

Chapter 1

Operations and Productivity

Background

Operations management has created industry giants. The Ritz-Carlton Hotel Company's mission is to provide an outstanding customer experience through a complete focus on quality management. UPS operates trucks that run for 20 years because their drivers care. Disney has made a science of accurate forecasts and queuing theory. Darden Restaurants (Red Lobster, Olive Garden, and others) view operations as their strategy for success. Frito-Lay dominates the snack market by keeping fresh snacks on the shelves with a production process that converts raw materials into a bag of chips sitting in a grocery store in as little as a day or two.

The importance of operations management can be highlighted early in the course with humorous videos or stories about "operations gone wrong." Most students can share "disaster" stories about poor experiences that they have had dealing with companies. On a more serious note companies such as Maple Leaf Foods, XL foods, Boeing (Dreamliner), and Johnson & Johnson (Tylenol) provide great examples that can lead to a fascinating discussion of the operations recovery process—what to do and what not to do when an operational failure gets media attention.

It can be useful as well to spend some class time discussing the job market for operations management majors, comparing starting salaries and job titles to other business majors. Find an MBA program with a strong operations focus and display the starting salaries of those graduates (such data are available on many MBA program websites). Research shows that (1) more CEOs "learn the ropes" by coming up through operations than any other functional area, and (2) Chief Operating Officer salaries tend to be approximately 10% higher than the salaries of the other "Chiefs" (CFO, CMO, and CIO).

Class Discussion Ideas

1. Choose an organization the students will be familiar with and ask them to identify and describe the product of that organization. Direct the discussion to highlight the complex nature of the product offerings of most organizations today where product and service elements are found to some degree in almost all organizations.
2. Have the students choose a few different tasks or jobs and identify possible productivity measures for these. They should describe how they would go about making the necessary measurements. Student and faculty productivity are easy examples that can generate quite a bit of discussion. One possible way to start the discussion is to ask whether grades or research output is an effective measure of student and faculty productivity.

Active Classroom Learning Exercises

1. Labour productivity is sometimes perceived to be driven by employee motivation. Have the students split up into small groups to discuss effective ways to motivate hourly employees vs. salaried managers. If productivity of these workers is below expectation, what are good and poor ways to try

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Heizer, Render, Griffin, *Operations Management*, Second Canadian Edition

to motivate them? What methods might work well with blue collar employees but not white collar employees, and vice-versa? What methods might work well in the short run but not in the long run, and vice-versa? Have each student group report its ideas to the whole class. (And if any group has little to say, ask them what could have been done to motivate them to do better!)

2. Companies often locate in other countries to take advantage of low wage rates. However, the difference in labour costs should be adjusted to account for productivity differences among the workers in the two locations. One way to do this is to compute a “relative wage rate,” R , of operating in another country. Note that R is not the actual wage rate paid, but it is the hourly wage rate of operating in another country *relative* to the home country, after taking productivity differences into account. If the foreign country’s workers are more productive, R will decrease, and vice-versa. The formula is $R = (W \div X)(U \div F)$, where W = the foreign wage rate (in foreign currency per hour), X = the exchange rate (in foreign currency per local currency), U = home country productivity (in units per hour), and F = foreign country productivity (in units per hour).

A problem could be described as follows. Suppose that workers in Britain earn £10/hour. The exchange rate with Canada is \$1.50 per £1. Canadian workers can produce 40 units per hour, while British workers at a similar facility can produce 50 units per hour. If the Canadian wage rate is \$14 per hour, should the firm produce in Canada or in Britain?

Have the students try the exercise in class. They will probably analyze this problem by computing a labour cost per unit in each country (35 cents vs. 30 cents). Then introduce the concept and formula for relative wage rate ($R = \$12$ in Britain). Both approaches are equally accurate, but using a relative wage rate has political advantages, i.e., it seems easier to talk about one wage rate vs. another (\$14 vs. \$12) as opposed to comparing costs per unit (35 cents vs. 30 cents).

