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| Chapter 1 | Introduction to Operations and Supply Chain Management |

The purpose of the first chapter is to set the stage for the study of operations management and generate interest for the students. Many of the topics presented in this chapter are “teasers” to be discussed in more detail in later chapters. The chapter is best covered in two to three 75-minute class sessions. This will allow time for some in-class exercises and out-of-class explorations.

Listed below are learning objectives, a lecture outline, a mapping of learning objectives to assignments, experiential exercises, teaching notes, pause and reflect questions, suggested videos, and available Excel files.

###### LEARNING OBJECTIVES

* Describe what the operations function is and how it relates to other business functions.
* Discuss the key factors that have contributed to the evolution of operations and the supply chain management.
* Discuss how and why businesses operate globally.
* Calculate and interpret productivity measures used for measuring competitiveness.
* Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

LECTURE OUTLINE (*suggested activities and discussions in italics)*

*Day 1 Operations function, Evolution of Ops, Globalization*

*Day 2 Productivity, Strategy, Course objectives*

A. Operations and Supply Chain Management at Tim Horton’s

B. The Operations Function – *What do Operations and Supply Chain Managers do?*

C. The Evolution of Operations and Supply Chain Management – *Tabletop experiment*

D. Globalization – *Globalization Quiz*

1. Creating Shared Value at Nestlé

E. Productivity and Competitiveness

F. Strategy and Operations – *Mission statements from favourite companies.*

1. Primary Task

2. Assessing Core Competencies

3. Determining Order Winners and Order Qualifiers

4. Positioning the Firm

a. Competing on Cost

b. Competing on Speed

c. Competing on Quality

d. Competing on Flexibility

G. Strategy Deployment – *Personal Job Strategy*

1. Policy Deployment

2. Balanced Scorecard

3. Operations Strategy

H. Organization of the Text

I. Learning Objectives of this Course

J. Summary

K. Summary of Key Terms

**MAPPING OF LEARNING OBJECTIVES TO ASSIGNMENTS**

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|  |  |  |  |  |  |
|  | **Topic** | **Learning Objective** | **Questions** | **Problems** | **Other** |
| 1.1 | THE OPERATIONS FUNCTION | ***LO 1.1 Describe what the operations function is and how it relates to other business functions.*** | 1, 2, 8 |  |  |
| 1.2 | THE EVOLUTION OF OPERATIONS AND SUPPLY CHAIN MANAGEMENT | ***LO 1.2 Discuss the key factors that have contributed to the evolution of operations and the supply chain management.*** | 3, 9 |  |  |
| 1.3 | GLOBALIZATION | ***LO 1.3 Discuss how and why businesses operate globally.*** | 6, 10, 11, 12,  13,14, |  |  |
| 1.4 | PRODUCTIVITY AND COMPETITIVENESS | ***LO 1.4 Calculate and interpret productivity measures used for measuring competitiveness.*** | 4,5 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 |  |
| 1.5 | STRATEGY AND OPERATIONS | ***LO 1.5 Discuss the process of developing, deploying, and monitoring the success of an operations strategy.*** | 7, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 |  | Case problem 1.1, 1.2, 1.3 |

suggested videos

Trader Joe’s (10:33 min.)

<http://www.entrepreneur.com/video/217604>

(there’s a brief commercial at the beginning) This is a good match for the *Along the Supply Chain* box in the chapter. It’s a little long, so consider stopping before the end.

Supply Chain 2016 (6:06 min.)

Produced by CapGemini but includes interviews with different companies

<http://www.youtube.com/watch?v=US5lO1HfmEo&feature=related>

Canadian Tire Wins Supply Chain Award (1:01 min.)

<http://www.youtube.com/watch?v=W3NHD0hzmNI>

CSCSC – Canada's Supply Chain SectorCouncil (3:21 min.)

