**STRATEGIC DECISIONS IN OPERATIONS**

Instructor: Jan Albert Van Mieghem,  
Office: KGH 4151  
Email: VanMieghem@northwestern.edu

Support: I hold ‘student walk-in or call-in’ sessions for you or your group in a classroom and you can email me to set-up private office meetings.

1. **Course Description and Objectives**

This course provides a framework and multiple analytic tools to analyze, value, and optimize the strategic asset and process decisions involved in configuring the “operating system” of the firm. Asset decisions include capacity sizing, expansion, flexibility and location. Process decisions include strategic sourcing, operational hedging, new technology and operating model selection. The focus is on value-creating decisions that are grounded in operational reality.

A typical week covers one decision introduced first during a lecture, followed by an assignment (some in group, some individual) and then case-discussion. A final group project is due in week 10. There is no final exam.

Relationship to Other Courses: This operations elective course builds on the core operations class and also assumes you are familiar with the basics of finance, economics, and strategy. The strategic decisions studied in this course require a detailed analysis and understanding of the underlying operations. Thus this course has a greater amount of concreteness and detail than a competitive strategy class. It complements functionally-specialized electives such as supply chain operations, service operations, or analytic spreadsheet modeling.

Approach: I aspire to a model- & data-driven approach where decisions and insight stem from modeling and analyzing practice utilizing realistic data. This approach should allow you to implement the course content directly in practice. In a typical week we will cover one major decision: the first class usually introduces or reviews a model and analytic technique; which you then apply to a case that we discuss in the second class.

Pre-Requisites: Core operations course; comfort with, or desire, for operations analytics.

Intended Audience: Students interested in (1) operations and supply chain management, (2) management consulting, (3) running your own business. It may also be of interest to (4) private equity given that operations typically requires the largest investment in assets.
2. **Grading and “Rules of the Game”**

**GRADING:** The grade you receive for the course is intended to certify your demonstrated proficiency in the course material and achievement of the course objectives. Proficiency will be estimated by measuring your performance in:

<table>
<thead>
<tr>
<th>1. Course contribution:</th>
<th>Individual</th>
<th>10%</th>
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<tbody>
<tr>
<td>2. Individual submissions (3):</td>
<td>Individual</td>
<td>30%</td>
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<tr>
<td>3. Group submissions (4):</td>
<td>Group plus Peer Review</td>
<td>35%</td>
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<td>4. Group project:</td>
<td>Group plus Peer Review</td>
<td>25%</td>
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1. **COURSE CONTRIBUTION & CLASS EXPECTATIONS** = Your contributions to create and enhance a *positive learning environment* for this course. This mostly concerns your positive externality on the learning of others. To create this environment:

   - Only paper or "flat tablets" can be used in class, and only for honest class work. (Laptops with vertical screens distract students around you and create a shield between you and others, including the instructor.)
   - Attendance and butt-in-seat on-time. I hope you will find it valuable to attend and contribute to class discussions. You will be expected to fully follow the principles of the Kellogg code of classroom etiquette and I expect you to be in your seat before class starts. Closed doors signal that class is in session. Please avoid entering late as it inflicts negative externalities on your colleagues who came on time.
   - Seating chart: I will follow the dean's office encouragement to cultivate an inclusive classroom environment as it enhances the educational experience for all Kellogg students, creating opportunities to interact with peers from a variety of cultures, programs, and professional backgrounds. Therefore, I will assign seats and groups alphabetically. These are the default groups so you don't have to worry about forming groups. If you prefer a swap, let me or the TA know and we'll make that happen.
   - Cold calling and name tags: I prefer voluntary in-class contribution but will also cold call to incentive preparation and engagement. Please leave your name-card up for the entire duration of each class.

2. **INDIVIDUAL SUBMISSIONS** = these are shorter submissions to be submitted via Canvas.