Company Videos

1. *Frito-Lay: Operations Management in Manufacturing (7:11)*
Frito-Lay, a subsidiary of PepsiCo, has over 40 product lines, seven of which have sales exceeding \$1 billion. In this video, the textbook authors review the 10 OM strategy decisions and briefly describe how Frito-Lay addresses each one. For example, the company is constantly innovating with new products. For quality assurance, it uses multiple inspection points both within and outside the factory, and it utilizes statistical process control. The plant applies a product focus strategy, which is appropriate for a high-volume, low-variety producer. As raw materials are perishable and shelf life is relatively short, plant location decisions are driven by proximity to raw materials or markets. The plant has low employee turnover, driven by good benefits, respect for people, and a strong concern for safety and ergonomics. Inventory levels are quite low, and inventory is turned over 200 times per year. Potatoes are delivered 10 times per day. Schedules are driven by demand forecasts and adjusted for local events, such as the annual Daytona 500 auto race. All of these practices, along with excellent layout, supply-chain, and maintenance policies, have helped to make Frito-Lay the world’s largest snack manufacturer.

If the video is shown before the 10 OM decision are covered, the instructor could first ask the students to list the major decisions that they think that operations managers make. Afterwards, the 10 decisions from the book can be compared to the student lists. Then the instructor can choose a different company, perhaps a service organization, with which students might be familiar. The class could try to identify ways in which that organization addresses the 10 decisions and perhaps compare those to some of Frito-Lay’s tactics.

2. *Hard Rock Café: Operations Management in Services (8:26)*

Hard Rock is interesting because it's so much more than just a restaurant. Management speaks about its "experience strategy," which, in addition to quality food, includes rock-and-roll memorabilia, music, lighting, jovial staff, and a retail store. The video is sprinkled with scenes of happy employees dancing around or volunteering in the community. Most of the video is spent covering how Hard Rock Café approaches some of the 10 operations management decisions. For example, (1) scheduling is driven by forecasts that are based on prior sales, seasonality, recent trends, and current local events; (2) café layout focuses on maximizing the customer experience and driving customers toward revenue-generating activities; and (3) inventory management goes well beyond the inventory of food and retail items—Hard Rock has a \$40 million inventory of rock-and-roll memorabilia to manage, and each restaurant goes through a complete changeover of memorabilia every 5–7 years.

As an entertaining piece and one that covers a variety of OM decisions, this is certainly a good video to show early in the course when discussing Chapter 1. Many students will have eaten at a Hard Rock Café themselves, and most should enjoy seeing memorabilia from rock stars such as Madonna and KISS. This is also a good way early in the course to show that operations management is just as important in services as it is in manufacturing. Prior to showing the video, the instructor might ask the students to think about the 10 OM decisions and how Hard Rock approaches them. Afterwards, a discussion might revolve around aspects of those decisions that are unique to service businesses in general and then to Hard Rock Café in particular. Two clear differences about Hard Rock Café itself are (1) because of and contributing to such successful branding, the café's retail sales (shirts, etc.) account for nearly the same amount of revenue as the main product (the food); and (2) the management of the memorabilia around the world represents a unique and extremely important management effort on its own.

Cinematic Ticklers

1. *Fawlty Towers: "Waldorf Salad" (John Cleese and Prunella Scales), CBS/FOX VIDEO, 1986 (1979)*
This can actually be the first thing done in class all semester. The very start of the episode contains a funny scene about suppertime in the dining room of a bed and breakfast in England. The owners and staff make numerous errors. A class discussion can directly follow, listing what went well (almost nothing) and what didn't (many things). This clip can start a course off well because: (1) it's a very easy way to create an atmosphere of student participation right away in the course—identifying poor operations is easy in this clip, (2) it emphasizes that operations management applies to services, not just manufacturing, and (3) it's a fun way to begin a course.
2. *The Simpsons, Season 7: "King-Size Homer," 20th Century Fox Video, 2006 (1995–1996)*
Homer gets so fat that he is allowed to work from home. He realizes that he can triple his productivity by just pressing "Y" on his computer instead of typing "YES."
3. *The Simpsons, Season 8: "You Only Move Twice," 20th Century Fox Video, 2006 (1996–1997)*
Homer gets a new job working for a James Bond-like villain. He is put in charge of a set of three workers. It's his job to motivate them. As they type along, Homer asks if they are working. "Yes," they reply. "Can you work any faster than that?" he asks. "Sure thing, Mr. Simpson," they say, as they start typing faster. (If only motivation were that easy.)
4. *Modern Times, (Charlie Chaplin), CBS/FOX VIDEO, 1992 (1936)*
The movie deals with worker alienation in an assembly line environment and offers an interesting historical perspective on early Taylorism. Interesting issues arise including workers having to clock out to go to the bathroom, the automatic assembly line being sped up as the day wears on, sneezing or scratching being enough to make one behind on his or her work, and, most importantly, the de-humanization of early assembly line work.

