

What Really Matters In International Operations?

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Abstract

Despite having generated a growing body of literature the subject of international operations is only vaguely defined and lacks any common and accepted frameworks. The aim of this paper is to introduce some clarity into the arena by examining international operations from the perspective of the body of research, the content of some seminal texts, and the practical considerations of firms that have set up and are managing operations in foreign countries. Research output in International Operations is analysed using a model, the dimensions of which have been identified from the core literature and cases of industrial companies. The analysis highlights the range of problems and issues that have been of interest to the community involved in International Operations research and teaching.

Key words: International operations; research; teaching; models

Introduction

Within the wider context of operations management the subject of International Operations has gained recognition as a discipline for research and is becoming an increasingly popular topic in the curriculum of business schools. At the same time the business curriculum itself is being driven by an accreditation agenda that seeks evidence of internationalisation (Note 1). However, despite generating a growing body of literature the subject is, in contrast to its 'parent' discipline, only vaguely defined and lacking in common and accepted frameworks. A scan of the academic output shows that in practice it can range from single 'foreign' country cases to studies of operations management in multinational enterprises. It can relate to the operational issues and problems organisations face when starting-up and managing overseas operations. It can also involve the study of different approaches to designing and managing operations systems in different regions and countries. International operations even comes in different guises, with the terms international manufacturing, international production, global operations, global manufacturing etc. being used to describe what is essentially the same set of issues and problems.

The aim of this paper is to introduce some clarity into the arena by examining international operations from the perspective of the body of research, the content of teaching texts, and the practical considerations of firms that have set up and are managing operations in foreign countries.

Defining International Operations

Given the foregoing discussion it is not surprising that an agreed definition of international operations has yet to emerge. Flaherty (1996) in her book on "Global Operations Management" refers to "areas in which operations has its biggest impacts on global business performance". Dornier et al (1998) on the other hand, in their book on "Global Operations and Logistics", offer a more precise definition of *global operations*, i.e. "the process of planning, implementing and controlling the flow and point of origin to point of consumption for the purpose of satisfying global customer requirements while efficiently using the firm's global resources". Clearly these are quite different ideas. While Dornier et al take a holistic view and see the subject as embracing the internationalisation of companies and the operations management process Flaherty sees it as relating more to the international context of individual operations management problems and issues. Yet another view is taken by Babbar et al (2000) who, in studying the published research output in what they call "international operations management", simply refer to OM articles that are "international in scope" which they go on to specify as articles "with a country, regional or global focus".

This range of perspectives on the subject is reflected in the author's own approach to teaching international operations within general management and international business programmes. Here the course in International Operations is defined as having two broad objectives:

1. To examine why and how organisations engage in international manufacturing and service provision and to analyse the issues and problems faced when starting-up and managing overseas operations.
2. To provide an understanding of various approaches to designing and managing an operations system in different regions and countries.

This approach has been found to be useful because it enables the subject to be divided into two parts. In one part the strategic aspects of international operations can be examined including frameworks, network configurations, setting up international operations and the role of FDI. In the other a comparative and contextual approach can be taken in which operations management subjects are examined from an international standpoint using a country and industry focus where appropriate. However, it needs to be emphasised that treating the subject of International Operations in this way necessitates going well beyond what is contained in any currently available 'operations' text and requires the use of cognate international business texts with significant 'operations' or 'manufacturing' content (e.g. Hill, 2000; Czinkota et al, 2000).

International Operations is undoubtedly a diverse subject that warrants being studied from a number of different perspectives. However, the question still remains of what should be an appropriate balance and emphasis to reflect the actual problems of firms and how the body of research provides an influence on the way international operations is conceived. The remaining part of this paper therefore examines the origins of the subject through an

assessment of the key literature to provide a baseline from which to evaluate the relevant research. It explores the practical considerations of firms when taking their manufacturing and service operations abroad and relates these to the common types of arrangement used when internationalising businesses. It then analyses the content of a number of conference and workshop proceedings and positions them within a general model of international operations using four dimensions that have been identified as providing the broad thrust of the international operations literature.