3. **GROUP SUBMISSIONS**
   Following the dean's office encouragement to cultivate an inclusive classroom environment, default groups will be assigned alphabetically. If you prefer a swap, let me or the TA know and we'll make that happen.
* HONOR CODE AND PEER EVALUATIONS

A. SUBMISSIONS may not be discussed with anyone outside your study group nor may you use other sources without acknowledgment. It is important that everyone has a level playing field so this also means that materials from previous years or websites cannot be used. I’m sure you understand. It also is extremely important and part of the honor code that each member of a group makes a **material** contribution to each case analysis of the group. *If any individual has not contributed for a particular write-up, s/he should not append his/her name to the case report but can submit a separate report his/her own. It will also be the group’s responsibility to ensure that this happens. Only one written report will be due per group per assignment.*

B. PEER EVALUATIONS: Given the importance of group work in this class, each member should make every effort to contribute and carry his/her part of the load. Your grade will reflect peer evaluations to be done at the end of the course.

C. Other parts of the honor code:

- For **standard violations of academic integrity**, please see http://www.northwestern.edu/uacc/defines.html
- For a **detailed discussion on plagiarism**, please see http://www.northwestern.edu/uacc/plagiar.html

3. Text and Course Materials

Required:

- All cases are available on Canvas
- Textbook *Operations Strategy: Principles and Practice* by J.A. Van Mieghem & G. Allon. Publisher: Dynamic Ideas, Charlestown, MA. 2015. As author, I obviously believe that the textbook is a useful companion to the course and I recommend it. It also contains several cases and mini-cases that are covered in the course. Previous students recommended I make the textbook required and I hope to provide a code (see Canvas Announcement) to buy the book directly from the publisher: https://www.dynamic-ideas.com [consider bundling with friends]. The University bookstore also has books (at better price than Amazon).

- Additional readings are downloadable from Canvas.
- Recommend reading in textbook: by week during the class

<table>
<thead>
<tr>
<th>Week</th>
<th>Recommended Sections in Textbook</th>
<th>Optional</th>
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<tr>
<td>If you have time before the quarter starts:</td>
<td>Start reading textbook sections below; you can also read the cases already.</td>
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<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
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<tr>
<td>1</td>
<td>1.1 - 1.10</td>
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<td>2</td>
<td>2.1-2.4; 2.6-2.7</td>
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<tr>
<td>3</td>
<td>3.1-3.7; 3:10-3:11</td>
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<td>4</td>
<td>4.1-4.6; 4.8-4.9</td>
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<td>5</td>
<td>5.1-5.3; 5.5-5.6; 5.9-5.11</td>
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<td>6.1-6.6; 6.9-6.10</td>
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<td>7.1-7.5; 7.11-7.12</td>
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<td>9</td>
<td>9.1-9.5; 9.7</td>
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4. **Guidelines for Case Write-ups**

**FORMAT:** A case write-up is not to exceed three pages of typed text plus maximally three supporting exhibits. *Submit on Canvas.*

**STRUCTURE OF CASE WRITE-UP:** A good paper should clearly and succinctly state:
1. Your recommendation in the first paragraph to provide the reader with a framework (if a lengthy description of the recommendation seems necessary, append it to the report).
2. To stay in line with the objective of the course, the second part of the write-up should always qualitatively analyze and assess the operations strategy of the company (“the big picture”).
3. The remaining part of the write-up should explain your quantitative analysis (in words), what the key sensitivities are, and use it to justify your specific recommendation taking into account both the desirable and undesirable
Strategic Decisions in Operations

consequences of adopting it. If there are options under consideration in the case that you reject, a clear rationale for your decision should be provided.

Keep in mind that you write to someone who knows all the facts in the case—no need to repeat them. A good report is not a chronology of analysis, but a clearly articulated statement of recommendation and support. Finally, the case write-up should answer the key questions in the case (and not be just an answer to the guiding questions that come with the case).

