Managing the fit between the views of competitive strategy and the strategic role of service operations

Bob Lillis*, Mike Sweeney

Cranfield School of Management, Cranfield University, Cranfield MK43 0AL, United Kingdom

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Market-based; Resource-based; Strategic role; Strategic fit; Service operations

**Summary** Previous research has verified the positive impact that internal strategic fit can have on business performance. However, many service organizations experience the difficulty of managing the fit between competitive and operations' strategies. Inherent within the problem has been insufficient understanding of the substantive relationships between the dimensions of competitive and operations' strategies. The purpose of this service-based business research was to investigate the characteristics of the competitive and operations' strategies of a business in order to assess the degree of fit. Strategic profiling was used as the method to investigate the characteristics of the different relationships between competitive and operations' strategies in 21 service businesses. The research results in the identification of a diverse range of organizational relationships developed by the adoption of different approaches to competitive strategy formulation and their consequences upon the strategic role of operations. The findings should be of particular interest to both strategic and operations managers as they detail a means of assessing the perceived level of strategic fit between the current competitive and operations' strategies of a business. Such an assessment can facilitate the planning of interventions for its future improvement.

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**Introduction**

There is a consensus, in both strategic management and operations strategy literature, that organizations should strive for consistency between their competitive strategy and their operational capabilities (Brown & Blackmon, 2005; Swink, Narasimhan, & Kim, 2005; Venkatraman & Prescott, 1990). This interrelationship is defined as a matching fit between two related variables (Venkatraman, 1989), or more precisely, the internal strategic fit of an organization (Hill & Brown, 2007). Its attainment and sustainment are claimed to augment both business competitiveness (Ketokivi & Schroeder, 2004; Smith & Reece, 1999) and customer service performance (Hill & Cuthbertson, 2011). However, although this business management paradigm has been widely disseminated, there is a lack of precise guidelines on how this business phenomenon can be measured and improved. The major impediment to the development of such guidelines has been an insufficient understanding of the substantive relationships between the dimensions of competitive and operations' strategies...
(Swink & Hegarty, 1998), Skinner (1996, p. 12) considered this lack of linkage to be "...the first and most serious problem...and the main weakness in MCS" (MCS stands for manufacturing in the corporate strategy). The need for such a linkage has also been recognized in the literature on the strategic management of service businesses (Kindström, 2010). What has underlined the need to close this knowledge gap has been the continued development of new theories and probing on strategic management practice, for example, the advancement by some researchers of resource-based sequencing (Grahovac & Miller, 2009; Pettus, 2001).

Consequently, to measure and manage internal strategic fit requires both an analysis of the competitive behaviour of a business and an audit of the fundamental proficiencies of its operations. The approach adopted in previous research (see, e.g., Hill & Brown, 2007) has been to use the competitive criteria or the stated competitive priorities of a strategic business unit (Peng, Schroeder, & Shah, 2011) as the "ways" in which an organization plans to compete. Such competitive priorities or criteria would typically include cost, quality and delivery.

The problem with using the competitive priorities of an organization is that they are too conceptually aggregated to clearly direct the proper uses of operations' resources. As Swink and Hegarty (1998, p. 375) have suggested, "each of the priorities is multi-faceted and complex, making its interpretation very much dependent on the biases of the researcher, strategy-maker, etc." Thus, more precise, disaggregated versions of what competitive capabilities constitute are needed to direct operations planning and decision-making for improved internal strategic fit. For this reason, the research question for this study was how can a more analytical examination of the internal strategic fit of a business be performed to identify the type of internal strategic fit relationship forged within it and the degree of consistency between its competitive and operations strategies.

In an attempt to resolve this analytical problem, it was decided to use "observable elements" of strategic management practice as the means for examining both the competitive behaviour of a business and the strategic management of its operations. The aim of the study was, therefore, to investigate, using identifiable observable elements, the range of potential relationships that could be forged between the choice of perspective to competitive strategy taken by a business and the strategic role of its operations. Such an analysis has not been previously carried out. Armed with this information, the nature of the current internal strategic fit relationship of a business could then be plotted on a positioning matrix to facilitate the planning of strategic management actions required to improve its alignment. Such a positioning matrix has not been previously developed and thus we consider that the development of such a strategic management tool to be the contribution of this research.

The next section of the article consists of a review of the theoretical background to this study. The first management practice analysed is the variety of perspectives of competitive strategy that are recommended to be taken when formulating a business strategy. This is followed by a discussion of a theoretical framework that links the different strategic roles that an operations function of a business can perform with their potential competitive impact. The section on the theoretical background concludes with a review of previous attempts made to verify the strategic roles fulfilled by the operations function, in practice. The research methodology is detailed in the next section of the article and this is followed by a report on the study findings and their implications. The final section of the article consists of a discussion of the contribution of our exploratory research, the limitations of our research design and suggestions for further research.

Theoretical background

Views of competitive strategy: The environment – market based view and critique

During the 1990s many strategic management theorists proposed a new emphasis for the achievement of competitive advantage (Barney, 1991; Peteraf, 1993; Prahalad & Hamel, 1990; Teece, Pisano, & Shuen, 1997), bringing fresh insights into the formulation of strategy (Acedo, Barroso, & Galan, 2006; Bowman & Ambrosini, 2003). This alternative view consists of a move from an environmental and market-based perspective to one that uses a resource-based, dynamic capability and knowledge management approach to increasing competitiveness. The logic of the environment-market based perspective to business strategy formulation is grounded on understanding what is happening in the environment and then using the analysis to determine the strategic options open to the business given the current external opportunities and threats (Porter, 1979, 1980, 1991, 1996). External factors such as societal influences, environmental uncertainty and environmental dynamism (Ward & Duray, 2000), together with industry opportunities and threats provide external limits to the competitive strategy the firm may successfully adopt (Porter, 1996). This environment-market based approach encompasses not only the Porterian view but also the entry deterrence approach (Shapiro, 1989) which is based on game theory. Keeping rivals off balance, aggressive pricing strategies, and the strategic signaling of information (Potter, 1979, 1980) are all indicators of the environment-market perspective. This basic form of integration between external and internal factors has been probed and criticized (see, e.g., Barney, 1991) with questioning centred on whether competitive advantage can be created by merely evaluating environmental opportunities and threats and then forming a strategy for competing in high opportunity, minimum threat market environments (Barney, 1995).

