

Instructor's Manual

Operations and Process Management

Fifth edition

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- Instructor's Manual, including teaching notes for each chapter, model answers to all questions in the book and guided solutions for all case studies.
- PowerPoint slides

For students

- The student companion website provides model answers to the first two 'Applying the Principles' in each chapter.
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Teaching Guide

CHAPTER 1

Operations and processes

Introduction

Teaching the material in Chapter 1 of the book is both the most important and the most difficult part of teaching an operations (or operations *and process*) 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 should not be too 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. Alternatively, and certainly for students who have less experience, 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 organisations really do have an operations function, therefore operations management is relevant to every organisation.
- 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 the three key ideas in the chapter, namely,

- (a) Operations and process managers manage transformation processes at three levels: the level of the supply network; the level of the operation itself (or 'the organisation' if that is more understandable to students); the level of the individual process (some of which will be within the operations function, and the rest of which will be in other functions).
- (b) Operations and processes differ in terms of their volume, variety, variation and visibility (the four Vs).
- (c) Operations and process managers must perform four sets of activities to ensure that their operations and processes contribute to overall strategic impact: *Direct* operations strategy, *Design* operations and processes, *Deliver* products and services by planning and controlling operations and process, *Develop* the performance and capability of operations and processes.

Exercises/discussion points

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, and so on and plot the 'similar but different' operations on the four dimensions. Alternatively, many television programmes which illustrate operations can be recorded off-air. These often look 'behind the scenes' of well-known operations such as airports. Any of these could be used to promote group discussions on what operations management might be like in such operations and especially the differences (in terms of the four Vs) among the processes shown.

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 the following morning. This is a great way of giving participants a change of scene on the Thursday of a one-week course.

Exercise – Perhaps one of the most important points to get across in any introductory session is the ubiquity of operations and process management. MBAs in particular need convincing that the subject is relevant for them even if they are not going to be directly involved with the operation's function. This is why the book has very deliberately taken an operations *and* process management perspective. It is vital that everyone understands that, to some extent, they are operations managers because they manage processes. Therefore, everyone has something to learn from operations management. The best way to emphasise this is to use Figure 1.3 from Chapter 1. Point out the space occupied by the subject when it was concerned primarily with 'production' management. Then point out the space that the subject occupies when we define it to include any kind of process in any kind of business.

Exercise – It is important to get across the idea that products and services are not always very dissimilar. Indeed, it is sometimes misleading to distinguish between the two. The example of Rolls Royce and other 'manufacturing' companies can be used to make the point that many companies derive the majority of their revenue by providing services. Try giving the class an example of a company that seems to be a manufacturer (e.g. BAE Systems, Caterpillar earth-moving equipment, etc.) and pose the question, 'What services would a company like this need to supply to its customers?' Then direct the discussion to include maintenance, training, consultancy of how best to use the equipment, updating, installation of planning and control systems and other software, providing finance for purchase, and so on. A good example is BAE Systems who manufacture aircraft for the military. Rather than purchase the aircraft, many

governments are choosing to 'buy capability'. This means contracting for many thousand hours of 'operating capability' per time period. All our Air Force has to do is provide the pilots. BAE Systems does everything else, and probably owns the aircraft also.

Teaching Note for End-of-Chapter Case

Design House Partnerships at Concept Design Services

Case synopsis

Concept Design Services (CDS) is a company that has changed from being a manufacturer, initially of precision plastic components and cheap 'homeware' to making very high quality homewares, then to offering a 'design, make and distribution' service for well-known brands. As we join the firm, we see most of its new business comes from the partnerships formed with design houses. This transition has come in two stages. First was a move into higher margin homeware *under the 'Concept' brand name*. *Second, were design collaborations between the CDS design team and 'design houses'* (creative product designers), who rarely manufacture or distribute their products. However, CDS still has some old inexpensive homeware products (called 'Focus' products) as well as the Concept range and its 'Design House partnership work'. CDS also has three main functions: design, manufacturing and distribution; however, these functions are not equally important to the three types of business (see the table below).

