global brand within Procter & Gamble's worldwide operations? Why or why not?
3. Which of the three market options should Paolo DeCesare recommend to the GLT? What benefits do you expect to gain? What risks do you see?
4. How should he implement your recommended option? What are the implications for P&G's new post-O2005 organization? What support and/or resistance do you expect? How will you manage it?

**Optional Reading:** Textbook Chapter 10

- **Week 11 [] Managing Technology Teams**

**Case:** Managing a Global Team: Greg James at Sun Microsystems, Inc. (A)

1. How well has James managed his global team?
2. Who is responsible for the HS Holdings crisis?

3. What role did the “Open Work” environment play in the case?
4. What role did diversity play on this team?
5. What should James do in the short and long term?

**Optional Reading:** Textbook Chapter 12

- **Week 12 [] Ethics of Innovation**

**Case:** Facebook’s Ethical Dilemma

1. Does Facebook have a responsibility to tell users in advance before conducting its experiments?
2. What obligation does Facebook (as a private company) have towards its users, and broader society?
3. Should Facebook be subject to more stringent regulation? If so, how should governments regulate the company?

- **Week 13 [] Thanksgiving Break**

- **Week 14 [] Social Impact of Technology Case: Uber: Driving into Uncharted Territory**

1. What is Uber's competitive advantage?
2. Who is more important to Uber, drivers or riders?
3. Evaluate the scope expansion of Uber (i.e., UberEats, Uber Rush, etc.).

- **Week 15 [] Project Presentations**

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## SUPPORT SERVICES

If you need accommodation for a *disability*, obtain a Letter of Accommodation from the Office of Disability Services. The Office of Disability Services at Rutgers, The State University of New Jersey, provides student-centered and student-inclusive programming in compliance with the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments of 2008, Section 504 of the

Rehabilitation Act of 1973, Section 508 of the Rehabilitation Act of 1998, and the New Jersey Law Against Discrimination. More information can be found at [ods.rutgers.edu](http://ods.rutgers.edu).

[Rutgers University-New Brunswick ODS phone (848)445-6800 or email [dsoffice@echo.rutgers.edu](mailto:dsoffice@echo.rutgers.edu)]

[Rutgers University-Newark ODS phone (973)353-5375 or email [ods@newark.rutgers.edu](mailto:ods@newark.rutgers.edu)]

If you are ***pregnant***, the Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy.

[Rutgers University-New Brunswick Title IX Coordinator phone (848)932-8200 or email [jackie.moran@rutgers.edu](mailto:jackie.moran@rutgers.edu)]

[Rutgers University-Newark Office of Title IX and ADA Compliance phone (973)353-1906 or email [TitleIX@newark.rutgers.edu](mailto:TitleIX@newark.rutgers.edu)]

If you seek ***religious accommodations***, the Office of the Dean of Students is available to verify absences for religious observance, as needed.

[Rutgers University-New Brunswick Dean of Students phone (848)932-2300 or email [deanofstudents@echo.rutgers.edu](mailto:deanofstudents@echo.rutgers.edu)]

[Rutgers University-Newark Dean of Students phone (973)353-5063 or email [DeanofStudents@newark.rutgers.edu](mailto:DeanofStudents@newark.rutgers.edu)]

If you have experienced any form of ***gender or sex-based discrimination or harassment***, including sexual assault, sexual harassment, relationship violence, or stalking, the Office for Violence Prevention and Victim Assistance provides help and support. More information can be found at <http://vpva.rutgers.edu/>.

[Rutgers University-New Brunswick incident report link: <http://studentconduct.rutgers.edu/concern/>. You may contact the Office for Violence Prevention and Victim Assistance at (848)932-1181]

[Rutgers University-Newark incident report link: [https://cm.maxient.com/reportingform.php?RutgersUniv&layout\\_id=7](https://cm.maxient.com/reportingform.php?RutgersUniv&layout_id=7) . You may also contact the Office of Title IX and ADA Compliance at (973)353-1906 or email at [TitleIX@newark.rutgers.edu](mailto:TitleIX@newark.rutgers.edu). If you wish to speak with a staff member who is confidential and does **not** have a reporting responsibility, you may contact the Office for Violence Prevention and Victim Assistance at (973)353-1918 or email [run.vpva@rutgers.edu](mailto:run.vpva@rutgers.edu)]

If students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate, you should submit a request via <https://temporaryconditions.rutgers.edu> .

If you are a military *veteran* or are on active military duty, you can obtain support through the Office of Veteran and Military Programs and Services. <http://veterans.rutgers.edu/>

If you are in need of *mental health* services, please use our readily available services.

[Rutgers University-Newark Counseling Center: <http://counseling.newark.rutgers.edu/>]

[Rutgers Counseling and Psychological Services–New Brunswick: <http://rhscaps.rutgers.edu/>]

If you are in need of *physical health* services, please use our readily available services.

[Rutgers Health Services – Newark: <http://health.newark.rutgers.edu/>]

[Rutgers Health Services – New Brunswick: <http://health.rutgers.edu/>]

If you are in need of *legal* services, please use our readily available services: <http://rusls.rutgers.edu/>

Students experiencing difficulty in courses due to *English as a second language (ESL)* should contact the Program in American Language Studies for supports.

[Rutgers–Newark: [PALS@newark.rutgers.edu](mailto:PALS@newark.rutgers.edu)]

[Rutgers–New Brunswick: [eslpals@english.rutgers.edu](mailto:eslpals@english.rutgers.edu)]

If you are in need of additional *academic assistance*, please use our readily available services.

[Rutgers University-Newark Learning Center: <http://www.ncas.rutgers.edu/rlc>

[Rutgers University-Newark Writing Center: <http://www.ncas.rutgers.edu/writingcenter>]

[Rutgers University-New Brunswick Learning Center: <https://rlc.rutgers.edu/>]

[Optional items that many faculty include:

- Students must sign, date, and return a statement declaring that they understand the RU Academic Integrity Policy.

- Students must sign, date, and return a statement declaring that they understand this syllabus.]