5. Guidelines for Team Project “A Strategic Decision in Operations at X”

The objective of the team project is for you to synthesize the course content by applying it to a setting of your interest. I also believe this is your most useful test of internalizing content.

The final project is done in group (typically your normal group but you can regroup if preferred for the final project). Approach the project as a research study of a strategic decision in operations that increases value creation. The unit of analysis X can be a specific company (“case study”), or a specific industry or a specific technology (“white paper”). For example:

- Operator of retail gas stations is considering whether actions to increase customer loyalty (# visits in last 5 weeks) increases ROIC? Key is that increased throughput requires increased capacity.
- Manufacturer of custom electrical connectors faces competition from a lower-cost rival that sells standard connectors at large batch sizes. Investigate the risk exposure and sustainability of the manufacturer’s competitive position and deliver pro-active plans for improvement. Tool: trade-off curves
- Should an Organic Dairy invest in additional milking capacity (milking robots) when faced with uncertain prices and demand during the worst dairy crisis in Wisconsin’s history? Tool: scenario analysis and ENPV
- A Brazilian producer of sugar and ethanol is expanding capacity of its cane (the raw material from which either sugar or ethanol is produced) crusher. Output demands are commodities whose market prices fluctuates. Tool: scenario analysis to find the capacity that maximizes expected value and provides an effective operational hedge (a la Seagate).
- An (originally US) tier-1 supplier has been acquired by Chinese manufacturer. Given new and forecasted tariffs, characterize the features of the SKUs that should be produced at the Chinese plant or the US plant. Tool: network analysis and total landed cost (a la Mexico-China)
• How can digital ops (automation and/or smart artificial intelligence algorithms) create value in industry Y? Examples of companies that are successfully using the practice including best practices. Examples of companies that have been unsuccessful in their implementation of the practice and possible reasons.

Use the following criteria for your unit of analysis:

1. You are, or aim to become, familiar with the company, industry or technology.
2. You have access to, or can estimate, data: financial and operational data. Data is hardly ever presented on a silver platter so you will have to be creative to acquire data: If the company is public, 10K statements are very useful. If the company is private, confidentiality can be guaranteed or it’s ok to modify the data (scale/transform/include noise) if confidentiality is critical. Regardless, as we did with the Peapod case, you can and should always estimate data and sensitivity analysis can already be very informative.
3. The strategic decision involves operations (design, sourcing, service, or manufacturing).
4. Your project has the potential to improve the current situation.

FORMAT: Projects cover the following sections, each of which will be weighted during grading, with a balance between qualitative and quantitative analysis and recommendation. The following is a suggestive structure (up to 6 pages with up to three pages of additional exhibits):

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
<th>Description</th>
<th>Weight</th>
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<tbody>
<tr>
<td>1</td>
<td>1/2</td>
<td>Summary of research topic/question and project objectives</td>
<td>10% (Qualitative)</td>
</tr>
<tr>
<td>2</td>
<td>&lt;1</td>
<td>Strategic overview (comp strat, ops strat, ops system): adopt VCAP framework selectively</td>
<td>10% (Qualitative)</td>
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<tr>
<td>3</td>
<td>&lt;3</td>
<td>Analysis of decisions that link operational KPIs to research question. Use course concepts and tools: e.g. digital diagnostic, ROIC map; Frontier/Tradeoff curves; OEE; Decision tree/Scenario analysis; Marginal analysis/optimization; Network optimization; Revenue optimization</td>
<td>40%</td>
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<tr>
<td>4</td>
<td>1</td>
<td>What-if, risk, or sensitivity analysis; How deal with anticipated implementation resistance points?</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>1/2</td>
<td>Recommendation/Conclusion; Insights gained from this project</td>
<td>20% (Qualitative)</td>
</tr>
</tbody>
</table>

TIMELINE:

• Week 5-6 (see Canvas for actual due date) = Project proposal (Summary of research topic/question and project objectives - “Section 1” - and proposed analysis technique; max 1 page) is due and I will return comments and guidelines. This is to ensure you start your project and have 5 weeks to work on it.
• Week 7-8 = “Check-in time.” I will meet with each group to discuss your plans of how you will cover each of the sections in the table above and further steer the project. Based on your proposals, I will select three groups to present their projects in class during a 20-25min presentation. The objective of this selection is not to choose what I consider the “best” proposals but to ensure that a variety of situations get presented in class. The groups making presentations will not be required to write a detailed report. They can submit their presentation materials for grading. All other groups will be required to submit a project report.

