

Instructor's Manual

Operations Management

Eighth edition

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Operations Management

Eighth Edition

**Nigel Slack, Alistair Brandon-Jones and Robert
Johnston**

Instructor's manual

This Instructors' Manual has two parts.

- Part One provides Teaching Guides, giving an introduction to the topic, key teaching objectives, together with some teaching tips and exercises for each chapter.
- Part Two gives Teaching Notes for each of the 'end of chapter' cases for each chapter.

Also available are PowerPoint slide decks: one for each chapter and one for each of the 'end of chapter' cases.

Structure of the Eighth Edition

The structure of the Eighth Edition of this book is different from previous Editions. To help understand the changes, the table below indicates how chapters in this edition relate to previous ones.

Chapters in the Eighth Edition		Chapters in the previous Editions
1 Operations management	←	1 Operations management
2 Operations performance	←	2 Operations performance
3 Operations strategy	←	3 Operations strategy
4 Product and service innovation	←	4 Process design
5 The structure and scope of operations	←	5 Innovation and design in products and services
6 Process design	←	6 Supply network design
7 Layout and flow	←	7 Layout and flow
8 Process technology	←	8 Process technology
9 People in operations	←	9 People, jobs and organization
10 Planning and control	←	10 The nature of planning and control
11 Capacity management	←	11 Capacity management
12 Supply chain management	←	12 Inventory management
13 Inventory management	←	13 Supply chain management
14 Planning and control systems	←	14 Enterprise resource planning
15 Lean operations	←	15 Lean synchronization
16 Operations improvement	←	16 Project management
17 Quality management	←	17 Quality management
18 Managing risk and recovery	←	18 Operations improvement
19 Project management	←	19 Risk management
	←	20 Organizing for improvement
CSR distributed to all chapters	←	21 Operations and corporate social responsibility

Part One

Teaching guides

Starting out

In teaching, how you choose to present your material will shape your students' whole view of Operations Management (OM). In particular, how you choose to start a module (course, programme, set of sessions, etc.) will set the scene for everything else you do. That is why the first session of any course is important. It establishes the 'feeling' of the course; it sets students' expectations and it defines the scope of what's to come in subsequent sessions. So how should you start? Well the first rule is, 'don't try to be something that you aren't'. Your personal style of teaching is yours; don't try to copy someone else's style. The front of the class is an exposing place – students can see when you are pretending. But (and it's a big but), irrespective of your personal style, there are some things that I believe (remember this is a personal view) need to be established right at the beginning of a course. They are:

- Operations management is *relevant to you*.
- Operations management is *important generally*.
- Operations management is *exciting*.

How you convince students that OM is relevant, important and exciting will depend on a number of things, the formal objectives of the programme, the position of the course within the programme, what personally motivates you as a teacher, and so on. But, for me, the key factor is how much experience of business life the students have. The table summarizes how I see the experience of students influencing how we can convey a sense of relevance, importance and excitement.

Relevance

Relevance means selecting ideas and using examples that have evident meaning to students and communicating the ideas in an engaging way. Select ideas and examples that have meaning because they cover the issues that students recognize from their own experience and they are set in contexts that are familiar to them. So, for example, undergraduate students may have some experience of working in operations processes through vacation work or formal internships, but many will not. This does not mean that they don't have experience of OM processes – they do – but their experience will probably be as a customer – as someone being processed, rather than someone doing the processing. There are three implications of this. First, the topics to cover should be operational, process level – ones rather than the more strategic ones. For example, how are all processes similar at a high level? What are processes transforming? How are they different? What are their objectives?

Degree of work experience	Relevance – it means something for me	Importance – it has value generally	Interest – it involves me
Relatively little – e.g. undergraduate students.	What – operational, process level content. Examples – processes where they are customers. Style – 1 paragraph local cases and 2 minute video clips of local queues.	Consequences of operations success and failure focus on what they can see are obviously important. For example, disaster response supply chains, poor or good University processes.	Quirky/unusual examples. Exploit feelings as customers, what infuriates you? What delights you?
	↓	↓	↓
Experienced – e.g. Executive MBA students.	What – Introductory models, but move quickly on to the strategic. Examples – A wide range of sectors. Style – Topical examples from business/financial press.	Again, the consequences of operations success and failure ('OM can make or break your business!'). Distinguish between operations that are 'different' and those that are 'better'.	Quirky/unusual also works for experienced students. Emphasise the challenges facing operations managers.