The resource-based view and critique

Advocates of an internal focus to strategy formulation have suggested that the achievement of competitive advantage lies in looking inside the firm for valuable, rare, imperfectly imitable and imperfectly substitutable resources (the 'VRIN' criteria; Barney, 1991) and then exploiting these resources to the hilt (Amit & Schoemaker, 1993). This resource-based view has been criticized for being static (Eisenhardt & Martin, 2000) through its failure to address the influence of market dynamism and the reality of how a firm actually evolves (Wang & Ahmed, 2007). It is also criticized for its
inaability to explain the means by which resources are transformed to provide competitive advantage (Priem & Butler, 2001) and, in particular, for lacking ‘analytical precision’ (Foss & Knudsen, 2003, p. 298).

Partly in response to these criticisms, the dynamic capabilities (Teece, Pisano, & Shuen, 1990, 1992) or change capabilities approach (Zahra, Sapienza, & Davidsson, 2006) has evolved in the literature. The dynamic capabilities argument has also been probed. Eisenhardt and Martin (2000) and Zahra et al. (2006) advocated that dynamic capabilities are necessary, but not a sufficient condition for competitive advantage. They contended that it is less how a firm manages the change agenda (its dynamic capabilities) but more about the firm’s ability to nurture and integrate the re-configured resources into new competencies that are of value in the external environment and market-place at some future point. These ideas begin to form an overlap with the field of knowledge management. Indeed, articles examining the interplay between the dynamic capabilities concept and knowledge management have begun to appear (see, e.g., Easterby-Smith & Prieto, 2008; Nielsen, 2006).

**Blending the views of competitive strategy**

There is an apparent problem with the adoption of purely a resource-based approach. The resource-based view implies that managers need to identify in advance which resources or capabilities, if any, will become valuable to providing a competitive advantage. They contended that it is less how a firm manages the change agenda (its dynamic capabilities) but more about the firm’s ability to nurture and integrate the re-configured resources into new competencies that are of value in the external environment and market-place at some future point. These ideas begin to form an overlap with the field of knowledge management. Indeed, articles examining the interplay between the dynamic capabilities concept and knowledge management have begun to appear (see, e.g., Easterby-Smith & Prieto, 2008; Nielsen, 2006).

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Other approaches to competitive strategy

These two views of competitive strategy do not entirely determine how a business strategy is developed in all organizations. In some organizations, strategy formulation cannot be solely attributed to strategic planning (Mintzberg & Waters, 1985) and strategies emerge as a consequence of unintended strategic management actions (Grant, 2003; Mitchell, Shepherd, & Sharfman, 2011). Indeed, Porter (1996, p. 4) has asserted that some companies mistake operational effectiveness for strategy stating that, “the quest for productivity, quality and speed has spawned a remarkable number of management tools [and] almost imperceptibly, management tools have taken the place of strategy”. In the same article, he contends that, “few companies have competed successfully on the basis of operational effectiveness over an extended period, and staying ahead of rivals gets harder every day; the most obvious reason for that is the rapid diffusion of best practices” (p. 6).

Consequently, a strategy delivered through operational capabilities requires either the performance of different activities from those of rivals, or the performance of similar activities but in different ways. Whatever approach to strategic management is practised, if business strategy development does not keep pace with the speed of environmental change, there is a risk that ‘strategic drift’ can result (Paquin & Kopylay, 2007, p. 34). As Levinthal (2006, p. 392) explains, “if there is not a common reservoir of production techniques and the capabilities of individual firms themselves are not codified, then there exists the possibility of unintentional drift in firm capabilities”.

Irrespective of the choice of view taken, the adoption of different views of competitive strategy will necessitate the fulfilment of different strategic roles by the operations function. Two theoretical frameworks (Chase & Hayes, 1991; Hayes & Wheelwright, 1984) have been proposed that define the range of the strategic roles that operations can fulfil and their impact on the competitiveness of a business. The characteristics of these theoretical strategic roles of operations are discussed in more detail in the next part of this section of the paper.

**The role and strategic contribution of the operations function**

Johnston (1999) provided evidence of a shift away from the more internally focused efficiency view of operations management towards a growing strategic trend in operations, which has continued (Heineke & Davis, 2007). He believed that authors such as Skinner (1969) and others like Hayes and Wheelwright (1984) and Hill (1986) recognised this move early by questioning the traditionally reactive role of operations. Hayes and Wheelwright (1984) developed a
model that classified the role that an operations function can perform as one of three types; it can perform as one that is either neutral or supportive of business strategy or one that drives the business strategy. The proposition is that the development of this strategic capability is achieved by the systematic progression, from one type of major role to the next, along a continuum of operations capabilities development. This model was the forerunner to one of similar design and purpose proposed by Chase and Hayes (1991) for strategic service operations management. A framework that is a combination of these two models (adapted from Slack, Chambers, & Johnston, 2010) is shown in Figure 1.

Figure 1 shows the conceptual framework that underlies this exploratory research. It has been assumed, for the purpose of this research, that the types of strategic impact detailed in Figure 1 are a consequence of the implementation of a range of different competitive strategies.

**Shortcomings in the empirical testing of the four-stage model**

Although the four-stage model of the strategic roles of operations has attained classic status (Sower, Motwani, & Savoie, 1997), has remained the foundation for many strategic operations studies (see, e.g., Boyer, 1998; Swamidass, Darlow, & Baines, 2001) and continues to inform manufacturing related studies (see, e.g., Hallgren & Olhager, 2006), there have been few subsequent attempts to test its practical utility as a strategic operations management tool (Barnes & Rowbotham, 2004; Lillis & Lane, 2007).

Hum and Leow (1996) sought to operationalize the four-stage model as a manufacturing audit tool. Their main finding from their survey questionnaire was that their sample of companies, as a whole, had developed the strategic role of their operations to between stages 2 and 3 on the four-stage model. It is unclear from their publication how this aggregated classification of the strategic roles of the 55 collaborating firms was carried out. Hum (2000) followed up this study by attempting to apply the four-stage model to a service firm. However, the research methodology employed consisted of electing to interview the managing director of only one business.