Origins of the subject

International trade has been carried out for centuries and even international manufacturing has been an important part of many companies' activities for several decades. The antecedents of the subject we know today as "international operations" is probably found in some of the early literature by Skinner (1964). In this work, which extends from his own PhD research, Skinner offers useful insights into the special problems faced by "manufacturing managers abroad". It is based on his visits to 30 production plants of US subsidiaries in 7 countries and identifies three key issues: 1. Environmental adjustment (i.e. adjustment to the new cultural, economic and political environment); 2. Exporting know-how (i.e. the extent to which the company's technical and managerial expertise can, and should, be applied abroad); 3. Organizing the multinational manufacturing corporation (i.e. choosing between control and autonomy, handling communications and information, and determining the role of 'home-office' staff). From his analysis Skinner is able to offer deep insights into the complexities of managing international operations and presents the concept of four interacting systems within which the international production manager must function; the technical system; the political system; the economic system; the cultural system.

For many years Skinner's work remained one of the very few generic academic contributions to the subject of international operations, with his original contribution being supplemented by two other papers to comprise a section on "International Manufacturing" within his seminal work on manufacturing strategy (Skinner, 1978). During the 1980s there were a number of specific contributions in focused areas such as technology transfer, international sourcing and plant co-ordination but little additional material emerged of a generic nature. The edited works of Ferdows (1989) and Whybark & Vastag (1992) probably represent the next comprehensive publications in the area. The Ferdows text has thirteen chapters contributed by a number of academic authorities, mainly from the USA. An analysis of the content of this text reveals that the contributions are mainly concerned with international perspectives on operations management subjects such as product development, manufacturing flexibility and sourcing. Following this main emphasis the remaining chapters are concerned more or less equally with the internationalisation of firms, country and company/industry studies. Few of the chapters are concerned with more than one of these areas. Whybark and Vastag's edited text differs from that of Ferdows in that it is based around a single research initiative the "Global Manufacturing Practices Project". The text is also functionally focused as demonstrated by its sub-title "a worldwide survey of practices in production planning and control", being based on the use of a standard survey instrument that emphasises aspects such as forecasting, planning and scheduling, shop floor control and materials management. The wide international participation in this project enabled inputs to the text from a large number of countries. These include Korea, Australia, Chile, Mexico, Finland, Hungary, Bulgaria, the (former) Soviet Union, China, USA, and Japan. There is a

strong emphasis on country studies (within and between countries). Although Finland is the only individual Western European country in the survey there is, rather oddly, a database category in the survey referred-to as "Europe".

Emerging Research

Although the subject of international operations is only loosely defined and its origins are evidently diverse there does still appear to be an emerging body of work and associated research community when judged by its inclusion in conference schedules and proceedings of other professional meetings. In January 1990 the Aston Business School, under the auspices of the former UK Operations Management Association (EurOMA's predecessor association), hosted a one-day workshop on International Operations at which an audience of academics and industrialists heard presentations from practitioners, researchers and teachers who were working in the field. Participants (including Voss, Slack, Gregory etc.) then met in groups to discuss teaching provision, research issues and industry needs. The work at INSEAD, and US institutions (including Virginia) was reported and a research agenda set that was based around the current needs of industry.

This 'ground breaking' event was followed-up by the hosts of the 1992 UK Operations Management Association annual conference, UMIST in Manchester, who adopted the conference theme "International Operations: Crossing Borders in Manufacturing and Service". Since the creation of the European Operations Management Association in 1994 most of the annual conferences have had specific international streams or a strong international content. Two have emphasised "internationalisation" within the main theme of the conference: 1996 in London ("Manufacturing Strategy: Operations Strategy in a Global Context") and 2000 in Ghent ("Crossing Borders and Boundaries: The Changing Role of Operations"). In March 1998 the Aston Business School held a second one-day workshop on International Operations. This differed from the previous Aston event in that, following a plenary introduction from an industrial practitioner, it mainly comprised the presentation of ongoing and completed research by participants from a number of countries including Italy, Belgium, China, Japan and the Netherlands, as well as the UK. A selection of revised papers was subsequently published in a special issue of the International Journal of Operations and Production Management (Bennett, 1999).