<http://www.youtube.com/watch?v=MQpgBDGQxTM>

China’s Manufacturing Zones

<http://tlc.discovery.com/videos/understanding-china-manufacturing-economic-zones.html>

Experiential Exercises

A Tabletop Experiment

The field of operations has lots of interesting characters, many of them originating in the scientific management era. Frank Gilbreth was an efficiency expert who studied under Frederick Taylor. He made his living by telling companies how to better manage their operations, and workers how to better do their jobs. Often frustrated with what he perceived to be laziness on the part of workers, he was consoled by his wife Lillian who, as a PhD in Psychology, knew that any effort to improve efficiency must take people into account. (The Gilbreths had 12 children, by the way, and were the subject of the book, play, and movie titled “Cheaper by the Dozen.”) Lillian designed several “tabletop experiments” to demonstrate to Frank (and later to industry clients) that change can be difficult for people and that sometimes the learning curve can be quite steep. We’ll perform one of her experiments in class today.

Choose a partner. The “timer” needs a watch with a second hand on it. The “worker” needs three pieces of paper and a pen or pencil. On the first sheet of paper, print the words “Operations Management.” How long did that take? *[normal response is between 3 and 10 seconds*]

Enter Frank, the efficiency expert, who will cut your work in half. On the second sheet, print the words “Operations Management” every other letter. How long did it take? [*normal response is 13 to 25 seconds]* What?? You wrote half as many letters and it took you twice as long? What made this task more difficult? What would have made it easier?

Now, on the third piece of paper print the words “Operations Management” as they would appear in a mirror. How long did it take? [*normally 20 to 60 seconds and then not many are correct]* What made this task so difficult? What would have made it easier? How about knowing that words in a mirror appear upside down and backwards? Asking a worker to do a task differently is sometimes like asking them to write upside down and backwards. Asking students to solve exam problems that, to the professor, are just a little different from those covered in class is sometimes like asking them to write upside down and backwards.

VARIATION 1: After each trial, have the students ball up the piece of paper and throw it at a garbage can near the front of the room. Move the garbage can to the spot of most misses for the next trial. Use this to demonstrate the idea of control charts and normal variation.

VARIATION 2: Have the students repeat each trial several times and watch for the learning curve effect.

It’s a Small World

This is a nice interactive quiz for class. It tests student awareness of globalization and generates good discussion.

*Source of data:* [Global Competitiveness Report](http://www.weforum.org/) (2009–2010), U.S. Dept. of Labor,

Company annual reports, Fortune’s Global 500.

Select your answer from the following:

*Countries:* Germany, Japan, U.S., Singapore, Ireland, Sweden, France, Belgium, Iceland, Turkey, China, Brazil, South Korea

*Industries:* Automotive, Pharmaceutical, Retail, Textile, Biomedical, Electronics

*Companies:* IBM, Bayer, Food Lion, Godiva, Shell Oil, Firestone, Budweiser, Nissan, MGM (Metro-Goldwyn-Mayer), McDonald’s

1. Which country pays the highest wage rate? *Norway*

2. Which country pays the lowest wage rate? *China*

3. Which country has the highest individual Internet usage? *Sweden*

4. Which country has the highest business Internet usage? *U.S.*

5. Which country has the highest government usage of the Internet? *South Korea*

6. Which country has the most readily available access to the Internet for its citizens? *Singapore*, followed by Hong Kong, Finland, Denmark, and United Arab Emirates. U. S. is 19th.

7. Which country has the best infrastructure for Internet access? *Sweden,* *followed by Iceland, Denmark, Norway and the U.S.*

8. Which country has the smallest gender gap? *Iceland,* *followed by Finland, Norway, Sweden and New Zealand. U.S. is 31st.*

9. Which industry is the most competitive? *Pharmaceuticals*

10. Which company does most of its business in the U.S.? *Nissan*

11. How many of the companies listed claim the U.S. as their country of origin? *Only two* – *IBM and McDonald’s*

12. Which international event celebrated annually sends the largest number of people travelling? *Chinese New Year*

###### TEACHING NOTES

**Teaching Note 1—Operations is the “real work” of the enterprise**

Operations is about the “real work” of the enterprise or the organization. There are other functions—marketing, accounting, human resources, etc.—but goods are produced and services are delivered by the operations function. That’s what makes it the “hub” of most organizations. Ask students to identify some of their favourite products and discuss what they know about how they are made. Or bring several common products to class and explain to the students how they are made.