• Week 10, last class: Project is due. Three groups will present their project in the last class and upload their presentation deck; the other groups will upload their word file.

CITING EXTERNAL SOURCES: You should make it very clear what part of your write-up is based on your own thinking and what part summarizes pre-existing outside sources. Thus, it is extremely important and part of the honor code that you explicitly identify and cite all significant external sources (e.g., in footnotes or endnotes) that you build on in your report. This applies in particular to papers you may have written for other Kellogg classes, to documents you may have received from the company you are analyzing, interviews with industry experts, etc. Building on external sources is a “good thing”—solid work is typically aware of and builds on what others have done. Ideally though, you should take this external information and add the filter of your own critical thinking and the concepts studied in this class to synthesize and critique.

5. Detailed topics and assignments: See Canvas

• All cases must be read before the class they are to be discussed in (whether a submission is required or not).
• Lectures will follow the book which aims to give you the theory and practice behind our topic. As such it contains more than we will cover in class. Each assigned chapter is perhaps best scanned before class and read afterwards to reinforce the class discussion.
Course overview: See CANVAS for specific times of classes and assignments:

<table>
<thead>
<tr>
<th>Week</th>
<th>Module and Description</th>
<th>Readings</th>
<th>Cases</th>
<th>Hand-In</th>
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<tbody>
<tr>
<td></td>
<td><strong>Part I. Concepts &amp; Value &amp; Competencies</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1A</td>
<td>❑ Introduction &amp; Framework for strategic decisions in operations</td>
<td>Chapter 1 of <em>Operations Strategy (2nd ed.)</em></td>
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<tr>
<td>1B</td>
<td>❑ VALUE: Tying operational metrics to firm value using ROIC tree</td>
<td>Chapter 2</td>
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<tr>
<td>2A</td>
<td>❑ Application</td>
<td>Peapod (Ch14)</td>
<td></td>
<td>Peapod (group)</td>
</tr>
<tr>
<td>2B</td>
<td>❑ COMPETENCIES: Tradeoff curves and competitive benchmarking</td>
<td>Chapter 3</td>
<td>Sugar &amp; Spice (Canvas)</td>
<td></td>
</tr>
<tr>
<td>3A</td>
<td>❑ Application</td>
<td>Inesa (Canvas)</td>
<td></td>
<td>Inesa (individual)</td>
</tr>
<tr>
<td></td>
<td><strong>Part II. Asset Decisions</strong></td>
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<tr>
<td>3B</td>
<td>❑ OEE, Scaling and Capacity Strategy</td>
<td>Chapter 4</td>
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<tr>
<td>4A</td>
<td>Innovation: Social Enterprise operating model Speaker</td>
<td>World Bicycle Relief: Social Enterprise Operating Model</td>
<td></td>
<td>WBR (group)</td>
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<tr>
<td>4B</td>
<td>❑ Capacity planning and sizing under Uncertainty (decision trees)</td>
<td>Chapter 4</td>
<td></td>
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<tr>
<td>5A</td>
<td>❑ Network capacity sizing and sharing</td>
<td>Seagate Technology (Ch13)</td>
<td></td>
<td>Seagate (individual)</td>
</tr>
<tr>
<td>5B</td>
<td>❑ Operational Hedging, Capacity Timing and “Smart Scaling”</td>
<td>Chapter 5</td>
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<td>Week</td>
<td>Module and Description</td>
<td>Readings</td>
<td>Cases</td>
<td>Hand-In</td>
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<tr>
<td>6A</td>
<td>q Capacity Types and Flexibility</td>
<td>Chapter 6</td>
<td>PharmaFlex (Canvas)</td>
<td>PharmaFlex (group)</td>
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<tr>
<td>6B</td>
<td>q Capacity location and Global Networks</td>
<td>Chapter 7</td>
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<tr>
<td><strong>Part III. Process Decisions</strong></td>
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<tr>
<td>7A</td>
<td>q Global Network (IntCase1) debrief; q In- or Outsource?</td>
<td>Chapter 8 (skip 8.5)</td>
<td>Boeing 787 Dreamliner (Canvas)</td>
<td>Global Network (individual)</td>
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<tr>
<td>7B</td>
<td>q Strategic Sourcing q Analytics: Optimization via Simulation</td>
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<tr>
<td>8A</td>
<td>q Location Strategy and Simulation Game</td>
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<td>Mini-case 7: “Mexico or China? Mexico-China (group)</td>
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<tr>
<td>8B</td>
<td>q Offshore or Re-shore? Global Sourcing over the Product Life Cycle</td>
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<tr>
<td>9A</td>
<td>q Technology: Digital</td>
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<td>Proceedix</td>
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<tr>
<td>9B</td>
<td>q Technology: Automation q Technology: Smart Algorithms and Artificial Intelligence in Ops</td>
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<tr>
<td>10A</td>
<td>q Demand, Revenue and Yield management q AI in Ops (Cont’d) q Course Summary</td>
<td>Chapter 9</td>
<td></td>
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<tr>
<td><strong>Summary</strong></td>
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<tr>
<td>10B</td>
<td>Final Group Project Presentations</td>
<td></td>
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<td>3 groups present and submit presentation; Other groups submit project write-up</td>
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</tbody>
</table>
Part I: Strategy & Operations