Product/service	Design	Manufacturing	Distribution
Focus (cheap plastic homeware)	Not important	Important but some now outsourced	Not important
Concept (expensive design-led homeware)	Very important	Important	Important
Design House partnerships (high brand-level design, make and distribute service)	Very important, particularly relationship with design houses	Important	Important

Design operations

Because of the moves from Focus to Concept, then to Design House partnerships the Design activity had become particularly important to CDS, and had led to growth in its size and the influence. But it was having problems with some other parts of the firm; not everyone was so sanguine about the rise of the Design Department. *'They sometimes don't seem to understand the consequences or implications of their design decisions or the promises they make to the design houses.'*

Manufacturing operations

Manufacturing have large automated injection-moulding machines. Some new products had to move from moulding to assembly and then back again. There are some thoughts that the large machines are not suitable for the more flexible needs of the newer products.

Planning and distribution services

The distribution services department schedules the flow of products from production, through the distribution centre, to the customer. This is important to maintaining high plant utilisation. Unfortunately poor forecasting makes it difficult to stick to schedules. *'Every Friday morning we devise a schedule of production and distribution for the following week. Yet, usually before Tuesday morning, it has had to be significantly changed because of unexpected orders coming in from our customers' weekend sales.'*

Using the case

This case is best used as an introductory exercise towards the beginning of any operations management course. It is a 'soft' exercise in that many of the issues are in the form of opinion. It is also quite a complex case in some ways. Its purpose is not to provide students with an opportunity to 'solve a problem'. Rather, it is an introductory case (in spite of its complexity) that can be used to open up a number of issues for discussion. Its overall purpose is to introduce students to the richness and complexity of many problems within operations management.

Three characters are involved in the case study. Linda Fleet is the Head of Marketing, Grant Williams is the Operations Manager, and Jim Thompson is the CEO of the company. Once you are familiar with the case, it is sometimes effective to role play one or more of these characters for the benefit of the class, with them asking questions of the characters and the lecturer providing any further detail or clarification through this mechanism. Also, it is useful to use props to illustrate the type of products this company designs, makes and distributes. For example, bring in a basic plastic bucket to illustrate Focus products, a more expensive 'up-market' item of plastic homeware to illustrate Concept products, and a plastic item from a design house (such as Alessi) to illustrate the Design House partnership products.

Question 1 – Why is operations management important in CDS?

This is a big question and it is best to tackle it both at a strategic and an operational level.

At a strategic level, operations management has provided the capability, particularly in the design and manufacturing parts of the organisation that allows the company to compete so effectively. Draw the students' attention to the final part of the case where the CEO expresses the view that the important changes in the company have come as a result of it being able to deploy and operations superiority of some sort.

At an operational level, one could point out the designs that are cost effective and delivered on time allow the company to be first into the market with new ideas. Products made to high levels of quality, when they are needed, and at reasonable cost will allow the products to be sold effectively and prevent customers' complaints as well as saving the company money. Distribution processes that provide good customer service without excessive stock levels will maximise sales whilst minimising costs.

Early in the class discussion, it is useful to make sure that students understand that there are three types of operation represented in this company.

- A design operation that produces the designs for products, sometimes in cooperation with design house designers.
- Manufacturing operations that actually produce the products.
- Distribution operations that take customer orders at its call centre, assembles the order from the products it keeps in store, and physically distributes the products to the customer.

All of these operations are important to the company because:

- They all contribute to the company's ability to serve its customers and therefore retain old customers and gain new customers.
- All contribute to the company's costs and therefore, if managed efficiently, can reduce the costs for the whole business.
- All, if not managed well, can disrupt the flow of products to customers and negatively impact the company's reputation.

Another way of answering this question is to look at the contribution of operations management as it is described in Chapter 1. In the chapter, four contributions of the operations function were identified. These are as follows:

- Minimising cost.
- Maximising revenue.
- Avoiding excess investment.
- Developing capabilities for future innovation.

Ask the class how different parts of the company contribute to each of these objectives.