The research aim of the study conducted by Barnes and Rowbotham (2004) was also to seek to operationalize the four-stage model of the strategic role of operations using the combined model we show as Figure 1. Their research methodology consisted of the statistical analysis of responses received from a large-scale postal survey. The respondents were required to give an ‘Agree’, ‘Disagree’ or ‘Uncertain’ response to 33 statements on the survey questionnaire. These statements were worded to discover whether or not an organization’s operations possess the feature of one of the four strategic roles proposed by Chase and Hayes (1991) and Hayes and Wheelwright (1984). They reported that the survey findings, ‘raise doubts about the utility of the model as a practical tool for operational analysis, at least as operationalized in this study’ (Barnes & Rowbotham, 2004, p. 714).

A number of conclusions can be drawn from the descriptions of the research methodologies previously employed and the research findings. First, a questionnaire has been the data collection instrument used in all the studies referenced previously. Second, weighted five or seven-point Likert scales were recommended as the preferred means of enabling questionnaire respondents more choices for their replies to the questions posed (Rowbotham & Barnes, 2004). The sources of the information used to phrase questions in the questionnaire were developed by reference to

![Figure 1](https://example.com/figure1.png)

**Figure 1** The four stages of development of the strategic role of operations.

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the original texts on the four-stage model of the strategic roles of operations (Chase & Hayes, 1991; Hayes & Wheelwright, 1984). To prompt a high response rate, the maximum number of questions asked in the questionnaire was limited. Third, the conclusions drawn from one study were that the validity of the four-stage model remains unproven and that further research on its operationalization is still needed.

Hayes and Wheelwright (1984) have previously highlighted the problem of assigning a specific role to an organization’s operation because it is composed of factors or key capabilities that are at different levels of development. An issue therefore of interest is whether the disaggregation of an operation into its key features or characteristics and assessing their individual development will enable a better assessment of its strategic role than the methods of attempting to do this in previous studies. Carrying out such a disaggregation and a subsequent assessment of the development of an operation’s key characteristics could constitute an important stage of an assessment of the level of internal strategic fit of a business.

The four-stage models from different views of competitive strategy

The change in emphasis from an environment-market to a resource-based view has had a profound effect on operations strategy and the strategic contribution that operations can make (Gagnon, 1999; Voss, 2005). The environment-market view compels operations managers to focus their decision-making on identified competitive priorities dictated by the market-place and the broader context of the external environment (Bitran & Lojo, 1991; Hill, 1997; Miller & Friesen, 1983). However, advocates of the resource-based view propose that the focus of these operational decisions should be on the nurturing, exploitation and renewal of the firm’s unique operational resources in order to achieve advantage (Hayes & Upton, 1998), even though knowledge of whether any advantage will accrue to the firm may well be uncertain when making those decisions because of the market disconnect (Bromiley & Fleming, 2000). Hence, the choice of a competitive strategy the business pursues, even if unplanned, will clearly influence the strategic role that operations must fulfill if a strategic fit with it is to be attained. To achieve internal strategic fit, a business must coordinate the strategic management of its competitiveness and its operations.

The ‘fit’ between competitive strategy and operations

The concept of ‘fit’ has its origins in the works of authors such as Penrose (1959), Chandler (1962), Lawrence and Lorsch (1967) and Thompson (1967) in which internal fit (between different units or functions of the organization) and external or environmental fit (between organizational structure, strategy and the external environment) were discerned (Miller, 1992). The concept of internal fit was at the core of Skinner’s influential work on operations strategy (Skinner, 1969). More recently, the notion of fit has become central to both the theoretical and empirical research in operations strategy (Peng et al., 2011; Smith & Reece, 1999) but they point to the concern expressed by Venkatraman (1989) on the “...lack of precise definition and operationalization of the fit variable” (Smith & Reece, 1999, p. 147) and “the challenge with testing fit...is to find the ideal profile” (Peng et al., 2011, p. 488). Efforts to address this in regard to the concept of fit had been made by Venkatraman and Prescott (1990) but its realization has remained problematic not least because of the emergence and development of various aspects of resource-based thinking in the strategic management literature (Brown & Blackmon, 2005; Sirmon & Hitt, 2009).

Summary of the theoretical background and research objectives

The review began with a critical appraisal of the alternative views to competitive strategy formulation. The environment-market approach is criticized for reliance by the firm on its existing configuration of resources and capabilities to achieve competitiveness and its reactive nature to short-term market changes. The resource-based, dynamic capability and knowledge management view is criticized for its dependence on nurturing new competencies and capabilities in advance of market requirements. It appears to demand a high level of imagination and foresight by managers, especially operations managers, something they are not normally trained for, proficient in or tasked with. The pursuit of a third view, that of operational effectiveness as a competitive strategy is also limited because of the reality of the rapid diffusion of new knowledge and best practices across competing organizations. Finally, strategic drift is seen as merely the result of not keeping pace with environment-market changes and therefore is not advocated as the basis for greater competitiveness.

As a consequence of these limitations within each individual approach to competitive strategy formulation, a blending of these views had been suggested as the means to mitigate the weaknesses while combining the strengths of each approach. However, further recent probing of strategic management practices by researchers has offered sequencing in preference to blending as the best way to understand the reality of how organizations seek to gain and sustain competitiveness.

Logically, sequencing must necessitate the adoption of different strategic roles by the firm’s operations function at different times. Thus, the four-stage models that theoretically define the range of strategic operations’ roles available were then appraised in our literature review. While receiving widespread acceptance, the roles devised by the models’ authors are purely conceptual (Barnes & Rowbotham, 2004; Sower et al., 1997). Our review indicated that the validity of the four-stage models remains unproven and further research on their operationalization is still needed. A significant limitation of this conceptual framework, for practical purposes, is that its axes units are undefined. It is evident from previous research that any attempt to operationalize the models should be based on Likert type questionnaires, the use of the original texts as sources of information to phrase the questions and the questions should be limited in number but sufficient to fulfill construct validity tests.
Furthermore, conducting a disaggregation and subsequent assessment of the overall development of an operation’s key characteristics could constitute an important stage in determining the level of internal fit of a business. In the strategic operations management literature, fit between the adoption of different views of competitive strategy formulation and the different strategic roles of operations is recognized as fundamental to increased competitiveness but also an elusive ideal. This is because there is a lack of understanding of the complete range of relationships that may exist in practice between the dimensions of both competitive and operations’ strategies (Swink & Hegarty, 1998) and the means of identifying where improvements to fit can be made. It is also clear that the emergence of the resource-based view has added to the difficulties inherent in the realization and operationalization of the concept of internal strategic fit.