Second, the examples should be based on processes that the students have actually experienced, probably as customers. Avoid 'widget manufacturing' examples (at best theoretical and dull, at worst mystifying and dull) they will mean nothing to most undergraduates. And anyway, the world is not short of good relevant examples of processes they are familiar with. Third, teaching needs to move from example to theory, not the other way round. This will demonstrate that the standard OM models are not separate from their experiences, but are actually a way of explaining experience.

With experienced students such as an executive MBA class, the problem is the same but the solution very different. Here the big issue is likely to be that many of the class will think of OM as being of real relevance only to those actually working in the operations function. The challenge is to establish the difference between operations as an activity and operations as a function. (Corny trick but it works – ask the class – 'who works in operations?' a few students raise their hands, ask 'who has internal or external customers?' most/all raise their hands, ask 'who uses resources to create value for the firm?' everyone raises their hands, ask again, 'OK who now works in operations?') Again, the introductory models are appropriate, but I find it useful to move quickly on to the strategic consequences of good OM such as low costs, secured revenue, more effective fixed and working capital, lower risks and enhanced capabilities. Illustrate this with examples from as wide a range of industries as possible, always starting with an accessible service example (I use parcel delivery services such as TNT), but including the sectors represented in the class. This is where the business/financial press is useful. There are always plenty of examples relating to OM in the Financial Times or the Economist. With experienced students you really do have to go beyond the conventional narrow boundaries of OM if you want to set the subject in a strategic context.

Importance

Convincing students of the importance of OM means that you have to establish its value to any type of enterprise. For experienced or inexperienced students this requires exploring the consequences of operations success and failure. Again focus on what students will clearly recognize as obviously important. Inexperienced students may not fully understand how good or bad OM affects business, but they do have an intuitive grasp of the importance of how one organizes, for example, disaster response supply chains, healthcare processes and high-profile (banking?) failures. They fully understand good and bad University processes. Ask *'what would happen if we lost your exam scripts?'*; *'how would it help if we returned your assignment feedback in half the time?'*; *'how could we do this?'* and so on. The same principle applies to experienced students – what are the consequences of operations' success and failure? I use the slightly dramatic headline; 'Operations Management can make or break your business!' Again, use examples of enterprises with reputedly good or bad operations. However, with experienced students I think it is useful to distinguish between successful operations that are 'different' from those of competitors (e.g. Amazon, Zara and IKEA) and those that are broadly similar but they are organized 'better' (e.g. Toyota, Four Seasons). Relate this idea to their own organizations. Ask *'are you going to improve by being different (to competitors), or being better?'* This can move on to a discussion of different philosophies of improvement.

Interest

Unless you are personally excited by, interested in and enthusiastic about OM, your students won't be. If you can't be passionate about the subject, go find another subject or job that you can work up some enthusiasm for. As far as your students are concerned, the key task is to get them to feel involved and/or engaged by the subject, and the good news is that students' expectations are in our favour. By that I mean that their expectations are often low. They can associate the subject with mathematical modelling in technical manufacturing companies. There is nothing wrong with mathematical modelling or technical manufacturing of course... eventually. But for most students starting there is a mistake. Instead, use interesting, unusual, even quirky examples. I find that the types of examples that excite students are broadly the same whether they are inexperienced or experienced. Disney World, 'Square watermelons', IKEA, Amazon and Zara, are all favourites (just google them, or better, buy the book, OK). Single slides or a short YouTube clip are great for making what my fellow author, Alistair Brandon-Jones of University of Bath, calls 'hooks'. But in the first session I try as many relatively short examples as will fit. The objective is to demonstrate scope and interest, and not depth that comes in later sessions.