Question 2 – Draw a 4Vs profile for the company's products/services

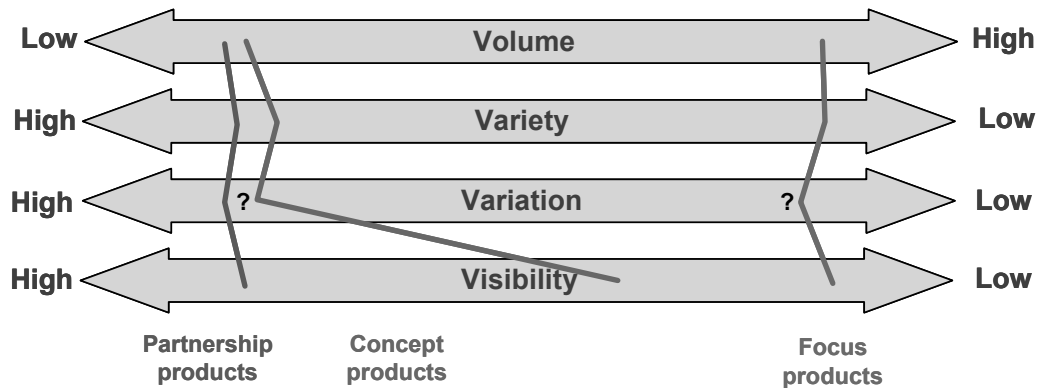
A four Vs analysis

Although there is not enough information in the case to perform a rigorous four Vs analysis there is enough to make an informed approximation of what the four Vs profiles of the different product group would look like. Start by establishing that the students understand the nature of volume, variety, variability, and visibility. Then ask them to describe the company's three main product groups: Focus products, Concept products and Design House partnership products. After that it could be useful to make a matrix and hold a discussion about what the four Vs mean for each of these product groups. The most difficult is variation because little information is given on this in the case. However, with a little discussion, it becomes clear to students that the basic stable products that represent the Focus group will be less prone to seasonality or sudden fashion changes than either Concept products or Design House partnership products. For

both of the latter, the fashion element will introduce a degree of risk and uncertainty as to how sales may develop.

The nature of visibility is also a little unclear. Broadly, the company's operations are low or fairly low-visibility operations. Yet there are comments in the case that indicate that Design House partnership's require a higher degree of contact with the customer, who in this case is the Design House itself. The company's designers must collaborate with the design houses' designers. Also, Grant comments that the Villessi designers frequently visit Grant's factory.

4 Vs analysis for Concept Design Services



Question 3 – What would you recommend to the company if they asked you to advise them in improving their operations?

This is an opportunity for a general discussion based on the analysis of the first two questions. One way of approaching this question is to ask the class to identify the challenges or problems that are identified in the case. These may include the following.

- The move from a company that sells directly to retailers (Focus and Concept products) to one that sells predominantly to design houses (Design House partnership products).
- The emerging differences between product groups. The four Vs analysis indicated that Focus has a very different four Vs profile when compared to both Concept and Design House partnership products. What are the implications for this in how the company processes these three product groups?
- Are the resources in the company's operations appropriate for these product groups? The main point here is that the type of machines and people necessary to make Focus products (high volume/low variety) may be very different from the kind of machines and people required to process Concept and Design House partnership products. For example, the large machines that the company has recently bought, together with multiple impression moulds seem to be ideal for Focus products that are high volume, low margin and low variety. After all, the disadvantage of these large machines and moulds is that they take a long time to change over between products. Yet there would be relatively few changeovers when making Focus products. By contrast, both Concept and Design House partnership products are low volume, high variety products that need a far more flexible set of processes to produce them. It is unlikely that the large machines and multiple impression moulds used by the company are ideal for this. Therefore, there is some evidence that, in trying to use the same resources to make all

its products, it is making life difficult for itself. This is possibly the reason why its schedules need to change so frequently.

- The manufacturing operation seems to be in conflict with the design operation.
- The manufacturing operation seems to be in conflict with the marketing function over the accuracy of its forecasts. Discuss with the class why manufacturing needs better forecasts and why marketing may genuinely find it difficult to give them in these circumstances.
- The company admit that they are having some problems subcontracting Focus products. Discuss with the class why this might be and why subcontracting is such a popular option currently.

Applying the principles Chapter 1 – questions with suggested ‘answers’

Question 1

Quentin Cakes make about 20,000 cakes per year in two sizes, both based on the same recipe. Sales peak at Christmas time when demand is about 50 per cent higher than in the more quiet summer period. Their customers (the stores who stock their products) order their cakes in advance through a simple internet-based ordering system. Knowing that they have some surplus capacity, one of their customers has approached them with two potential new orders.

The *Custom Cake* Option – this would involve making cakes in different sizes where consumers could specify a message or greeting to be ‘iced’ on top of the cake. The consumer would give the inscription to the store who would e-mail it through to the factory. The customer thought that demand would be around 1,000 cakes per year, mostly at celebration times such as Valentine’s Day and Christmas.

The *Individual Cake* Option – this option involves Quentin Cakes introducing a new line of about 10–15 types of very small cakes intended for individual consumption. Demand for this individual-sized cake was forecast to be around 4,000 per year, with demand likely to be more evenly distributed throughout the year than their existing products.

