英语专业工商管理双语教学教材系列

OPERATIONS MANAGEMENT *and* INNOVATION

运营管理与创新

第4版

David Needle

[英] 戴维·尼德尔 著

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丛书总序

进入21世纪，全球化现象越来越普及，国际间的经贸往来日益频繁、深入，这对外语教学，尤其是英语教学提出了新的要求。以往的英语专业方向以英语语言学、英语文学为主，语言知识和交际技能局限于日常生活语言和语境。由于缺少专业知识，即使语言能力较好的学生也不能胜任商务、金融等领域的对外交流工作，社会急需既精通普通英语又掌握专业英语和专业知识的“复合型”人才。针对这一现象，很多高校开设了商务英语类专业，专业课程设置体现“英语＋专业”的“复合型”人才培养规格。

虽然商务英语类专业近几年发展很快，设置此专业的高校增多，但就课程建设而言还存在很多问题。国内一些高校的商务英语类专业和开设商务类课程的英语专业的课程设置表明：很多商务英语类课程在实践中一般采取专业课程教学模式、专业双语教学模式或专业英语教学模式。专业教学模式指英语专业聘请各专业院系教师讲授专业知识的教学模式，授课语言是中文，优点是教师专业知识扎实，缺点是没有与英语专业很好结合。专业双语教学模式指使用英语教材采取双语授课的教学模式，优点是“英语＋专业”符合商务英语类专业的人才培养规格，缺点是现有教材的专业知识内容过深，英语专业的教师不能很好地把握专业知识，教师感觉难教，学生感到难学。专业英语教学模式指讲授特殊用途英语，即“一般工作环境下使用英语的沟通技巧”，如商务英语等。此类课程很具应用价值，但教学重点偏重专业英语的知识和能力，仍是语言技能类课程，专业知识涉及较少，不利于构建学生的专业知识体系。

商务方向是我国英语专业教学改革和发展的主要专业方向，社会对商务方向的英语人才需求较多，商务英语类专业的课程建设和教材建设成为关注焦点。市场调查表明：目前市场上可供选择的商务类英语专业教材种类不多，很多课程没有合适的教材。虽然，近年来国内许多出版社引进了诸多工商管理类教材，但是大多数引进的原版专业教材多为工商管理专业用书，部头较大，不适合第二语言学习者学习。

教材建设是丰富应用英语课程，培养具有应用能力的“复合型”英语人才的关键。为解决商务英语课程建设中的教材问题，丰富教材种类，调节教材难度，人民邮电出版社从美国高校商务类课程中精选了一套经典教材，并根据难度和教学需要摘编组合，出版了适合我国专业双语教学的教材。

本系列教材主要有以下几个特点：（1）教材种类丰富。本系列教材首批推出7本商务知识双语教材，组成“英语专业工商管理双语教学教材系列”，包括《管理》（Jeff Madura 著）、《运营管理与创新》（David Needle 著）、《市场营销》（Louis Boone & David Kurtz 著）、《会计与财务管理》（Jeff Madura 著）、《人力资源管理》（Jeff Madura 著）、《商业伦理与社会责任》（Jeff Madura 著）以及《创办新企业》（Jeff Madura 著），国内同类题材教材较少。（2）版本较新。本系列教材选摘自国外最新教材，内容涵盖了相应学科的最新理念和最新的真实案例。（3）内容规范、简洁，语言难易得当，适合双语教学。本系列教材简要地概述了各职能领域最重要的基本概念、基本原理和主要理论，在每本书后加入了这门学科的相关重要术语，并对术语的词头进行了中文释义。

对于商务英语类专业的双语教学来说，该系列丛书内容详略得当，语言准确流畅，是一套值得信赖的英语专业工商管理双语教学的系列教材。希望此系列教材能够丰富商务英语类专业的课程设置，满足广大师生的需求，同时也希望我国商务英语教育蓬勃发展！

英语专业工商管理双语教学教材系列

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Part 1

Operations

Learning objectives **At the end of this chapter you should be able to:**

- Identify the key objectives of operations and their contribution to competitive advantage and explain the conflicting nature of those objectives.
- Explain the difference between the operations function in a manufacturing and service organization.
- Define operations as a system and as a transformational process.
- Identify and explain the key actitivities of operations management and assess their contribution to organizational effectiveness.
- Articulate the problems and issues involved in planning and control.
- Assess the different approaches to quality control.
- Explain supply chain management and just-in-time.
- Explain the link between technology, the design of operations systems and the impact of jobs.
- Explain the impact of operations on the size and structure of the organization.
- Identify and assess key operations strategies.