Thus, our review reveals there is a need for a procedure that helps managers to understand their organizations’ current internal strategic fit. To perform such an analysis requires an assessment of two strategic business management variables; the first is the approach to competitiveness being pursued by the organization. The second is an assessment of the strategic role and contribution its operations are presently performing. A sustainable competitive advantage cannot be established without complementarity between the strategic intents of both the competitive and operations strategies of a business. In practice such an assessment would be made by judgement and intuition. If, however, the alignment of these two variables could be assessed and reported upon in a more transparent form, the resultant information could facilitate greater involvement and improvement in the sequencing of this strategic management goal. The article explores this issue using the following research questions as a guide:

1. Based on empirical evidence, what types of relationships exist between a particular view taken by the company to competitive strategy formulation and the strategic role being adopted by its operations?
2. How can this information about these relationships be used to formulate a plan for the improvement of internal strategic fit?

Our research is conducted within service businesses rather than the manufacturing sector; the latter having tended to dominate empirical research output in the field of operations management (Machuca, Gonzalez-Zamora, & Aguilar-Escobar, 2007).

Research methodology

Data collection: y-axis questionnaire

The approach we took was to create, then test and use a questionnaire designed to investigate the view of competitive strategy taken by the senior management of a business—the y-axis questionnaire. How the view of competitive strategy taken by a firm was to be deduced was through the ‘observable elements’ of its competitive behaviour. A respondent brief was sent, with the questionnaire, which delineated the observable elements of strategy implementation following the adoption of a market-based view of competitive strategy (the first construct) from those following the adoption of a resource-based view (the second construct) and how each of these elements of competitive behaviour can be measured. The sources or references used to define the observable elements of competitive strategy used for this purpose and their measurement are detailed in Appendices A and B.

The respondent was required to report the actions taken to counter those of the competition in its target market. The y-axis questionnaire used for this purpose is detailed on Appendix C. Target respondents were asked to rate each of the 15 statements on the questionnaire, each describing a specific type of observable element of strategy implementation, on a five-point scale, as detailed on Appendix C. Five-point Likert scales were incorporated within it to enable a respondent to indicate a measure of the action taken by the firm for each observable element. The decision concerning the degree of sophistication of questionnaire scaling was informed by the need for the respondents to be able to answer without follow up questioning. In order to assist scale validation and prevent distortion, questions were designed with an emphasis on interval scaling to minimise problems of possible bias as well as to be able to undertake differential analysis.

The target respondent for this survey was typically a Director of Customer Service or a Regional Operations Manager. A total of 78 y-axis questionnaires were sent to a broad range of service organizations. All of the recipients had previously attended an executive development programme run by a School of Management and were therefore known to the researchers. 31 completed y-axis questionnaires were returned (a response rate of approximately 40 per cent).

Data analysis: y-axis questionnaire

The analytical approach taken was to group observable elements into those indicative of the adoption of a specific approach to competitive strategy and followed that suggested by Forza (2002) as good practice. In adopting Forza’s recommendations, the problem of ensuring alignment between the theoretical constructs and empirical measures (i.e., construct validity) was overcome by using a combination of first, definitions that had already been developed by previous researchers whenever possible (as shown in Appendices A and B). Second, through discussion with academic colleagues and industrial informants during the piloting of the questionnaire; third, by formulating questions on a descriptive rather than predictive design (Oppenheim, 1992).

Four underlying categories were chosen as the characteristics of adopting either a market-based or resource-based view of competitive strategy (these are defined on Appendices A and B). For example, competitive positioning and behaviour was selected as a signal of the adoption of a market-based view (the first construct) and how each of these elements of competitive behaviour can be measured. The sources or references used to define the observable elements of competitive strategy used for this purpose and their measurement are detailed in Appendices A and B.

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forces or finding a protected position [whereby] the firm seeks to alter the balance and underlying causes of industry forces’ (p. 910).

Using such published research findings, the four underlying categories chosen to be indicative of the adoption of one or the other view of competitive strategy (the constructs) were as follows:


The use of a five-point scale for this purpose enabled a rough and ready measure of dispersion to be reported. Thus, the total range of answers given to the questions posed in the questionnaire provided an overview of the view of competitive strategy taken by a service firm beyond that of purely taking a market-based or a resource-based view. Hence, the cumulative sum of the numerical value of the answers given on the Likert scales in the questionnaire could be used to distinguish between a firm that had succumbed to ‘strategic drift’ (Paquin & Koplyay, 2007), or from one focusing on ‘operational effectiveness’ (Porter, 1996). How this was accomplished is explained later in this section of the article.

The responses to the statements made or the questions asked in the questionnaire were used to create a profile of the view of competitive strategy taken by the respondent’s firm. Figures 2 and 3 detail the theoretical profile of two service organizations, one that is purely adopting a market-based view of competitive strategy (Figure 2) and another that has adopted a purely resource-based view (Figure 3). The scales on the 15 spokes of a profile range from 1 to 5 with a rating of 5 positioned on the circumference of the circular diagram.

Figure 2 illustrates the assumed profile of an organization adopting a market-based view of competitive strategy. This shows greater emphases given to the adoption of policies linked with ‘competitive positioning and behaviour’ and ‘business performance’ (see references detailed on Appendix A) and a y-axis questionnaire points count total of 39.

Figure 3 illustrates the assumed profile of an organization adopting a resource-based view of competitive strategy. For this view of competitive strategy, greater emphases are given to policies linked with ‘skills acquisition and learning’ and developing ‘unique resources and capabilities’ (see references detailed on Appendix B) and this results in a y-axis questionnaire points count of 51.

The points reported on each completed y-axis questionnaire were totaled and a profile of the view of competitive strategy adopted by each firm was plotted. The interpretation of the profile of the view of competitive strategy taken by each of the businesses participating in this research was as follows; a questionnaire points count of between 15 to approximately 39 points (15 is the minimum total that could be gained) and a view of competitive profile without a discernible bias towards either of those shown in Figures 2 and 3, was considered to be seeking improved operational effectiveness to increase its competitiveness (Porter, 1996). A profile similar to that shown in Figure 2 and a questionnaire points count of between 39 to approximately 51 was considered to suggest that the company is adopting a predominately market-based view to competitive strategy. A questionnaire points count of between 51 and approximately 57, with a profile similar to that shown in Figure 3, was considered to be a company predominately adopting a resource-based view. If the points count is greater than 58, this suggests that an organization may be suffering from strategic drift. The production of such a profile should therefore trigger the need for a more detailed examination of its intended view of competitive strategy.