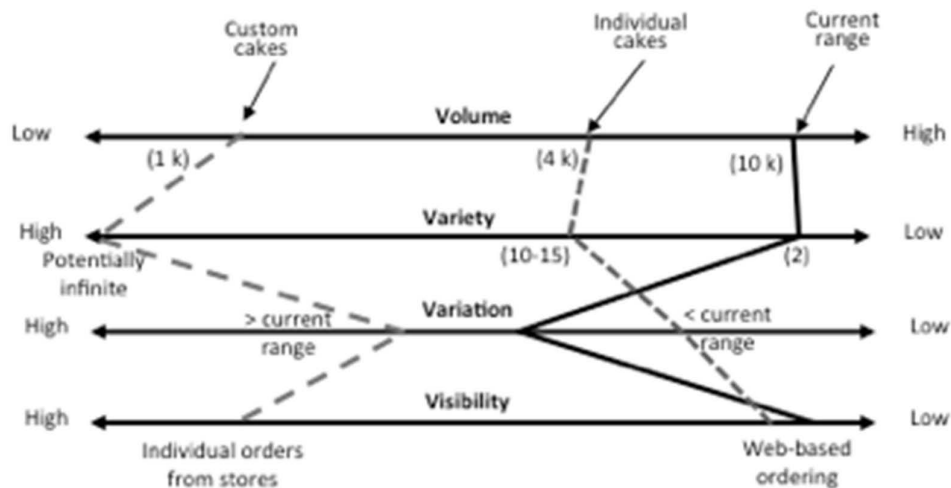
The total revenue from both options is likely to be roughly the same and the company has only capacity to adopt one of the ideas. Which one should it be?

Question 1 – Analysis

This question involves comparing the existing product range of Quentin Cakes with the two proposed extensions to their (currently limited) range. Given that the revenue from each of the options is roughly the same, the most profitable option is likely to be the one with the lowest cost. And in the absence of any detailed cost data, the best way to gain an estimate of costs is to look at the position of each option on the ‘4 Vs’ and compare them with the existing range of cakes. The figure below shows this analysis.

	Current range	Custom cakes	Individual cakes
Volume	About 20,000 cakes per year	Around 1,000 cakes per year	Around 4,000 per year
Variety	Two sizes	Every cake is different	About 10–15 types
Variation	Peak to trough of 50%	Likely to be higher	Likely to be lower
Visibility	Remote web-based ordering from stores	Would need more communication between stores and factory	Probably remote web-based ordering from stores

4 V's analysis for Quentin Cakes



Given that, other things being equal, the further to the right on the 4 Vs chart an option is, the lower cost it is likely to be, then 'individual cakes' will be less costly to produce than 'custom cakes'. So, unless there are other reasons (such as a shift in the company's overall strategy), the 'individual cakes' option seems preferable.

Question 2

Described as having '*revolutionised the concept of sandwich making and eating*', Prêt A Manger opened their first shop in the mid-1980s, in London. Now they have over 130 shops in UK, New York, Hong Kong and Tokyo. They say that their secret is to focus continually on quality, in all its activities. '*Many food retailers focus on extending the shelf life of their food, but that's of no interest to us. We maintain our edge by selling food that simply can't be beaten for freshness. At the end of the day, we give whatever we haven't sold to charity to help feed those who would otherwise go hungry.*' The first Prêt A Manger shop had its own kitchen where fresh ingredients were delivered first thing every morning, and food was prepared throughout the day. Every Prêt shop since has followed this model. The team members serving on the tills at lunchtime will have been making sandwiches in the kitchen that morning. They rejected the idea of a huge centralised sandwich factory even though it could significantly reduce costs. Prêt also own and manage all their shops directly so that they can ensure consistently high standards.

'We are determined never to forget that our hardworking people make all the difference. They are our heart and soul. When they care, our business is sound. If they cease to care, our business goes down the drain. We work hard at building great teams. We take our reward schemes and career opportunities very seriously. We don't work nights (generally), we wear jeans, we party!'

- (a) Do you think Prêt A Manger fully understand the importance of their operations management?
- (b) What evidence is there for this?
- (c) What kind of operations management activities at Prêt A Manger might come under the four headings of direct, design, deliver and develop?