Introduction

The operations function is concerned with the creation of the goods and services offered to consumers. We often associate operations with manufacturing industry but we can also see an operations function in department stores, restaurants, banks, local government, schools and hospitals, in fact in all kinds of organization.

We begin by examining the central role played by operations in all types of organization and examine two specific aspects of that role: the design of operations systems and how those systems work. We deal with the important function of purchasing within the broader context of supply chain management. The operations function is sometimes portrayed as the function that is most isolated from the environment in which it operates. We refute that idea and examine the relationship of operations with its environment by looking at the influences of a changing economy and government policy towards the manufacturing industry, factors pertaining to the labour force, the impact of technological

developments and cultural differences in the way societies view and organize operations. A particular reference will be made to Japanese manufacturing industry. Our analysis of organizational aspects also explores cultural differences and their interaction with the other variables of the Business in Context model, especially the role of organization size and structure. We close the part by exploring strategic aspects of operations.

A central function

The operations function has a central role in most types of organization. According to some estimates it accounts for some 70–80 per cent of a firm's assets, expenditure and people (Hill, 1991). In addition, it is central to the firm's success by providing what the customer requires either at a profit in a private company, or within budget in a non-profit organization. It is, therefore, concerned with issues that are crucial to the consumer. These are issues of quantity, quality, availability and price. It is also concerned with issues that are crucial to the management of an enterprise. These are issues of productivity and cost.

The growth of the non-manufacturing sector has encouraged our rethinking of the operations concept. We can see clearly that significant operations issues exist in managing an airport as busy as Heathrow. Planes must take off and land safely and on time. In order for this to occur, key operations must be coordinated, including air traffic control, ground crews, baggage-handling, passport control and customs, aircraft cleaning, refuelling and catering. In busy regional hospitals surgical operations must be carefully timed and scheduled, patients transferred to and from wards, equipment prepared and the various support systems, from nursing to catering, properly briefed. Techniques originally developed in manufacturing are now commonplace in non-manufacturing contexts, and senior staff in these organizations assume the role of coordinating operations.

Key concept 1.1 Operations

Operations is concerned with the transformation of a variety of inputs such as information, people, materials, finance and methods into a variety of outputs such as goods, services, profit, customer and employee satisfaction. Traditionally associated with manufacturing production, it is now generally recognized that operations is a key function in all organizations, irrespective of their primary objective. The centrality of the function means that operations has a significant influence on costs and revenue as well as organization structure.

In the past 30 years, operations management has enjoyed renewed attention. A number of factors are responsible for this, including:

- Increased concerns for improved efficiency and effectiveness in operations management have stemmed from the two oil crises of the 1970s and the associated rises in the cost of fuel and raw materials.
- The rising cost of labour.
- The rapidly developing globalization of business has created interest in the development of systems to coordinate operations across the globe. It is now commonplace for manufacturing firms to make products

comprising of parts from around the world, or even locate labour-intensive operations in low-cost countries. The development of the operating systems to enable this to happen has itself contributed to the accelerating pace of globalization.

- This coordination has led to the exchange of ideas and techniques. The success of Japan as a manufacturing nation has led many firms in the West to adopt methods of JIT manufacture, a concept originally developed in Japan. Such developments have elevated operations management to a key role in many organizations and the primary source of competitive advantage.

Competitive advantage through operations is derived from the key objectives of the operations system. It is generally acknowledged (for example, Slack *et al.*, 2000) that these are:

- quality
- dependability
- speed
- flexibility
- cost efficiency and effectiveness.