Data collection: x-axis questionnaire

The second stage of the study involved the profiling of the strategic role of the operations function of an organization (Chase & Hayes, 1991; Hayes & Wheelwright, 1984). The instrument used for this purpose was defined as the x-axis questionnaire. This questionnaire consisted of a combination of closed and open-ended questions which were designed to probe the operations policies and practices currently employed by each firm that collaborated with this research. The target respondents were the executives who had previously completed the y-axis questionnaire. 21 of the 31 executives who had done this agreed to be interviewed for the completion of the x-axis questionnaire (a response rate of approximately 68 per cent). The resultant x-axis questionnaire is detailed as Appendix E. A preliminary question was also added. It required the service operations executive to define the service operations of the company. This preliminary question was posed in order to ensure a consistency of interpretation of the definition of service operations (see Appendix E). The interpretation of this activity, for the purpose of this study, was as Hayes (1998) and Miller and Arnold (1998, p. 12) have previously defined it, which is that service operations equate to ‘business process management’.

Data analysis: x-axis questionnaire

The adoption of the combined model (Figure 1) rather than using the Hayes and Wheelwright (1984) or Chase and Hayes (1991) model alone helped achieve construct validity by clarifying possible ambiguous terminology or language used in one or other of the models. For example, the construct, ‘the strategic role of service operations’ was decomposed into three categories; ‘journeyman’ (externally neutral), ‘internally supportive’ (distinctive competence achieved) and ‘world class service delivery’ (externally supportive). The relationships between these three strategic roles of operations are detailed in Figure 1. We have chosen to use the term ‘internally supportive’ rather than the Chase and Hayes (1991) term ‘distinctive competence achieved’ for stage 3 of the development of the strategic role of operations. This is because this latter term tends to imply that the operations of a business may have developed a capability to drive a business strategy. Hayes and Wheelwright
Measurement of innovation and learning

Strategic grouping

Business performance

Skills acquisition and learning

Robustness of operations performance

Price a distinct strategic variable

Greater emphasis on cost and service

Generic processes operated

Internal recognition of unique capabilities

New technology scanning

Organisational learning

Employee tacit knowledge

Development of unique capabilities

Market signalling

Commitment to HR development

Measurement of innovation and learning

Skills and knowledge investment

Jockeying of competitive position

Uniqueness of resource and capabilities

Figure 2 Theoretical profile of a market-based view of competitive strategy.

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(1984, p. 398) define the ‘internally supportive’ strategic role of operations as one where, “the firm expects its manufacturing organization to provide credible and significant support to its overall competitive strategy”. We consider this title provides a more precise definition of the strategic role of operations classified by them, and Chase and Hayes (1991), as stage 3 in their respective four-stage models. The fourth classification of the theoretical strategic role of operations, that is ‘available for service’ (internally neutral), was subsumed into the journeyman classification because its performance does not directly make a contribution to the increased competitiveness of a business. It is its elimination that has a strategic impact.

The three aforementioned types of theoretical strategic role of operations, which directly impact business competitiveness, were then disaggregated into the observable elements of the performance of their strategic role, adopting Forza’s approach (2002). Appendix D details the definitions of these observable elements, the sources of the references used to define them and the means of their measurement. The 15 observable elements and measures defined in Appendix D were converted into 15 statements or questions. The response given to each of the questionnaire statements or questions was recorded on its five-point Likert scale at the time of the interview and corroboration was sought immediately from the respondent. For example, question 1 on the x-axis questionnaire asks the respondent to indicate, using the scale of 1 to 5, how pay and conditions amongst the company’s operations workforce compares with industry average. ‘Much less than average’ (shown as 1 on the questionnaire) would seem to be a negative, or at most, a neutral assessment of the value of the human resource as an enabler of building a sustainable competitive advantage. Such an assessment Chase and Hayes (1991) consider, at most, a ‘journeyman’ perspective of the strategic role of operations. To receive salaries which are much higher than average would seem to be only warranted if the business is highly profitable and successful. Payment of high salaries to employees is only financially viable, in the longer term, when management recognize that they are critical to the prolonged success of their business, which Chase and Hayes (1991) suggest is indicative of a world class business.

The use of the five-point scale in this way enabled a rough and ready measure of dispersion to be calculated. This dispersion was an indicator of the different strategic roles that operations may play in the organization. Theoretically, the higher the total points scored, the more likely it was that the firm’s operations contributed an increasingly significant role in the competitive strategy of a firm. Conversely, the lower the score, the more likely it was that the operations function was adopting the strategic role defined as ‘journeyman’. Thus, a total of between 15–30 points would be indicative of operations assuming a ‘journeyman’ role and 31–60 points an internally supportive role. The range 61–75 points would indicate that the services operations had reached a world class delivery level.

The five-point scale also permitted responses from the completed questionnaires to be plotted as a profile of the strategic role that the operations function of the firm played. The procedure used for the preparation of these profiles was the same as that described for transcribing the information given on the y-axis questionnaire. A combination of the three theoretical profiles of the strategic roles of operations are shown in Figure 4, they are distinguishable only by the ratings given to the observable elements of the strategic role performed by an operation.

The x and y-axis questionnaires were initially pilot tested and subsequently amended after feedback from the following:

1. Colleagues — to test whether the instruments would enable the study objectives to be accomplished.
2. Industry experts — to prevent the inclusion of some questions that might reveal avoidable ignorance in some specific area.
3. Target respondents — to provide feedback on everything that would affect their answers.

Results

The findings from the data analyses using strategic profiling to assess the perceived level of strategic fit between the current competitive and operations’ strategies in 21 service organizations produced the following results. First, the scores reported in Table 1 are diagrammatically displayed in Figure 5 to demonstrate the current degree of internal strategic fit of the 21 services. Second, six types of competitive-operations’ strategies relationships were revealed as seen in Figure 5. These are:

1. Strategic drift with operations internally supportive.
2. Resource-based with operations internally supportive.
3. Market-based with operations in a journeyman role.
4. Market-based with operations internally supportive.
5. Operational effectiveness with operations in a journeyman role.
6. Operational effectiveness with operations internally supportive.