Question 2 – Analysis

If you do not have access to a local Prêt A Manger, you might find it useful to visit their website 'about us' section (<http://www.pret.co.uk/en-gb/about-pret>). From this, and other public available sources, you should be able to find out the following.

- (a) Do you think Prêt A Manger fully understand the importance of their operations management? and
- (b) What evidence is there for this?

The whole of Prêt A Manger's rationale is based on an understanding of **how they organise their resources to deliver their service**. And that is what operations management is all about. When the operation was founded it, '*revolutionised the concept of sandwich making and eating*', designing and running their operations to deliver a different (high-quality) service.

- (c) What kind of operations management activities at Prêt A Manger might come under the four headings of direct, design, deliver and develop?

This is not an exhaustive list, and is a bit speculative, but typical operations-related decisions could include the following.

Direct	Design	Deliver	Develop
Competitive priorities (quality, freshness, product innovation, social responsibility) Store location Store capacity Operating structure (no central kitchen)	Store layout and design Customer flow pattern Human resource policies	Store staffing levels Opening times Ingredient ordering levels Inventory levels (low because of freshness policy) Supplier selection and liaison	Quality of service standards Quality monitoring (they use 'mystery shopper' systems) Reward schemes

Question 3

Visit an IKEA superstore and a smaller furniture store. Observe how the shop operates, for example, where customers go, how staff interact with them, how big it is, how the shop has chosen to use its space, what variety of products it offers and so on. Talk with the staff and managers if you can. Think about how the two shops differ from each other. Then consider the question, *'What implications do the differences between IKEA and the smaller shop have for their operations management?'*

Question 3 – Analysis

IKEA is the most successful furniture retailer ever. With stores all over the world, they have managed to develop their own special way of selling furniture. Their stores' layout means customers often spend two hours in the store – far longer than in rival furniture retailers. IKEA's philosophy goes back to the original business, started in the 1950s in Sweden by Ingvar Kamprad. He built a showroom on the outskirts of Stockholm where land was cheap and simply set the furniture out as it would be in a domestic setting. Also, instead of moving the furniture from the warehouse to the showroom area, he asked customers themselves to pick the furniture up from the warehouse – still the basis of IKEA's process today.

- Note how ordered the flow of customers is in an IKEA store. The stores are all designed to facilitate the smooth flow of customers, from parking, moving through the store itself, to ordering and picking up goods. At the entrance to each store large notice boards provide advice to shoppers who have not used the store before. For young children, there is a supervised children's play area, a small cinema, a parent and baby room and toilets, so parents can leave their children in the supervised play area for a time. Parents are recalled via the loudspeaker system if the child has any problems. IKEA 'allow customers to make up their minds in their own time' but 'information points' have staff who can help. All furniture carries a ticket with a code number which indicates its location in the warehouse. (For larger items customers go to the information desks for assistance). There is also an area where smaller items are displayed, and can be picked directly. Customers then pass through the warehouse where they pick up the items viewed in the showroom. Finally, customers pay at the checkouts, where a ramped conveyor belt moves purchases up to the checkout staff. The exit area has service points, and a loading area that allows customers to bring their cars from the car park and load their purchases.

Comparing the two types of retail operation:

Service factor	IKEA	Smaller retailer
Variety of goods	Very high	Almost certainly far lower
Quality of goods	Adequate	Variable depending on market position of store
Waiting time for 'delivery'	Immediate (if in stock)	Almost certainly longer, probably weeks
Quality of advice	Focused where it is needed (e.g. kitchen units)	Variable, but probably high

General level of service	Relatively low, relatively few staff given volume of business	Variable, but probably high
Degree of self-service	Very high – customer picks goods from warehouse	Probably none
Time spent queuing in-store	Very high at peak times	Varies, but almost certainly less than IKEA
Entertainment value of store visit	Unless you are a real furniture freak, very little	Believe it or not, IKEA is seen by some as a ‘good day out’
Prices/value	Very good	Probably more expensive than IKEA

Question 4

Write down five services that you have ‘consumed’ in the last week. Try and make these as varied as possible. Examples could include public transport, a bank, any shop or supermarket, attendance at an education course, a cinema, a restaurant and so on.

For each of these services, ask yourself the following questions.