These objectives recur in our discussions throughout this part and a more detailed discussion of their role in operations strategy can be found in the final section.

Key concept 1.2 Key objectives of operations management

Key objectives are acknowledged by many to be quality, dependability, speed, flexibility, cost efficiency and effectiveness. Focus on these issues will result in competitive advantage. It has been suggested that real competitive advantage will come from a primary focus on quality, followed by dependability, speed, flexibility and finally cost. The belief is that attention to the other factors will lead to both a reduction in cost and a customer who is willing to pay more for a high-quality, reliable product. In reality operations strategies vary in the way these items are mixed.

Despite the application of similar techniques, to manufacturing and non-manufacturing firms alike, some differences can be found. We examine these briefly before looking at the various elements that make up the operations function.

Some differences between manufacturing and non-manufacturing industries

Both these sectors are concerned with the production of goods and services, but differences do exist between different types of organization operating in the same sector. A volume car manufacturer, like Toyota, has little in common with a small business making hand-crafted furniture, yet both are lumped together as manufacturing concerns. By the same token, an organization like Barclays Bank would be classed together with a small hairdressing business, as non-manufacturing concerns. We can see that the differences within each of these sectors can be as significant as those existing between them. When we examine the organizational aspects of operations later in this part, we make an attempt to classify different types of operation system in each sector. At this stage,

however, it is worth pointing to the major differences between manufacturing and non-manufacturing:

- Manufactured goods tend to be more tangible, storable and transportable.
- In a non-manufacturing concern the customer is generally more of an active participant in the process. This is especially true in education and hospitals and those organizations offering a personal service, such as hairdressers, solicitors, financial advisors, and counsellors. The interaction of the customer means that the process is often less predictable, and operation systems correspondingly more complex.
- Unpredictability means that operations are more difficult to control in the non-manufacturing sector. The degree of contact with the customer can affect the efficiency of the operation. For example, doctors may not be able to plan their work as effectively as they would like owing to the variability in the consulting needs of patients. Productivity therefore becomes more difficult to measure and quality becomes much more a matter of subjective assessment.
- The quality of a service tends to be assessed on the basis of not only output but also the way it is delivered. Aspects of delivery can be important for perceptions of quality in manufactured goods, but less so than for services.

We examine the implications of these differences when we look at the various elements of the operations process in the next two sections.

Identifying the operations function

We have seen that an operations system exists to provide goods and services, which it does by transforming inputs into different kinds of output. We can view this as a system comprising inputs, process and outputs, which we illustrate in Figure 1.1.

