

The University of Pennsylvania
The Wharton School
Operations, Information and Decisions Department

Fall 2019C

OIDD 615: Managing the Productive Core of the Firm: Operations Strategy

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Professor

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Office hour: 3-4pm Tuesday (or by appointment)

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Teaching Assistant

Canvas Site: <https://canvas.upenn.edu/courses/1473099>

Study.net: ???

9:00 – 10:30 section – JMHH 345

10:30 - 12:00 section – JMHH 345

Final Exam: Friday, Oct 18, 2018 – 3-5pm, SHDH 1206, SHDH350

What you should know before taking this course

- Electronic use (laptops, computers, tablets, mobiles, etc.) is not allowed during class sessions.
- Please do not register if you cannot attend nearly all sessions and be on time:
 - Attendance for the first two class sessions is required – students that do not attend either of those sessions are dropped from the roster.
 - Attendance is taken at all class sessions. You are given credit for attendance only if you are seated in your assigned seat before the class session begins.
- You should not register if you are unable to take the final exam at its scheduled time.
- Priority for adding the course is given to students who attend sessions before they are enrolled in the class.

I. Course Description

Operations strategy is about organizing people and resources to gain a competitive advantage in the delivery of products (both goods and services) to customers. This course approaches this challenge primarily from two perspectives: (1) how should a firm design their products so that they can be profitably offered; (2) how can a firm best organize and acquire resources to deliver its portfolio of products to customers. To be able to make intelligent decisions regarding these high-level choices, this course provides a foundation of analytical methods. These methods give students a conceptual framework for understanding the linkage between how a firm manages its supply and how well that supply matches the firm's resulting demand.

This course is a mixture of theory and case discussions. Both factors are important for a complete learning experience.

II. Classroom expectations

For transparency and clarity, listed here is a set of classroom expectations that hopefully will facilitate our collective learning and encourage an enjoyable classroom experience for everyone:

- Please sit in your assigned seat according to the course seating chart (which will be posted on Canvas).
- Please use your name tent in each class.
- Please be ready to participate at the start of each class session.
- Please do not use electronic devices:
 - To facilitate note taking, hard copies of all slides are distributed and electronic copies are posted on Canvas.
 - Please bring hard copies of cases to class for your reference during the discussion.
- Please direct your questions and comments to the entire class (i.e., avoid parallel discussions)
- Please refrain from entering and exiting the class during the session for reasons other than a visit to the restroom.

III. Electronics Device Policy

OIDD 615 follows the MBA program's policy regarding electronic devices. Specifically: *the use of phones, laptops and tablets during a class session is not allowed. Phones should be turned off and put away.*

If a student must keep a phone on by reason of a personal emergency, the student must inform the instructor before class begins.

A student using electronics during the class will be asked to refrain from further use and may lose class participation points for the session.

IV. Grading

Each student's final score is based on the following components:

Syllabus quiz (0%)

- You must complete a quiz on the syllabus. You are required to score at least 90% or higher on the quiz. You may complete this quiz as many times as necessary.
- You are automatically dropped from the course if you fail to complete the quiz on time.

Three equally weighted homework assignments (30%)

- Assignments are due by 11:59pm ET on the due date. Late assignments are not accepted; i.e., late assignments receive zero credit.
- Assignments are submitted electronically through Canvas.
 - Be aware that Canvas is a bit creepy – it tracks every log in and click from any device.
- Each student must complete his or her own assignment. However, to promote learning, students are allowed to discuss questions with other students registered for OIDD 615 this term. Use collaboration judiciously, and only for learning purposes.
- No partial credit is given on quantitative questions.

Class participation (30%)

- You receive 1 point for each session that you “show up”, i.e., you are ready to participate at the start of class (literally in your assigned seat at the start), and you remain engaged throughout the entire session (e.g., you do not use electronic devices, etc.).
- You receive 1 point for each session for submitting your case preparation responses via the session’s Canvas quiz before 6:30am on the day of the session.
- You receive 1-2 points for each session for substantive contributions to classroom discussion.

Final exam (40%)

- Friday, October 18, 3:00 – 5:00pm, SHDH 1206, SHDH350
- All students (without academic accommodations) must take the final exam at the above assigned time and room.

Your final (letter) grade is primarily based on the ranking of your final score across sections of the class, subject to MBA grading requirements.

Final grades in the class are expected to follow (approximately) this distribution: 12% A and A+, 21% A-, 33% B+, 21% B, 10% B-, 3% C+ or lower. (The average grade across the sections will be as close to the allowed maximum as possible.) A failing grade is received when performance on a component is particularly poor (e.g., 35% or fewer correct responses on the final exam). Adjustments to the final grade may be made in cases with many absences.

V. Course Materials

Handouts:

- Hard copies of handouts are distributed during class and posted on the course Canvas.

Cases:

- Cases are available via Study.net.
- You must have access to the course cases. As electronics are not allowed during class sessions, be sure to bring a hard copy of the case to class.