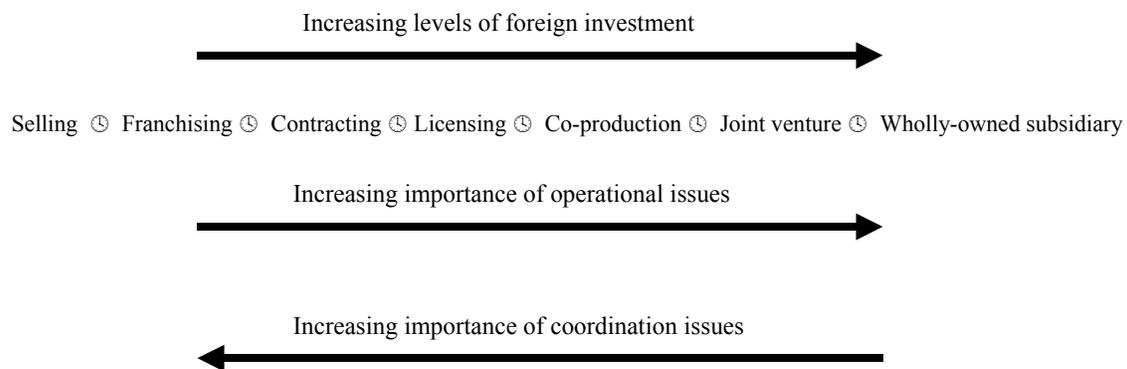
As well as the development of International Operations research within the general Operations Management community it is also important to mention the emerging work on "International Manufacturing" that has been promoted in parallel, since 1996, by the Institute for Manufacturing at the University of Cambridge. Starting from a small invited symposium there is a now an annual event and an associated network, IMNet (International Manufacturing Network). Although the focus of the network and its symposia is on "manufacturing" rather than "operations" there are obvious overlaps between the two communities and a number of common themes run across the proceedings of their events (e.g. technology transfer, location decisions, development of frameworks, etc.). Therefore it is appropriate to include this work within the overall analysis of research currently being undertaken.

Practical considerations

The author has carried out extensive case-based research over more than ten years into production management in joint ventures and wholly owned subsidiaries in Asia as well as studies into international technology transfer. Industries studied have included industrial machinery, consumer electronics, telecommunications, automotive and "high-tech" manufacture including aerospace and biotechnology. From this research the factors influencing the management of international operations can be identified. As well as the local infrastructure and cultural and legislative environment these include the extent and type of foreign direct investment, ownership forms, control strategies, technology profiles and sourcing arrangements.

A critical factor that will determine the importance of operational issues as businesses internationalise is the type of ownership arrangement. This in turn is related to the extent of foreign investment involved in the foreign operation and the relative importance of operational and coordination issues. Figure 1 illustrates these relationships.

Figure 1 Relative importance of operational and coordination issues with different ownership arrangements



From this figure it can be seen that the ownership arrangement can range from a straightforward selling situation (i.e. no ownership involved) to a wholly-owned subsidiary (complete ownership of the foreign operation). Along the scale are various other ownership forms such as franchising, contracting, licensing, co-production, and joint ventures. Generally, as the extent of ownership increases so does the importance of operational issues (e.g. decisions concerning types of product design, local sourcing, equipment investments, materials management, training requirements etc.). As the extent of ownership decreases the importance of operational issues becomes less since many of the decisions are devolved to a third party (a franchisee, licensee or joint venture partner). However, at the same time, coordination issues will become more important since individual foreign operations will be part of a network rather than a sub-unit within an integrated whole. The various approaches to the study of international operations as a subject therefore all have validity, but their relevance in practice is dependent on the type of international business activity under consideration. In the next section the research output presented a number of conferences and other meetings will be analysed against a four dimensional model to identify the broad direction of research activity and discover how it relates to the practical issues just identified and the literature discussed earlier.