The other aspect of generating interest does depend on students' experience; it is to face them with the challenges of being a good operations manager. With inexperienced students you can exploit their feelings as customers of common processes. Ask, 'as a customer of [insert service] what infuriates you? What delights you? Move them to ask 'why is it like this?' 'Is it deliberately design like that or did the operation make a mistake?' With more experienced students you can emphasise the challenges facing Operations managers. Ask *'how do you balance your responsibilities to owners, customers, the environment, supplier and staff?'* *'What technology changes will have implications for how operations are managed in your company?'*

Operations management

1.1 Introduction

Teaching the material in Chapter 1 of the book is both the most important and the most difficult part of teaching an operations management course. Most important because it is vital that students develop an enthusiasm for the subject and this is best attempted early in the course. Difficult because one has to establish some key principles before the ‘building blocks’ of the subject have been taught. We have found it useful always to work from whatever experience the students have. For post-experience students like MBAs this is not difficult. One can always ask them to describe the nature of operations in the companies they have worked for. One can even explore some of the prejudices they might hold about operations management (dull, obstructive, always screwing things up, etc.) and base discussions on that. Undergraduates are more difficult because they usually have less experience, but even so they have experienced many different operations from a customer’s point of view. Therefore one can ask them about recent experiences as a customer (both good and bad) and base a discussion on the importance of operations management around those experiences.

Key teaching objectives

- To enthuse students with the ‘hands-on’ excitement that can be gained from an understanding of operations management (*‘... I want to prevent you ever enjoying a theatre performance, restaurant meal, or shopping experience ever again. I want you continually to be looking for the operations implications of every operation you enter. You are going to be turned into sad people who cannot go anywhere without thinking of how you could improve the process’*).
- To convince students that **all** organizations really do have an operations function, therefore operations management is relevant to every organization.
- To convince students that **all** managers are operations managers because all managers manage processes to produce outputs. (*‘Even marketing managers are operations managers. What you learn as marketing in business school is really the “technical” side of marketing. Of course this is important, but marketing managers also have to produce marketing reports and information, without mistakes in them, on time, relatively quickly, flexibly enough to contain the latest information, and without using an army of marketing analysts to do so. In other words, they are producing services for internal customers’*).
- To introduce some key ideas in the chapter, namely,
 - Operations managers manage transformation processes, with inputs and outputs.
 - Operations can be analysed at three levels; the level of the supply network, the level of the operation itself (sometimes called the level of the organization) and the level of individual processes.

- Operations differ in terms of their volume, variety, variation and visibility (the four Vs).
- Operations managers engage in a set of activities, devising operations strategy, designing operations, planning and controlling operations and improving operations.

1.2 Exercises/discussion points

There are many cases and exercises which one could use to introduce operations management. You might like to try some of these ideas, all of which we have used.

Exercise – A useful exercise for demonstrating the ubiquitous nature of operations is to ask the class to identify every service they have encountered from waking up in the morning through to going to bed at night. The radio alarm which wakes them up depends on the operations of the radio station. The water in which they wash (presumably) was delivered by a water utility. The public transport operation transported them to college, etc. through to the bar, or other place of entertainment that they end the day with.

Teaching tip – YouTube is a hugely valuable resource for finding videos of operations that can form the basis of class discussion. Many television programmes also can be recorded off-air which illustrate operations. Looking ‘behind the scenes’ of well-known operations such as airports, is a favourite topic for TV producers. Any of these could be used to promote group discussions on what operations management might be like in such operations.

Exercise – The four Vs’ dimensions of operations can be used for many types of exercise. For example, one could ask different groups to identify different types of restaurant, food retailer, car servicing operation, cinema, club or pub, etc. and plot the ‘similar but different’ operations on the four dimensions.

Exercise – For residential courses, especially of post-experience students, an evening could be spent ‘on the town’, where syndicates are required to sample the services of a restaurant, a retail operation, and an entertainment operation, and report back the following morning. This is a great way of giving participants a change of scene on the Thursday of a one-week course.

Teaching tip – Remember ‘role-play’ can be used effectively in an introductory session. The lecturers can role play two operations managers managing separate similar but different operations. For example, the chief tailor of a ‘fashion label’ custom tailor and the production manager at a mass-produced ‘off-the-peg’ garment factory manager. The differences in the types of resource (people and equipment), the operation’s objectives, the four Vs, etc. can all be emphasised during the role play.

Teaching tip – ‘Role-play’ can also be used with a standard case study. For example, the Concept Design Services case at the end of Chapter 1 lends itself to role playing the operations manager and marketing director of the company, in order to illustrate their different perspectives.

Exercise – All the chapters have ‘Operations in practice’ examples. It is often a good idea to ask the students to read through these examples and then use it to promote a discussion on the topic. In this chapter, LEGO is described.