**Teaching Note 2—Students need their curiosity developed**

Try to get students curious—by reading the *Globe and Mail Business Sectionl*, the financial section of the daily newspaper, or by watching the evening news. Even the daily comics have insightful connections to the world of operations. Undergraduate students frequently do not have good knowledge of “who owns whom” in the corporate world, and have limited knowledge of technologies and manufacturing processes.

Bring to class a stack of magazines or newspapers and have the students look for articles related to operations management. Often at the beginning of a semester, *Fortune, BusinessWeek* or the *Canadian Business* will send complementary copies for you to distribute. What types of topics are discussed?

**Teaching Note 3—Connect OM to student majors from the outset**

One of the difficulties of teaching OM to business students in general, is connecting the content of OM to students’ individual majors. Begin immediately to show how the issues of operations are connected to marketing (product design), to accounting (cost accounting), information systems (databases that allow just-in-time, MRP, CAD/CIM, e-commerce, and highly customized products), finance (capital budgeting, process choices, location), economics (supply/demand, capacity, scale economies), human resources (job design, performance measures), and, of course, management itself (operations as a source of sustainable advantage). Try these questions for class discussion or for an assignment.

Consider the contents of the textbook for a course you are currently taking in your major field. Scan its chapter titles, its index, and its contents for areas in common with operations. (For example, if you are a marketing major, does your marketing text discuss facility location or product quality?)

Why should it matter to you how goods and services are produced? Of what value is this course to your major or future career plans?

**Teaching Note 4—Take advantage of student work experiences**

Many of today’s undergraduates are working while they attend school. Many have work experience, even if they are not currently working. These students’ work-related experiences are often very useful in exploring various operations topics, including the “nine primary topics.” Engage students in dialog about the operations aspects of their workplaces.

**Teaching Note 5—Take advantage of student consumer experiences**

Students, even if they have no work experience, have substantial consumer experiences. These can be mined for their connection to operations. Some obvious cases involve aspects of product design (features and quality), service quality (timeliness and accuracy), layout, capacity, and location (clustering).

**Teaching Note 6—Make Input-Output definition of Operations Management interactive**

Discuss the input-process-output view of the Operations Management in the context of e.g., manufacturing and location. Then ask what are input, process, and output in another context e.g., healthcare.

###### PAUSE AND REFLECT

*These questions can be used to generate discussion during class, or as a post to a discussion board or forum for online participation*.

1. What constitutes *operations* for your university, an organization of which you are a member, or your place of business?
2. Why is globalization seen as a panacea to world problems by some and an instigator of problems by others? What responsibilities should corporations have toward the country in which they operate? To their country of origin?
3. What are the consequences of outsourcing production? The benefits? Is there a point at which too much outsourcing is dangerous? How do you view outsourcing as a consumer? As an employee?
4. From your travels (domestically or internationally), what differences have you encountered in the goods or services provided? Think about how companies doing business in different countries need to adjust their operations.
5. As an employee, a student or a consumer, what aspects of operations do you encounter? How do they relate to the nine “primary topics” in operations discussed in the chapter?
6. Look for articles related to operations management in your local newspaper, or favourite business magazine. What types of topics are discussed?

**excel HOmework files**

Excel homework solution files are available for download on the text website ([*www.wiley.com/go/russellcanada*](http://www.wiley.com/go/russellcanada)) for problems 1-1 to 1-10. These are for instructors only. You elect whether to share these with students.

**Excel Files for students**

**Exhibit 1.1** – Multifactor Productivity Example

**Balanced Scorecard.xls** – Balanced Scorecard Worksheet