Third, the position occupied on Figure 5 by each firm provides it with a useful starting point for consideration of the appropriateness of its current competitive-operations strategy relationship to the way it desires to develop its future competitiveness.

Most of the organizations participating in this research programme appear to be pursuing a market-based view to competitive strategy (within the range 39–51 on the y-axis) with their operations assuming an internally supportive role (within the range 31–60 on the x-axis). This is the most common relationship found in our sample, perhaps unsurprisingly, given that the operations function’s primary role in commercial organizations is to implement the competitive strategy of the business. None was found to have developed the strategic role of its operations to be capable of delivering a world class service (stage 4). Therefore, for many in our sample, managers of those services may wish to consider the potential benefits of a changed competitive strategy-strategic role of operations relationship. A decision to instigate a change in their firm’s current strategic fit (from market-based: supportive to resource-based: supportive) could result in an improvement in competitiveness. Such a transition in the relationship would require the
sequential upgrading of their firm’s resources and operational capabilities.

Figure 5 also indicates that some of the participating organizations have still not developed clarity of vision for
the strategic management of their businesses. Two are still at an early stage in the development of their operations' capabilities and improved operational effectiveness would seem to be their 'strategic' aim. Thus these organizations must change their perspective of what constitutes a competitive strategy (Porter, 1996) before a classic internal strategic fit (the evidence indicates this is a market-based: supportive relationship) can be attained. Figure 5 also shows that the strategic management of one organization appears to have resulted in strategic drift which clearly will need addressing.

The two strategic profiles developed for Company A (from Table 1) which is an example of a classic internal strategic fit are illustrated in Figures 6 and 7.

Figure 6 seems to suggest that the firm has predominantly adopted a market-based view of competitive strategy although it is investing in its human resources to achieve its strategic aims. Figure 7 shows the results of profiling the strategic role of its operations.

Figure 7 illustrates that most of the observable elements of its performance, as an internally supportive strategic role, have been either partially (8 in total) or fully (3 in total) developed. The interpretation of the strategic operations profile illustrated as on Figure 7 can be guided by reference to the Chase and Hayes (1991) hypothesis on how to interpret the strategic role of the operations function. They explained that, "the stage [of development of the strategic role of an operation] attained by a firm at any given time is a composite. Every service delivery system embodies a unique set of choices about such factors as service quality, the role of the back office, workforce policies, and the like. A company may fall at a different point along the continuum for each category or have some organizational units that are further or less advanced than others. What determines the firm's stage is the overall balance among these different positions — where, in a sense, the firm's center of gravity lies" (Chase & Hayes, 1991, p. 16–17).

Only one organization, an insurance-based financial services business (identified in Table 1 as Company B) appears to be adopting a resource-based view of competitive strategy (see Figure 8). Its position on Figure 5 also indicates that its operations are fulfilling an internally supportive role. How well this strategic operations role has been developed is illustrated in Figure 9. It would seem inadequately at the time this research was carried out.

According to the Head of Customer Service Operations of Company B, "change [within Operations] has been forced on us...but what we haven't done is just cut. We have tried to create capacity by looking very closely at our processes...offering better service quality and handling increasing quantities of business at no extra cost. We now have process coaches who are on site and are six sigma qualified people. I can cite a number of areas where we [operations] have successfully taken something to market...". At the time this analysis of the strategic role of its operations was carried out, new competencies and capabilities did not appear to have been developed sufficiently to indicate that operations were doing more than supporting competitive strategy rather than driving it (see Figure 9).

Following the completion of this exploratory research programme, six case studies were carried out from the sample of companies listed in Table 1. The first objective of the case research was to test the authenticity of the findings of the initial surveys and, using these findings for the selection of organizations for the case research, to investigate the methods used to assess the strategic contribution being made by their respective service operations. It is recognized by the researchers that, at the time of the secondary case research, the developments of both the competitive strategy of these businesses and the strategic role of their operations may have changed and evolved into new forms of relationships from those originally reported in Figure 5.

Implications of the research findings

The purpose of our research was to identify the diverse range of organizational relationships developed by the adoption of different approaches to competitive strategy formulation and their consequences upon the strategic role of operations. To accomplish this research aim required the development of an investigative procedure. Our means for doing this was to produce profiles of both the view of competitive strategy taken by a business and its impact upon its operational capabilities. Examples of such profiles are shown as Figures 6 and 7 for Company A and Figures 8 and 9 for Company B. Through a review of the profiles generated from such an analysis, the type of relationship formed within an organization was deduced.

Therefore, our findings should be of particular interest to both strategic and operations managers as it details a means of assessing the perceived level of strategic fit between the current competitive and operations strategies of a business. Such an assessment can facilitate the planning of interventions for its future improvement. Two strategic management benefits can be gained from repeating the profiling process previously described and the analysis of the profiles produced. First, the generation and subsequent analysis of profiles of the type described will expose both the weaknesses in the current internal strategic fit of a business and areas for improvement. Second, the internal strategic fit framework is, in essence, a positioning matrix which can facilitate the development of a plan for the future management of internal strategic fit. It offers helpful insights into what strategic moves are realistically available to a business given its current competitive strategy-role of operations relationship.

Contributions, limitations and further research

This study provides three main contributions to advancing understanding of the relationships between the dimensions of competitive and operations' strategies. First, previous studies of strategic fit management (see, e.g., Hill & Brown, 2007; Peng et al., 2011) have chosen to characterize the content of operations strategy to competitive priorities. The problem with using such types of outcomes of strategic management decision-making for this purpose is that they are too conceptually aggregated. Therefore, they do not di-
directly address the development of operations capabilities (Swink & Hegarty, 1998). It is the internal matching of the customer value proposition and the operations capabilities of an organization to deliver that customer value that constitutes internal strategic fit. Furthermore, although capabilities are recognized to be the means of achieving competitive performance (Swink et al., 2005), it is only output performance measures that have been used in previous empirical analyses of internal strategic fit (Peng et al., 2011). Thus, a key contribution of our study is that it is the first to attempt to disaggregate, for internal strategic fit management purposes, the major constituents or "observable elements" of competitive strategy implementation and strategic operations management in order to assess their consistency of purpose.

Through an analysis of our findings, and their illustration on the positioning matrix shown as Figure 5 in the article, the second contribution of our study is the successful identification of a broad range of internal strategic fit relationships. Each organization received a copy of the strategic profile of the two independent variables used for an assessment of internal strategic fit. These were distributed to facilitate their planning of future actions for its improvement through using the positioning matrix detailed in Figure 5. In this way, the research methodology employed in this study is the first to include an analytical approach to deducing the view of competition adopted by a business, for formulating its competitive strategy, and the strategic role of its operations.