Week 1A: Introduction & A Framework for Strategic Decisions in Operations

Content: What is the operating system and the strategic decisions to configure it? Introduce a framework to describe a company’s operating system and how to evaluate it. The operating system comprises assets and processes. Its evaluation depends on the value created, delivered and captured.

Read:
- Chapter 1

Week 1B: VALUE: Tying operational metrics to firm value using ROIC tree (Investor/External Assessment: Operations Forensics)

Content: How to value an operating system as an outsider? Use public information together with personal estimates of key assets and processes to assess the attractiveness of firm’s operating system (and business model). During this process, distill key operational metrics that create value, tie them to financial performance, and suggest how to improve profitability over time. We will use ROIC tree decomposition.

Read:
- Chapter 2

Week 2A

Content: Apply the ROIC tree to tie key operational metrics to financial performance, and suggest how to improve profitability over time. We will use the Peapod case as our main discussion vehicle.

Prepare:
- Peapod, Chapter 14 in textbook. (Guiding questions come with the case.)

Prepare the Peapod Case (Chapter 14 in the textbook or). Upload your recommendation and supporting argument to the questions [2 - 3 pages text + a couple figures, including your tree, all in 1 PDF]:

1. What was Peapod’s actual (as-is) cost to fulfill one order in 2001, Q1? [simply use information of Peapod’s income statement and operating data Table 14.3]
2. Decompose two “buckets” in the standard ROIC tree down to measurable operating metrics (such as SPH and others): quarterly revenue and quarterly fulfillment cost using number of orders per quarter as the flow unit. Use case data if available and supplement with your own estimates where needed.

3. Using your decomposition, estimate best "could be" operating metrics and “roll-up” to arrive at a “could be” fulfillment cost per order. Use a clean sheet approach where you are not constrained by any assets. Instead, assume a variable cost model (e.g., Instacard) and estimate the cost to pick, pack, and deliver one order by one person ("unit economics"). Use sensitivity analysis to determine the key performance drivers of the variable fulfillment cost to serve a customer.