Text

- Selected chapters from Cachon, G. P. & Terwiesch, C. 2009. Matching supply with demand: An introduction to operations management. 4th edition, McGraw Hill, Boston MA. (ISBN 10#: 1307315194; ISBN 13#: 9781307315196)
- Available at the Penn Bookstore, probably about \$37.
- You are responsible for the material in the text (i.e., this material can be on assignments, included in the final and part of classroom discussion).

VI. Summary of Code of Conduct

	Materials							People				
OIDD 615: Operations Strategy	Approved calculator	Laptop / other electronics	Summary sheet	Book / class notes/ Canvas materials	Past notes / summaries	Past exams / assignments	Internet content / other outside materials	Learning team / approved work team	Other student(s) in same section	Student(s) in other sections (same term)	Wharton student not taking the class this term	Person outside of Wharton
Readings & Cases	A	A	A	A	A	A	A	W	W	W		
Assignments	A	A	A	A	A	A	A	W	W	W		
Final Exam Prep	A	A	A	A	A	A	A	W	W	W		
Final Exam	A		A	A	A	A	A					
	A = Allowed material Shaded Cell = Not allowed							W = Allowed to work together D = Discussion of general concepts and procedures is allowed but no sharing of specific answers. Shaded Cell = Not allowed				
<p>The information above covers many common situations but will not cover every circumstance. Remember: The Wharton MBA Code of Ethics that you accepted requires, among other things, that you represent yourself and your work honestly, don't try to gain unfair advantage over other students, follow the instructor's guidelines and respect confidentiality of your work and the work of others.</p> <p>Should you have questions, please contact your ethics liaison or professor.</p>												

OIDD 615 – Class Sessions and Schedule

Session #	Topic and Readings	Date
1	Introduction and Business Model Innovation Case: Zipcar	Wed, 8/28
2	Betting on uncertain demand - Newsvendor model Text: Chapter 14 and Chapter 15, Sections 0-2	Wed, 9/4
	Syllabus Quiz due by 11:59 p.m.	Wed, 9/4
3	Flexible supply chains Case: Sport Obermeyer Text: Chapter 17, Section 2	Mon, 9/9
4	Flexible resources Case:	Wed, 9/11
	Assignment #1 due by 11:59 p.m.	Thr, 9/12
5	Mass customization and make-to-order Case: Timbuk2 Text: Chapter 15, Sections 3-4	Mon, 9/16
6	Lead times and the order up-to model Text: Chapter 16	Wed, 9/18
7	Delayed differentiation Case: HP	Mon 9/23
8	Managing risk in operations Text: Chapter 17	Wed, 9/25
	Assignment #2 due by 11:59 p.m.	Thr 9/26
9	Internet distribution Case: Amazon	Mon, 9/30
10	Fast fashion Case: Zara	Wed, 10/2
11	Revenue management Case: Uber Text: Chapter 18	Mon, 10/7
12	Review	Wed, 10/9
	Assignment #3 due by 11:59 p.m.	Thr, 10/10
	FINAL EXAM: 3:00 - 5:00 p.m, SHDH 1206, SHDH350	Fri, 10/18

OIDD 615: Session Descriptions

Session 615.1 Introduction/Business Model Innovation

Zipcar is a good example of business model innovation. About 2/3rds of this session is dedicated to a discussion of Zipcar and their operational design. We conclude with a summary of course procedures and general principles driving many business model innovations.

Case: Zipcar: Influencing customer behavior

Preparation:

- What ‘wants’ do customers have that are important for Zipcar to satisfy with its service? For example, airline customers may want “sufficient overhead luggage space”, and restaurant customers may want “vegetarian options”.
- Who ensures those wants are delivered for Zipcar’s customers?
- What should Zipcar do to manage situations like the one between Sal Fishman and Anita Karr?

Session 615.2 Betting on uncertain demand - the Newsvendor Model

This session introduces the newsvendor model, which captures situations in which there is one ordering opportunity while facing uncertain demand. We cover how to use the model to make procurement choices and to evaluate several useful performance measures.

Reading: Text, Chapter 14

Text, Appendix A

Preparation:

Chapter 12 covers the newsvendor model. As this session covers a substantial amount of material, reading this chapter before class is useful.

Appendix A contains a tutorial on the statistics needed for this course. You should at least skim through these pages to determine if you are comfortable with this material, and if not, you should read through this tutorial carefully.

Session 615.3 Flexible supply chains – matching product to demand

This session studies how early sales information can be used to increase supply flexibility.

Case: Sport Obermeyer (HBS, 9-695-022)

Read: Chapter 17, Section 2

Case preparation:

- If you had only one production opportunity, how many of the Gail parka would your purchase?
- What is the value of having two opportunities to make a production decision?
- Which styles should be produced in the first production run and where should they be produced (Hong Kong or China)? (Give qualitative arguments.)
- What changes (if any) would you recommend to their operations or products?