Analysis of research output

To investigate the developing research base in International Operations the author has undertaken a rough analysis of the content of a number of relevant conference proceedings and other research publications that specifically address the subject of international operations. The analysis was undertaken on the 1992 UK-OMA proceedings and all the EurOMA conference proceedings since 1996. It was also undertaken on the papers presented at the 1998 EurOMA International Operations workshop and two recent International Manufacturing symposia organised by Cambridge University. Additionally, the edited texts of Ferdows (1989) and Whybark & Vastag (1992) were analysed for comparison. In the case of publications where International Operations was not the main theme only those papers that fitted the previously identified 'international' criteria were included in the analysis.

Each paper was allocated into a category according to four dimensions:

1. Internationalisation of companies (whether the paper was concerned with wider aspects of international operations, i.e. involved network and coordination issues).
2. International context of OM (whether the paper was concerned with operational issues, i.e. specific problems of operations management such as product design, supply chain management, production planning etc.).
3. Country studies and comparisons (whether for its empirical evidence the paper was concerned with one or more countries or regions).
4. Company and industry cases (whether for its empirical evidence the paper used individual cases of companies or industries).

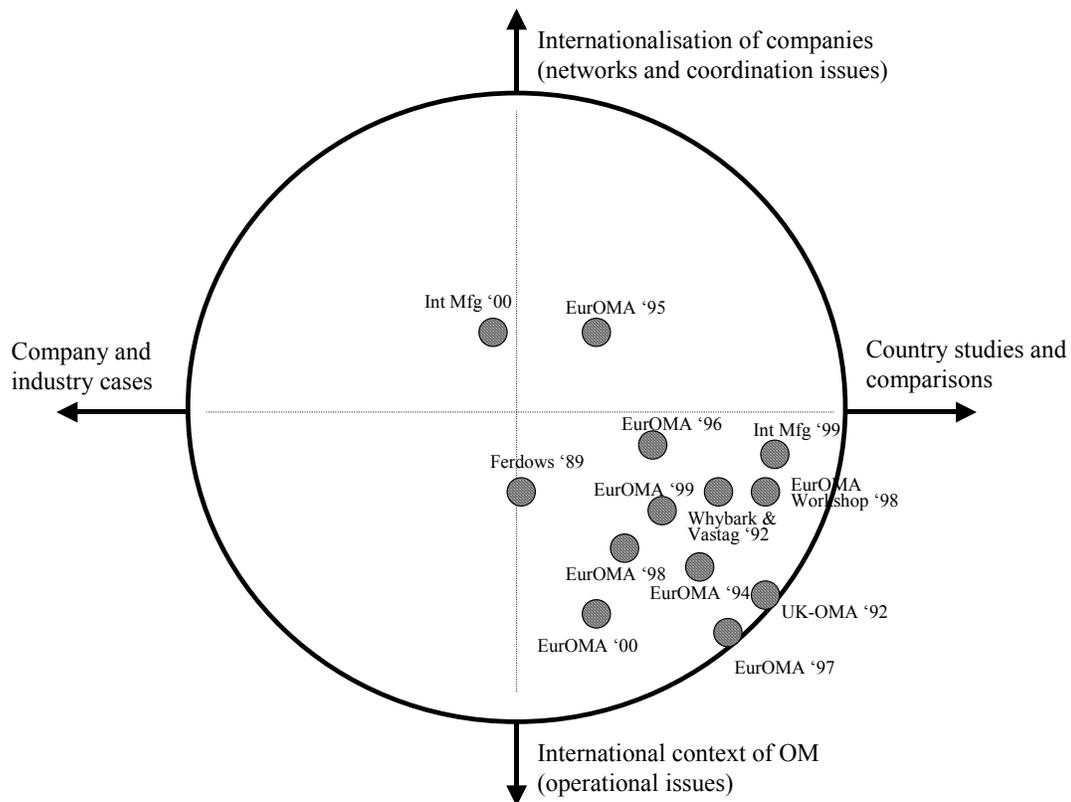
To avoid distortion by including minor issues the papers were only allocated in up to two categories depending on their main content according to the title and abstract. Figure 2 shows the results of the analysis.