- Did the service meet your expectations? If so what did the management of the service have to do well in order to satisfy your expectations? If not, where did they fail? Why might they have failed?
- If you were in charge of managing the delivery of these services what would you do to improve the service?
- If they wanted to, how could the service be delivered at a lower cost so that the service could reduce its prices?
- How do you think that the service copes when something goes wrong (such as a piece of technology breaking down)?
- Which other organisations might supply the service with products and services? (In other words, they are your ‘supplier’, but who are *their* suppliers?)
- How do you think the service copes with fluctuation of demand over the day, week, month or year?

These questions are just some of the issues that the operations managers in these services have to deal with. Think about the other issues they will have to manage in order to deliver the service effectively.

Question 4 – Analysis

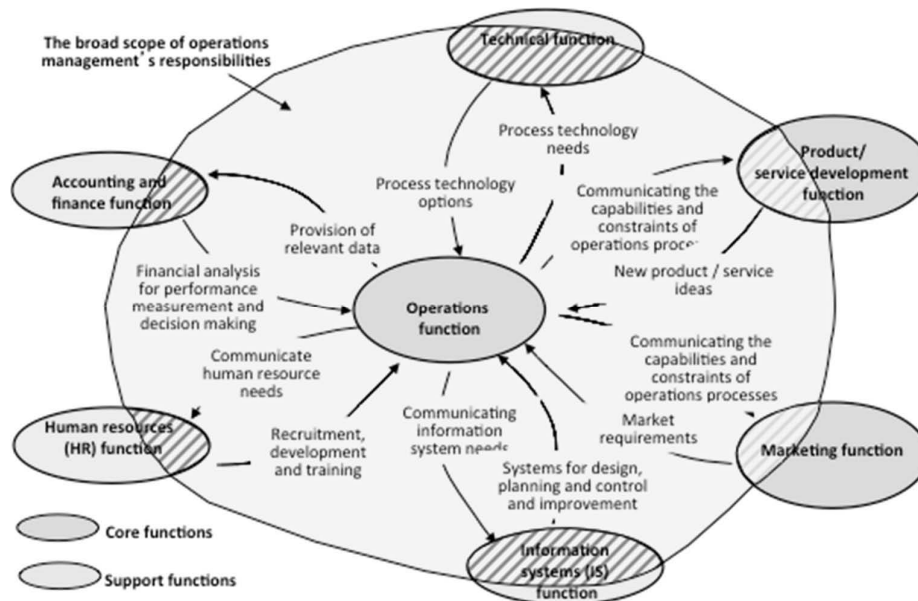
With this question, try to make the services that you think about as varied as possible. The main purpose of the question is to prepare for the topics later in the book, however also try to focus on the differences between the services and the implications of those differences for their operations managers.

Question 5

Find a copy of a financial newspaper (*Financial Times*, *Wall Street Journal*, *Economist*, etc.) and identify one company that is described in the paper that day. What do you think would be the main operations issues for that company?

Question 5 – Analysis

Again, very much a ‘thought provoking’ question. Use the opportunity to think about the relationship between the operations function of whatever company is being discussed and the other functions of the company. The following diagram might help.



Teaching Guide

CHAPTER 2

Operations and strategic impact

Introduction

Think carefully before even including this chapter in any course in operations and process management. Clearly, it is a vitally important issue for any practicing operations manager, but operations strategy is a large, and to some extent separate, topic. It is not easy to cover briefly. Also sometimes students can be confused by the distinction between operations strategy and operations management. This is partly because there is not such a clear separation between operations management and operations strategy as we sometimes imply. In the operations area especially, we need to include the accumulated learning which comes from day-to-day management of operations resources. This is why Chapter 2 includes both the bottom-up perspective and the operations resource perspective. Notwithstanding the difficulties, if it is decided to include a session on operations strategy (usually towards the beginning of the course) we have found it best to treat it as a ‘backdrop’ to the main thrust of the course.

Key teaching objectives

- To convince students that operations management isn’t always ‘operational’. Although most of the book does deal with the more operational aspects of the operations functions’ activities, operations managers have a very significant strategic role to play.
- To show students that there is a progression of operations excellence (using Hayes and Wheelwright’s nomenclature) from Stage 1 to Stage 4.
- To demonstrate that there is a whole range of performance criteria which can be used to judge an operation and which operations managers influence. (‘. . . although cost is important and operations managers have a major impact on cost, it is not the only thing that they influence. They influence the quality which delights or disappoints their customers, they influence the speed at which the operation responds to customers’ requests, they influence the way in which the business keeps its delivery promises, and they impact on the way an operation can change with changing market requirements or customer preference. All these things have a major impact on the willingness of customers to part with their money. Operations influences revenue as well as costs.’)
- To stress to students the importance of how the operations function sees its role and contribution within an organisation. (‘. . . you can go into some organisations and their operations function is regarded with derision by the rest of the organisation, how come, they say, that we still can’t get it right. This is not the first time we have ever made this product or delivered this service. Surely we should have learned to get it right by this time! The operations people themselves know that they are failures, the organisation

does nothing but scream at them, telling them so . . . Other companies have operations functions that see themselves as being the ultimate custodian of competitiveness for the company. They are the A team, the professionals, the ones who provide the company with all they need to be the best in the market . . . ')