4. How attractive is Peapod’s operation from an external investment perspective? Under which conditions is Peapod a desirable investment?

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**Week2B: COMPETENCIES: Tradeoff curves and competitive benchmarking**

**Content:** How to quantify tradeoffs using internal data and competitive intelligence? Discuss how the concepts of operational trade-offs and competency focus relate to strategic positioning and operational efficiency and how they can be used—qualitatively and quantitatively—to evaluate a firm’s operations strategy in a competitive setting.

**Read:**
- Chapter 3
- Sugar & Spice (Canvas)

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**Week3A**

**Content:** Apply the content of classes 1-5: describe and contrast two firms’ operations strategy. Use competitive cost analysis and trade-off curves to guide the design of a defensive strategic response based on process and resource capabilities.

**Prepare:** Inesa

Submit INDIVIDUALLY your answer to the questions using the GoogleForm. You can edit and revise your answers over time, just make sure to finish your final “Submit” click by 7am before class.
The case situation is similar to Sugar and Spice’s and to the interior aircraft manufacturer example in the textbook.

**Part II: Asset Decisions**

**Week 3B: OEE, Scaling and Capacity Strategy**

Content: How to design and value a capacity strategy? A major part of operations strategy is deciding on a capacity strategy. This includes deciding on the sizing, timing, type, and location of each asset change.

Read:
- Chapter 4

**Week 4A: Innovation: Social Enterprise operating model**

Content: Operating Business Model innovation: the synergy between philanthropic and for-profit social enterprise

Prepare: World Bicycle Relief: Social Enterprise Operating Model

Prepare your advice to the senior leadership team (which will be present in class) that addresses questions 1-3 (p9 of the case) and discuss how would you approach question 4.

**Week 4B: Capacity Planning and Sizing under Uncertainty**

Content: When and how should we change capacity? Which strategies can a company use to decide when to expand or contract capacity? What are the key drivers influencing that decision? Use decision trees to value capacity sizing under uncertainty.

Read:
- Chapter 4

**Week 5A: Network Capacity Sizing and Sharing**

Read:
• Chapter 10

Prepare: Seagate Technology: Operational Hedging, *Chapter 12 in textbook*. Guiding questions come with the case. The objective of this case is to analyze and optimize the impact of each asset’s (location) capacity on the overall value and risk of the processing network.

Submit INDIVIDUALLY your answer to the questions using the GoogleForm. You can edit and revise your answers over time, just make sure to finish your final “Submit” click by 7 am before class.

**Week 5B: Operational Hedging, Capacity Timing and “Smart Scaling”**

Content: Operational hedging (and its relationship to financial hedging). When and how should we change capacity? Which strategies can a company use to decide when to expand or contract capacity? What are the key drivers influencing that decision? Use decision trees to value dynamic capacity sizing, including “smart scaling,” under uncertainty.

**Week 6A: Capacity Types and Flexibility**

Content: Should we invest in specialized or flexible capacity? Once a company decides it needs to build new capacity, it must decide on what type of capacity. This involves deciding on the type of technology and facility. This class will discuss when and why product-dedicated or product-flexible technology is more appropriate. We also will explore what flexibility means and the various approaches to achieve it and be better positioned to respond to changes in demand, supply or processing.

Read:
• Chapter 6 (other sections will be covered later in the course)

Prepare: PharmaFlex.
Hand in a write-up of **PharmaFlex**. The objective of this case is to value flexibility and investigate when and why dedicated or flexible capacity is more appropriate and to connect the technology & facility strategy with new product introduction plans.

**Week 6B: Capacity location**

Content: Where should we locate assets? Offshore-Onshore? Centralized-Distributed? Introduce the location decision and global networks. Which factors should be considered when designing a global operational network? How can the concept of *total landed cost* help making such decisions?