Additional Assignment Ideas

1. Search the internet for organizations that offer productivity consulting services; there will be quite a few. Organizations will often offer different service packages and specialize in different areas. Pick two organizations that demonstrate differences and compare and contrast their services, their areas of specialization, and their approach to productivity. That is, explain how they are similar and how they are different. Make sure you include examples from their websites that support your analysis. (Two examples are Proudfoot Consulting (<http://www.alexanderproudfoot.com/>) and West Monroe (<http://www.westmonroepartners.com/>).)
2. Labour productivity is by far the most commonly seen expression of productivity. Search the internet for sites that offer labour productivity statistics. Certainly, Industry Canada (<http://www.ic.gc.ca>) is one, but there are others from around the world. Compare the labour productivity in Canada for the past decade to that of another country of your choosing. How and why are they different or similar?
3. Students can be assigned a paper that compares the service company Hard Rock Café to the manufacturing firm Frito-Lay, both of which have videos for Chapter 1. Specifically, the paper could compare and contrast how the two firms approach the 10 major OM decisions described in the text.

Additional Case Studies

Internet Case Study (on MyOMLab)

Zychol Chemicals Corp.: The production manager must prepare a productivity report, which includes multi-factor analysis.

Harvard Case Study (<http://harvardbusinessonline.hbsp.harvard.edu>)

- *Taco Bell Corp.* (#692-058): Illustrates the power of breakthrough thinking in a service industry.
- *Singapore Inc.* (#703-040): This case examines several key aspects of Singapore's growth, including organizational/cultural arrangements, the savings/investment balance, and total factor productivity growth.

Richard Ivey School of Business (<https://www.iveycases.com/>)

- *New Competitive Game in Asia* (#9B01TA05): There is a drive for productivity improvements across a broad front, not just in the manufacturing sector. Firms that once competed on price alone are busy differentiating themselves in other ways; companies that once engaged in asset arbitrage have recognized the error of their ways and are focusing on their operating strengths; and companies are shifting from horizontal to geographic diversification.
- *Jinjian Garment Factory: Motivating Go-slow Workers* (#9B04T033): Jinjian Garment Factory is a large clothing manufacturer based in Shenzhen with distribution to Hong Kong and overseas. Managers in this industry still had few effective ways of dealing with the collective and deliberate slow pace of work by the employees, of motivating workers, and of resolving the problem between seasonal production requirements and retention of skilled workers.

MyOMLab Resources

Visit **MyOMLab** to access cases, videos, downloadable software, and much more. MyOMLab also features a personalized Study Plan that helps your students identify which chapter concepts they've mastered and guides them towards study tools for additional practice.

Internet Resources

American Productivity and Quality Center	www.apqc.org/
American Statistical Association (ASA) offers business and economics DataLinks, a searchable index of statistical data	http://www.aeaweb.org
Economics and Statistics Administration	www.esa.doc.gov
Statistics Canada	http://www.statcan.gc.ca
National Bureau of Economic Research	www.nber.org
Bureau of Labor Statistics	http://www.bls.gov/fls/
Industry Canada	http://www.ic.gc.ca/Intro.html

Other Supplementary Material

Videos

1. *Modern Marvels*, "The Assembly Line."
The first part of this History Channel production shows Henry Ford and the Ford assembly line, with real historical footage. It describes the poor working conditions, as well as Ford's response, which was to pay a very high hourly rate for the time.
2. *Loose Bolts*, Michael Keaton.
Offers a more modern perspective on assembly lines and highlights the difficulties of making changes in existing organizations when implementing productivity improvement programs.
3. *Ford Historic Model T*, CarDataVideo (5:16), <http://www.youtube.com/>
This narrated video has a very detailed look at the first assembly lines at the original Ford auto plant, plus some driving scenes with the Model T.