- To explain that there really is something very important embedded within operations and processes. The skills of people within the operation and the processes they operate are the repository of (often years of) accumulated experience and learning.
- To give examples of how markets and operations must be connected in some way. Whether this is operations being developed to support markets, or markets being sought which allow operations capabilities to be leveraged, doesn't matter. The important issue is that there should always be a connection between the two.

Exercises/discussion points

Exercise – Putting the four-stage model into practice

Teaching the importance of the strategic role of operations using the Hayes and Wheelwright Stage 1 to 4 model is best done (we have found) by relating it directly to the students' experience. Try to use the model on a case study we have found to be difficult. Any case study which incorporates all the relevant information would be excessively long. Instead try the following exercise.

When Hayes and Wheelwright first proposed their four-stage model they probably meant it to be a broad brush conceptual tool whose main point was to demonstrate that operations should think about the extent of their contribution to the company's competitiveness. However, it can form the basis of an analysis tool that can be used by companies to calibrate themselves in terms of where they fall on the 1 to 4 scale. One way of doing this is to deconstruct the elements of how Hayes and Wheelwright describe each stage. Their descriptions mainly cluster around five issues. Namely,

- The way the operations relates with its external customers and the way it manages its internal customer relationships.
- The degree to which it has an understanding and knowledge of its operations practices.
- The way it links operations processes and resources with competitive strategy.
- The degree of innovation shown within the operations function.

The table 'At what stage is your operation?' fleshes this idea out. It takes each element and attempts to describe the nature of each as they progress from Stage 1 to Stage 4. So, for example, in terms of relationship with internal and external customers, Stage 1 operations are continually managing crises, Stage 2 operations are concentrating on establishing appropriate performance monitoring systems, Stage 3 are using the performance monitoring systems as a basis for improvement, while Stage 4 are exploring new ways of developing internal and external relationships through an in-depth understanding of internal and external customers and suppliers operations.

Choose an operation with which you are familiar and, using the Table 'At what stage is your operation?' try to judge whether your operation is Stage 1, 2, 3 or 4.

Hints for students

Think about how you judge the boundary of what you define as 'the operation'. If you draw the boundaries too widely, for example, choosing the whole of Unilever plc or the entire Port of Rotterdam, you might find it difficult to generalise. Different parts of these large macro-operations may be at very different stages. Choose an operation which serves a relatively clearly defined set of customers with a reasonably coherent set of resources.

Remember the table is not a precise instrument. It is intended as a very rough guide to illustrate approximately where the organisation's state of practice is likely to be at each stage. You may have to approximate.

	STAGE 1	STAGE 2	STAGE 3	STAGE 4
Relationship with internal and external customers	<p>Frequently lets down internal and external customers (who regard them as frustrating their own improvement efforts).</p> <p>The operation spends much time rectifying the results of its own failures.</p> <p>Crisis relationship</p>	<p>The operation's performance meets the minimum standards expected by internal and external customers.</p> <p>The operation only rarely lets down customers but adds little of positive value.</p> <p>Performance monitoring relationship</p>	<p>The operation starts to exceed customers' expectations.</p> <p>Frequent discussion with internal and external customers as to the appropriateness of performance standards.</p> <p>Joint planning of continuous improvement of performance with customers.</p> <p>Improvement of relationship</p>	<p>Operations understands the needs and expectations of customers' customers and exceeds them.</p> <p>Continual exploration of novel operation practice linked to customers' future needs.</p> <p>Creative relationship</p>