The third contribution of our study is that it helps address the call by several researchers (see, e.g., Hill & Brown, 2007; Mills, Neely, Platts, & Gregory, 1998; Spence & Lewandowsky, 1990) to develop more tools to facilitate practitioner understanding of the representation of strategies and in particular, that such frameworks be more insightful if presented in simple visual form. We have achieved this by adapting the strategic profiling process, employed by Hill and Brown for their study of strategic fit management. We provide visual representations of the view of competitive strategy adopted by a strategic business unit and for illustrating the strategic role of its operations. The purpose of the strategic profiles is to enable a subjective assessment of the consistency of purpose for these two strategic management activities. Overall, these three outcomes of our study collectively constitute our contribution to internal strategic fit management.

The use of the research methodology detailed in the article has revealed a wide range of internal strategic fit relationships. Consequently, it could tentatively be concluded to be fit for purpose, subject to recognizing its methodological limitations. The first of these is that the results of the study are significantly dependent upon the design of the questionnaires. The second recognized limitation of this research is that the source for its findings is a single respondent. Bowman and Ambrosini (1997) report that disagreement amongst managers (especially top management) is not unusual when making inferences about the firm's strategy. Other authors have suggested that drawing inferences from a single respondent is more likely to be justifiable when the firm is small, specialised or not diversified (Nayyar, 1992; Powell, 1992). We acknowledge that any further testing of the process outlined in this article must be grounded on a research design that incorporates the triangulation of data collection. The nature of the research also limited the employment of statistical analysis to nonparametric methods. While their appropriateness for use on small samples is a benefit recognised in previous operations research (see, e.g., Lin & Shao, 2006), the test results may
be less powerful than those obtained using parametric methods (Sanders, 1995). Further research is required to more thoroughly test the robustness of the research methodology used for the
purpose of this research. Our research aim was to explore the range of relationships forged, in practice, between the competitive and operations’ strategies of a business.

We believe that the replication of the procedure described in this article can enable such a strategic management assessment to be performed. However, further design,
Appendix A. Observable elements of a market-based view of strategy

The market-based view of strategy: This view of strategy, in a highly competitive market, recognizes that business success is dependent upon finding a differentiated strategic position determined by identified customer needs. Once selected, the operating system of the organization is considered as an adjustable system that can be restructured to satisfy these needs (Gagnon, 1999; Porter, 1979, 1980, 1991, 1996; Spanos & Lioukas, 2001).

<table>
<thead>
<tr>
<th>Underlying category (1)</th>
<th>Observable element and measure (Q1 on the Y-axis questionnaire)</th>
<th>Observable element and measure (Q2)</th>
<th>Observable element and measure (Q3)</th>
<th>Underlying category (3)</th>
<th>Observable element and measure (Q8)</th>
<th>Observable element and measure (Q9)</th>
<th>Observable element and measure (Q10)</th>
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<tr>
<td>A competitive environment stimulates competitor moves and counter moves in their search for competitive advantage. Firms must understand and exploit their local environment. Intense rivalry within an industry is also the result of the presence of strategic groups (Porter, 1979, 1980, p. 129; Porter, 1996). Their formation is demonstrated by jockeying to improve competitive position, for example, by offering increased customer service or warranties (Porter, 1979, 1980, pp. 17–18; Porter, 1996).</td>
<td>The frequency of the use of market signals to influence market conditions and rivals' beliefs (Teece et al., 1990, p. 5).</td>
<td>The presence of strategic groups within the industry and the consequent intensity of competitive rivalry that limits potential returns (Porter, 1979, 1980, pp. 129–132; Porter, 1996).</td>
<td>Aggressive pricing and competitive positioning tactics (Teece et al., 1992, p. 6) measured by the following activities:</td>
<td>Business performance and the profitability of a service firm can be affected by the number and the characteristics of the strategic groups in the industry within which it competes and its position within its own strategic group (Porter, 1979, 1980, pp. 142–145; Porter, 1996).</td>
<td>In a competitive environment, price positioning is related to cost and quality but price is treated as a distinct strategic variable (Porter, 1979, 1980, p. 128; Porter, 1996)</td>
<td>Business performance improvement is increasingly based upon a greater emphasis on cost management and service competitiveness (Porter, 1979, 1980, p. 239; Porter, 1996)</td>
<td>The potential to exploit a service firm's unique skills and capabilities is constrained by the extent to which the processes or systems employed are generic to the industry (Teece et al., 1992, p. 8).</td>
</tr>
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### Appendix B. Observable elements of a resource-based view of strategy

**The resource-based view of strategy**: This view sees the uniqueness of the resources and capabilities of an organization as the means of gaining a competitive advantage and the achievement of superior performance (Gagnon, 1999).

<table>
<thead>
<tr>
<th>Underlying category (2)</th>
<th>Observable element and measure (Q4)</th>
<th>Significant investment in R&amp;D capacity and human resources (Teece et al., 1992, p. 2) measured by the comparative number of training days received per annum in the industry.</th>
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<tbody>
<tr>
<td></td>
<td>Observable element and measure (Q5)</td>
<td>A constant focus on the development of distinctive capabilities (Teece et al., 1990, p. 6) measured by the extent to which training and staff development costs are protected even in difficult business conditions.</td>
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</table>
|                         | Observable element and measure (Q6) | Learning occurs not only through imitation but also because of joint (team/group) mentoring and contributions (Teece et al., 1992, p. 28) measured by the following features:  
  - the maintenance of a skills register  
  - the use of yearly staff appraisals that encourage learning behaviours amongst all employees at all levels in the service firm  
  - the use of yearly staff appraisals to drive individual staff performance against goals set at all levels in the service firm  
  - the existence of innovation and staff learning key performance indicators (KPIs)  
  - the existence of organization-wide groups or committees to discuss suggested or proposed improvement activities |
|                         | Observable element and measure (Q7) | Long term performance is based on the service firm’s underlying capabilities and capacities for improvement. Capabilities imbue the firm’s performance with robustness, (Teece et al., 1990, p. 14) that is, its ability to adapt its operations (people and processes) and continue their improvement in difficult business conditions. |
| Underlying category (4) | Observable element and measure (Q11) | To achieve and sustain a competitive advantage involves positioning a business to maximize the value of the capabilities that distinguish it from its competitors (Porter, 1979, 1980, p. 47; Porter, 1991). |
|                         | Observable element and measure (Q12) | Capabilities are based on developing, carrying and exchanging information through the service firm’s human capital and harnessing experience from prior projects (Teece et al., 1992, p. 23). |
|                         | Observable element and measure (Q13) | Constant surveillance of technologies and market (Teece et al., 1992, p. 5) measured by how regularly the service firm scans the business environment for new process technologies. |
|                         | Observable element and measure (Q14) | Identification of difficult to imitate capabilities (Teece et al., 1992, p. 2) can be measured by the managers’ ability to specify or describe those capabilities that are unique to the service firm. |
|                         | Observable element and measure (Q15) | Dynamic capabilities develop capabilities/competencies that allow the service firm to create new products and processes and cannot readily be assembled through markets (Teece et al., 1992, p. 2). This is measured by the extent to which the service firm’s capabilities are developed in advance of market needs. |