This figure shows the general thrust of each publication or event according to the weight attached to each of the criteria. The position assumed on the diagram is determined by the relative balance of content in all the international operations related papers in each publication. It does not reflect the actual number of papers allocated into each category so should not be taken to indicate the overall extent of coverage along each dimension.

It is immediately evident that the picture is very mixed, although the overall balance is towards country studies and comparisons and the international context of OM. Most EurOMA conferences and Whybark and Vastag's 1992 edited text fall into this area of the diagram. It is also clear that there has not been a general trend in terms of direction of the balance of International Operations papers presented at EurOMA conferences. At one extreme is EurOMA '95 (Twente) at which the main theme was "Management and New Production Systems" and the balance was towards the internationalisation of companies. At the other extreme is UK-OMA '92 (Manchester) at which the theme was "Crossing Borders in Manufacturing and Service" and EurOMA '97 (Barcelona) at which the theme was "Lessons

from the Manufacturing and Service Sectors". At both these events the balance was towards the international context of OM and slightly more towards country studies and comparisons than at other EurOMA conferences. One event, Int Mfg '00 (the 2000 International Manufacturing symposium at Cambridge), stands out by having its balance towards company and industry cases rather than country studies as well as being biased towards the internationalisation of companies rather than the international context of OM. In fact only one other analysed publication, Ferdows' 1989 edited text, approaches the same balance towards company industry cases, although its other emphasis is more towards the international context of OM.

Figure 2 Analysis of research output in international operations



Discussion and Summary

The analysis presented using the above model is a useful means of identifying the balance of International Operations papers presented at conferences and other research meetings as well as chapters within edited texts. When presented in this way, however, the results must be treated with care. It has already been mentioned that the analysis does not take account of the actual volume of output within each category. The impact of the work also needs to be taken into consideration when addressing the question of what really matters in international operations. For example, papers relating to networks and co-ordination issues and whole industries rather than individual companies are, in general, likely to have a greater impact than those dealing with specific OM issues or single counties. For example the number of citations of Ferdows' HBR paper on foreign factory configurations (Ferdows, 1997) demonstrates how widespread this impact can be. By comparison it is unlikely that the impact of more specific contextual papers will be as great.

The utility of the model needs to be tested by widening its application beyond the analysis of groups of papers and applying it to the content of individual pieces of output. In this way the extent of coverage of each dimension can be included in the analysis, while inclusion of citations will additionally enable impact to be incorporated into the assessment.

In summary, this paper has attempted to define the subject of International Operations based on a review of its origins and an evaluation of the types of issues that need to be addressed by companies when they internationalise their manufacturing and service activities. Based on this background material a model has been proposed and used to analyse research output presented in conference proceedings and other publications at an aggregate level. Although the prevailing weight of research is towards the international context of OM and country studies and comparisons there have been exceptions demonstrated at both EurOMA and International Manufacturing events. More detailed investigations are needed to identify any stronger patterns based on the analysis of a larger sample of individual research outputs and citations. At the same time further work also needs to be done to refine the model in order that the analyses can be carried out at a finer level of detail.

Notes and References:

Note 1. The EQUIS quality standards approved by the EFMD (European Foundation for Management Development) on 6 October 1998 specify that for accreditation schools should demonstrate evidence of "An international perspective in all the main functional areas".

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