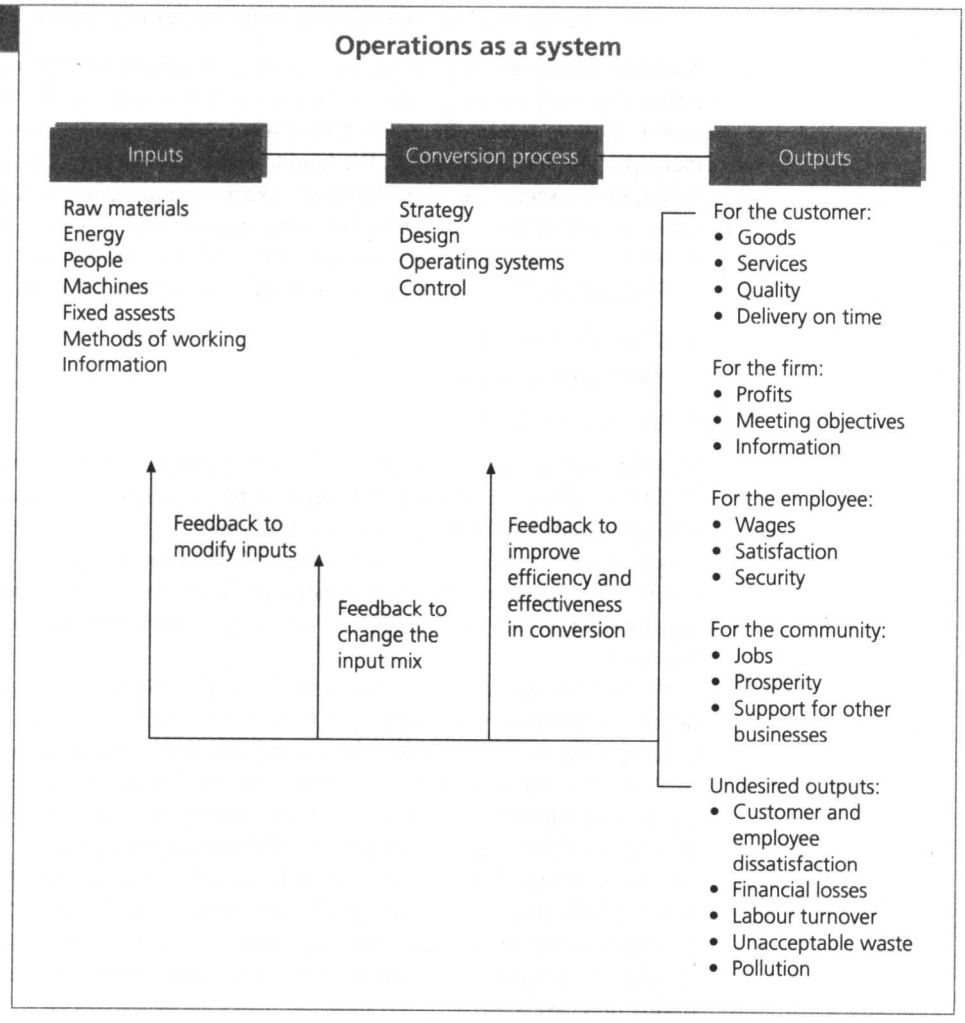
We can see clearly from Figure 1.1 that the operations function transforms the various resource inputs into the required goods and services. Three aspects of the model need further explanation:

- Not all the outputs of the system are necessarily desired outcomes. Waste, in the form of either substandard products or unused raw materials, can be a costly item in manufacturing, while in the form of polluting chemicals it can constitute an environmental hazard. Customer dissatisfaction can be an unintended output. The consequence of diners at a restaurant receiving bad service may well mean they decide never to return.
- The concept of environmental pollution introduces the notion that outputs of one system are invariably inputs to other systems. The manufactured outputs of a car components factory are clearly inputs to other firms. The increasing use of systems of global sourcing and global sub-contracting by manufacturers had led to new developments in operations strategies and placed increasing emphasis on supply chain management. Wages paid to workers will invariably be passed on to shops and supermarkets and also to such as building societies, in the form of mortgage payments, which are then used to fund further investments.

- Outputs may also be considered as inputs to the same system. In this way, information gained during the production process can be used to improve the operation of the system, such as changing the supplier to improve the quality of parts and reduce the number of rejects. A large number of dissatisfied customers at a restaurant or a hairdressing salon is an indication that some element of the process needs attention. This is known as feedback. Another type of relationship can be built up between output and input when materials are recycled. In the manufacture of float glass at the Pilkington plant in St Helens, the smoothing of edges, the cutting of glass to size, and the generally fragile nature of the product mean that there are always quantities of broken glass. While measures are taken to keep this waste to an acceptable minimum, it is broken up to form 'cullet', a vital raw material in glass production.

We can see from the systems model that production is a transformation process resulting in the creation of goods and services. This provides us with a means of classifying different

Figure 1.1



types of production system. Wild has identified four types, each based predominantly on a different kind of transformation (Wild, 1985):

- A transformation in the form of raw materials or components is typified by manufacturing firms but also by such as builders and landscape gardeners.
- A change in the nature of ownership is primarily the concern of suppliers, wholesalers and retailers.
- A change of place is the focus for transport systems such as airlines and road hauliers, postal services and courier firms.
- Service industries, in particular, aim to transform the state of the customer. For example, insurance firms aim to make people feel more secure, building societies lend money for people to improve the quality of their lives and make investments for the future, while osteopaths aim to improve the physical well-being of their patients. However, the attraction of some manufactured goods is that they also induce a change of state. The sales campaigns of certain quality cars or designer clothes stress image and the increased desirability of the owner to members of their peer group.