Read:  • Chapter 7

**Part III: Process Decisions**

**Week 7A: Global Network Case Debrief & In- or Outsource?**

Content: Debrief global network case
Framework for strategic sourcing

Read:  • Chapter 8 (skip 8.5)

The Global Network Design: Submit INDIVIDUALLY your answer to the questions.

Prepare:

1. **Global Network Design and Configuration (Integrative Analytical Case)** and read the instructions for the bonus assignment and use accompanying starter Excel workbook.
2. **Boeing 787 case (MIT case; download from Canvas):** consider guiding questions:
   - What are the key factors in determining whether to outsource or vertically integrate?
   - To sustain its competitive advantage, Boeing will need to support its existing core knowledge base while carefully selecting new opportunities for innovation and new competencies. Effective vertical integration decision-making and global sourcing may be among the most important factors in the ultimate success or failure of Boeing in the future market. If you were a supply chain manager at Boeing and you were asked to define a sourcing strategy for Boeing’s next airplane what would you recommend?
   - Given the supply chain challenges experienced on the 787 program, there was a general sense among some company leaders that Boeing may have accepted too much supply risk. Furthermore, recent volatility in fuel costs and the U.S. dollar had led many U.S. companies to rethink the previous notion that offshore
outsourcing is always likely to be cheaper than local production. What should Boeing decide to source internally versus outsource? Produce domestically versus offshore?

**Week 7B: Strategic Sourcing & Analytics**

Content: Continue discussing of Strategic Sourcing. Analytics and Optimization via Simulation.

**Week 8A: Location Strategy and Simulation Game**

Content: We will play an in-class simulation of the global dual sourcing problem described in Mini-Case 7. The objective is that each group identifies how to best manage a global network and the key challenges faced in such setting.

Background Reading: • Mini-case 7: “Mexico or China? Managing a Global Network” p. 230. The simulation is inspired on this mini-case, but the assignment does not use any data from mini-case 7.

Prepare: • The Mexico-China Dual Sourcing Game: download “Mexico_China_Student Assignment and Planning Tool.xlsx” from Blackboard.

Prepare: The Mexico-China Dual Sourcing Game: download Mexico_China_Student Assignment and Planning Tool

All information for the sourcing game is contained in that spreadsheet (i.e., the minicase in the textbook is NOT needed). Submit, using two slides, your recommendation and supporting argument to:

Slide 1 = Specify:
the sourcing and inventory replenishment policy you will use for the simulation;
your strategic allocation to Mexico and China (The strategic allocation is key in setting up the sourcing relationship and includes the total number of units you expect to order over the product life cycle and how the aggregate order would be allocated to each source (the % allocated to each source captures supplier shares.)
the E(NPV) or simulated (expected) performance for your policy.

Slide 2 = Provide a rationale for your policy.

Come to class with one laptop for your group with FireFox or Google Chrome installed and ready to start the simulation game.
Grading policy:

The grade for the case MexicoChina will consider both your Part I and Part II (next assignment) performance — the total grade will be reflected in Part II grading later on.

**Week 8B: Offshore or Reshore? Global Sourcing over the Product Life Cycle**

We start with a debrief of the Mexico-China simulation and discuss:

- Strategic global sourcing allocation over the product life cycle
- Connection to offshoring
- Process for Forecasting PLC before launch

**Week 9A: Technology: Digital Operations**

Content: A framework for Digital Operations

Prepare for class discussion: Proceedix case

**Week 9B: Technology: Automation and Smart Control & Artificial Intelligence in Ops**

Content: The automation decision involves an asset assignment: human vs machine. The Smart Control (including AI) decision involves process control.

**Week 10A: AI in Ops (cont’d) + Course Summary**

Content:

- AI in Ops (Cont’d)
- Course Summary

Optional:

- Demand, Revenue and Yield Management processes
- Read: Chapter 9

**Week 10B: Project Presentations**

All projects are due in the last class.