<p style="text-align: center;">Understanding of operations practice</p>	<p>Relatively little exchange of ideas with other internal operations.</p> <p>Operations management have little knowledge of alternative ways of designing and running their type of operation.</p> <p>Operations staff are rarely included in discussing the incorporation of outside ideas.</p> <p>Little knowledge of 'what makes the operation tick'.</p> <p>General dissatisfaction with operations practice</p>	<p>Regular exchange of ideas and performance with other internal operations within the organisation.</p> <p>Other similar external operations used to provide benchmarks of performance and practice.</p> <p>Operations staff consulted on suitability of outside ideas.</p> <p>Process knowledge allows deviations from standard to be monitored.</p> <p>Trying to position appropriate operations practice</p>	<p>Operations management take on facilitator role in helping other internal operations.</p> <p>Operations staff are concerned with how to adapt external ideas in order to make them more appropriate.</p> <p>Process knowledge gives ability to control performance.</p> <p>Continuous improvement of operations practice</p>	<p>Operations monitor external environment to predict their future market conditions, labour and technology requirements.</p> <p>Process knowledge gives ability to predict behaviour under novel conditions.</p> <p>Operations take responsibility for reshaping competencies and expectations of whole supply network.</p> <p>Forward-looking operations practice</p>
<p style="text-align: center;">Links with competitive strategy</p>	<p>Most people in the operation are not aware of the role of their operation within the organisation and its objectives.</p> <p>Operations managers find difficulty in identifying the trade-offs which they are required to manage.</p> <p>Simplistic but little-understood objectives</p>	<p>Operations management are aware that appropriate operations performance will differ in different operations, but are unclear how to change operations practice to reflect different objectives.</p> <p>Performance trade-offs are known but there is no clear idea of how to overcome them.</p> <p>Starting to focus on key objectives</p>	<p>All operations staff understand the relative importance of operations objectives and can debate their implications.</p> <p>Key performance trade-offs are identified and improvement strategies put in place to overcome them.</p> <p>Clear explicit link between strategy and operations practice</p>	<p>Operations have taken a leading role in shaping competitive strategy.</p> <p>Operations are seen as the prime source of the capabilities which competitors find difficult to imitate.</p> <p>Performance objectives are 'trading-off' at a significantly higher level than competitors.</p> <p>Strategy driven by unique operations capabilities</p>

Innovation within the operation	<p>Operations management see responsibility for innovations as being outside the operation.</p> <p>‘We could do much better if it wasn’t for the others in the organisation.’</p> <p>Operations is creative only in trying to fix the worst problems.</p> <p>‘Band Aid’ capabilities</p>	<p>Operations management do take on full responsibility for implementing new ideas and exhibit flexibility and creativity in getting things ‘up and running’.</p> <p>Only minor ‘tinkering’ with methods rather than developing entirely new approaches.</p> <p>Project management capabilities</p>	<p>New approaches to operations practice developed from within the operation.</p> <p>New approaches are based on a sound understanding of the skills needed to meet market needs and work within resource constraints.</p> <p>Interpreting ‘strategy to operations’ capabilities</p>	<p>Operations at the forefront of ‘changing the rules of the game’.</p> <p>Innovations timed to give maximum competitive advantage.</p> <p>Learning to network capabilities</p>
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If possible try to do this exercise with your colleagues or others who know the operation under analysis, after you have thought through it yourself. You can then compare your perceptions with those of others who are looking at the same operation. Don’t be surprised if you find a wide range of perceptions!

Notes

Obviously, there is no set answer to this exercise. Different operations will take very different positions on the Stage 1 to 4 scale. Furthermore, as we implied overleaf, individuals judging the same operation will nonetheless have different perceptions. It may be that you will have ‘scored’ your operation at different stages for different issues or even for different points. The process of marking this table could also throw up inconsistencies. For example, under the heading of ‘Understanding of operations practice’ it became evident that although the company had started benchmarking themselves against other external operations, they had failed to discuss issues within their own company or even to consult their own staff as to what aspects of practice seemed to work and which did not seem to work.

Teaching hint – Teaching the nature and importance of the various performance objectives can be done in two ways.

One can look at each performance objective in turn using examples of where the particular performance objective has a special significance. So, for example:

- **Quality** – Use companies (like Bentley or Toyota) that have a reputation for quality products or services. High-quality hotels and restaurants can be used, as can luxury services such as high-price hairdressers and so on. This can prompt a useful discussion regarding what we mean by quality (although you may wish to reserve this for the lesson on quality). Alternatively, use an example where high conformance is necessary for safety reasons such as in hospital blood testing.
- **Speed** – Any accident, emergency or rescue service is useful to discuss here. The consequences of lack of speed are immediately obvious to most students. Also use