Session 615.4 Flexible resources

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Case:

Read:

Case preparation:

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Session 615.5 Mass Customization and Process Location

Mass customization offers an infinite variety of goods that are customized to a consumer's exact specifications. What are the pros and cons of this strategy? How does this strategy need to be modified if you move it overseas?

Read: Text, Chapter 15, Sections 3-4

Case: Where in the World in Timbuk2?

Case Preparation:

- What is Timbuk2's most profitable channel?
- Why manufacture the e-commerce and traditional (domestic and international) bags on the same manufacturing line?
- Timbuk2 is about giving choice to customers. They currently allow customers to select each color of each panel in their 3-panel bags. Do you recommend that they give customers additional choice for customization? In particular, should Timbuk2 allow customers to (a) choose from among different buckles and/or (b) choose the width of each of the three panels?
- Should Timbuk2 source from China?

Session 615.6 Lead times and the Order Up-To Model

This session studies service levels and lead times in a supply chain. Unlike as in the newsvendor model, we now consider a supply chain that has demand over a long time horizon, so multiple replenishments are possible.

Reading: Text, Chapter 16

Preparation:

- Read chapter 16. We will discuss the mechanics of the model and its qualitative implications.

Session 615.7 Delayed differentiation

Postponement (or localize remotely) is a strategy to redesign a product and its supply chain to increase supply flexibility.

Case: Hewlett-Packard: DeskJet Printer Supply Chain A and B

Case preparation:

- On average, how many units of the AB printer should HP have given (a) current operations, (b) if they switch to shipping via air and (c) if they adopt the localize remotely strategy discussed in case B? Be sure to include on-hand inventory as well as on-order/pipeline inventory. Use the following estimates:
 - They seek a 99% in-stock probability, order weekly and their lead times are 5 weeks by sea and 1 week by air from Vancouver to Europe.
 - The marginal cost of this product is \$250 and their inventory holding cost is 25% per year.
 - Shipping via sea costs \$5 per printer, whereas air freight costs \$15 per printer.
- What is the operating cost per printer with each of the above options (include inventory holding cost and shipping costs)?
- Which option do you recommend? Be sure to consider other factors beyond the quantitative analysis above.

Session 615.8 Managing Variability and Uncertainty

This session explores several operations strategies for reducing and hedging uncertainty.

Reading: Text, Chapter 17, Sections 1, 3 and 4

Preparation:

- Read chapter 17, sections 1, 3 and 4. We will discuss the various techniques for redesigning products, services and supply chains to improve performance.

Session 615.9 Internet Distribution

Internet retailing requires less inventory and retail space than brick-and-mortar retailing. But Internet retailing introduces additional costs. We shall compare these two models from an operations perspective.

Case: Online Book Retailing: Operational Strategies.
Amazon, forced to collect a tax, is adding roots.

Preparation:

Based on the first reading, we'll begin with a discussion of the online business model (Amazon) vs the brick-and-mortar model (B&N). Then we'll consider recent changes to Amazon business model (excerpts from the NY Times article) and Amazon's prospects going forward.

- What operational advantages and disadvantages does Amazon have relative to B&N's superstores?
- Compare costs at B&N with Amazon using data in the case. Does Amazon's operational advantage outweigh its operational disadvantage? Discuss the source of cost advantage/disadvantage for every item of financial data in Exhibit 5.
- Do you like Amazon's prospects going forward?

Session 615.10 Fast fashion

In this session we will discuss how a company can revolutionize its performance in an otherwise mature industry, not by changing products per se but by changing its supply chain structure and management.

Reading: Zara: How Zara Grew Into the World's Largest Fashion Retailer
Inditex Annual Report (available in the file folder of the Canvas site)

Preparation:

In this session we will discuss Zara and its business model. The NY Times article provides a good introduction to the company. The annual report provides additional details.

- What makes Zara's product offering distinct to consumers?
- What is different in Zara's operations?
- Is there a connection between how Zara produces and how they sell (i.e., between their operations and their marketing)?
- For which countries outside of Europe is their business model most suitable for?
- Should their business model change as they consider additional international expansion?

Session 615.11 Revenue management and dynamic pricing

Reading: Text, Chapter 18

Case: Uber: Surging up and down

Preparation:

This session begins with an exploration of two revenue management practices, booking limits and overbooking, discussed in Chapter 18.

In the second part of the session we will discuss Uber's pricing model.

- Uber's platform has three groups: Uber, drivers and consumers. Who benefits (or is harmed) by surge pricing and why?
- Say Uber drivers were Uber employees and Uber owned the vehicles they used. What are the advantages and disadvantages of such a model? Is it a viable alternative to their current model?
- Assume autonomous vehicles will happen. Will that technology allow Uber to replace all its drivers?

Session 615.12 Review

We will review the course material to prepare for the exam.

Final Exam: Friday, October 12, 3:00 - 5:00 p.m., JMHH G06