Many organizations operate all four types of transformation process. A typical manufacturing firm will not only make goods but will sell and transport them direct to the consumer or to an intermediary, such as a wholesaler or retailer, and, in some cases, aim to make the purchaser feel good. We tend to think of restaurants as operating predominantly in the service sector, yet all restaurants have a manufacturing operation that transforms raw material foodstuffs into dishes for consumption. Retailers are not just concerned with ownership change but are involved in place transformation too.

Slack *et al.* (2000) have identified three types of transformation:

- materials processing
- information processing
- customer processing.

Materials processing is similar to Wild's first category, however the second two offer us a slightly different perspective. Information processing occurs among such as accountants, librarians and people engaged in the telecommunications industry. Customer processing covers at least two of Wild's categories and can involve physical processing, in the case of hospitals or hairdressers, accommodating or feeding them, in the case of hotels, transporting them, in the case of airlines, or changing their psychological state by making them feel good.

A systems view of operations identifies the relationship between inputs, processes and outputs. Additionally, viewing operations as a transformation process recognizes that value is added to the various systems inputs, beyond their original cost.

A good illustration of the interrelated nature of both operations systems and the various types of transformation processes can be found in the retail chain Marks & Spencer, whose primary product ranges are clothes and food and drink. Marks & Spencer, one of the most successful retail chains in Britain with branches worldwide, has vigorously pursued a policy of offering high-quality products at an acceptable price to a mass market. It relies on a high turnover of goods. An important output is, therefore, a high level of customer satisfaction with both the product and the service. Three kinds of feedback are important to this process:

- First, there is the customer's willingness to make return visits to the store.
- Second, there is the careful research of customer needs.
- Finally, there is the shop policy of accepting returned goods, which may then be repackaged and resold.

The pursuit of quality is reflected in store layout and staff selection and training but, most significantly, in the choice of suppliers. Marks & Spencer expects a high level of quality in the goods it buys to sell on. In the 1980s this had a remarkable effect on the British textile industry. For many years the company policy was to buy British. The result was that 90 per cent of Marks & Spencer stock was British, and the company took 20 per cent of the total British output of textiles. The demands for quality standards, good design and reliable delivery led to improvements in the textile industry itself and enabled it to increase its competitiveness on a world scale, especially through the introduction of new technology. By the mid-1990s the policy had changed. A strong pound and the rising cost of British goods forced the company to diversify its sources and less than 50 per cent were bought from UK suppliers. In the clothing area many of its product lines were sourced from lower-cost suppliers in other countries, with a corresponding impact on the UK textile industry. The decision of Marks & Spencer in late 1999 not to renew the contract of its main UK supplier for underwear placed around 4000 jobs at risk in the supply industry. Many other UK-based textile firms had closed operations to manufacture in lower-cost labour markets. This was made possible by technological innovations, which enabled quality goods to be produced in most locations. The relationship between Marks & Spencer and its suppliers, not only in clothing but also in food and drink, becomes even more complex in that many of the products are sold under the store's own label yet manufactured by independent producers.

This is a good illustration of the complexity of inputs and outputs as well as demonstrating the fluidity of system boundaries and the involvement of Marks & Spencer in globalized manufacturing. However, its major concern, retailing, is a good illustration of transformations taking place in ownership, place, information and the state of the consumer.

Conflicting objectives and changing solutions

Any operations system is concerned with the production of a certain number and type of goods and services at a designated level of quality. Completion and delivery must be within certain time limits and within acceptable financial and social costs. The price charged must be acceptable to the consumer and must ensure sufficient quantity of sales to secure an acceptable ROI. The entire system should have sufficient flexibility to be able to adjust to changing demands.

Key concept 1.3 Potential conflicts in an operations system

In most operations systems, there is inevitable tension between the needs of management to construct an efficient operation and the needs of customers. The needs of the former tend to focus on costs, while those of the latter focus on design, quality, price and delivery. Many of the techniques in the design, scheduling and control functions aim to resolve such potential conflicts.