High levels of tacit production knowledge present barriers to imitation (Teece & Pisano, 1994, p. 541) and this is measured by the following characteristics of the service firm’s workforce:  
- the longevity of the operations workforce within the firm  
- the extent of their experience within the industry or sector  
- an absence of switching between competitors  
- skills development within the same service firm  
- low turnover in operations.
Appendix C. y-Axis questionnaire

All information provided will be treated as confidential.

Q1 How often does the organisation provide an indication of its intentions, future actions or internal situation by prior, public announcement? (Please tick one box only).

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<tr>
<td>5</td>
<td>Continually</td>
</tr>
<tr>
<td>4</td>
<td>Very regularly</td>
</tr>
<tr>
<td>3</td>
<td>Regularly</td>
</tr>
<tr>
<td>2</td>
<td>Seldom</td>
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<tr>
<td>1</td>
<td>Never</td>
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Q2 The organisation’s potential returns are limited by intense rivalry within the industry or sector. (Please tick one box only).

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<tr>
<td>5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>4</td>
<td>Agree</td>
</tr>
<tr>
<td>3</td>
<td>Neither agree nor disagree</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
</tr>
<tr>
<td>1</td>
<td>Strongly disagree</td>
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Q3 Which of the following approaches to market positioning are typical for your organization in its present situation? (Please tick all boxes that apply).

- Low price ‘introductory’ offers are regularly made to gain business
- Frequent ‘sales’ promotions
- Announcements about new product introductions or new investments are used to deter possible new entrants into the industry
- Market interventions are made following action/s taken by competitors
- Rivalry in our industry or sector may be characterised by such phrases as cutthroat, bitter or intense

Q4 How does the number of training days received per employee per annum compare to the rest of your industry or sector? (Please tick one box only).

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<tr>
<td>5</td>
<td>Much higher than average</td>
</tr>
<tr>
<td>4</td>
<td>Higher than average</td>
</tr>
<tr>
<td>3</td>
<td>Average</td>
</tr>
<tr>
<td>2</td>
<td>Less than average</td>
</tr>
<tr>
<td>1</td>
<td>Much less than average</td>
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</table>

Q5 The training budget is protected in difficult business conditions. (Please tick one box only).

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<tr>
<td>5</td>
<td>Strongly agree</td>
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<td>4</td>
<td>Agree</td>
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<tr>
<td>3</td>
<td>Neither agree nor disagree</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
</tr>
<tr>
<td>1</td>
<td>Strongly disagree</td>
</tr>
</tbody>
</table>

Q6 Which of the following approaches to skills acquisition and learning are used by your organisation? (Please tick all boxes that apply).

- A staff skills register is maintained
- Yearly appraisals are a recognised method used by the company for encouraging learning behaviour amongst all employees at all levels within the organisation
- Yearly appraisals are used to drive individual staff performance against goals set at all levels within the organisation
- Innovation and staff learning key performance indicators (KPIs) exist
- Organization-wide groups or committees exist to discuss new potential activities
Q1 How often does the organisation provide an indication of its intentions, future actions or internal situation by prior, public announcement? (Please tick one box only).

Q7 How robust do you perceive your organisation to be in difficult business conditions? (Please tick one box only).
5 [ ] Much more robust than the average competitor
4 [ ] More robust than the average competitor
3 [ ] As robust as the average competitor
2 [ ] Less robust than the average competitor
1 [ ] Much less robust than the average competitor

Q8 Potential returns are limited by a ceiling on prices that the organisation can charge. (Please tick one box only).
5 [ ] Strongly agree
4 [ ] Agree
3 [ ] Neither agree nor disagree
2 [ ] Disagree
1 [ ] Strongly disagree

Q9 The key performance indicators (KPIs) are dominated by financial and cost metrics. (Please tick one box only).
5 [ ] Strongly agree
4 [ ] Agree
3 [ ] Neither agree nor disagree
2 [ ] Disagree
1 [ ] Strongly disagree

Q10 To what extent are the processes or systems used in producing your service products: (Please tick one box only).
5 [ ] Generic to the industry
4 [ ] Mainly generic to the industry but with a few company developed processes and systems
3 [ ] An equal mix of generic and own company developed processes and systems
2 [ ] Mainly own company but with a few generic to the industry
1 [ ] All own company developed processes or systems

Q11 Following the completion of project initiatives, formal post-project learning meetings take place. (Please tick one box only).
5 [ ] Continually
4 [ ] Very regularly
3 [ ] Regularly
2 [ ] Seldom
1 [ ] Never

Q12 How regularly does your company scan the business environment for new process technologies? (Please tick one box only).
5 [ ] Continually
4 [ ] Very regularly
3 [ ] Regularly
2 [ ] Seldom
1 [ ] Never
Q1 How often does the organisation provide an indication of its intentions, future actions or internal situation by prior, public announcement? (Please tick one box only).

Q13 Managers can specify or describe those capabilities and competencies that are unique to the organisation. (Please tick one box only).

Q14 New operational capabilities and competencies are normally developed before the market needs have been identified. (Please tick one box only).

Q15 Which of the following statements characterise your employees? (Please tick all boxes that apply).

Thank you very much for taking the time and trouble to complete this questionnaire.
Appendix D. Observable elements of the strategic role of operations

The strategic role of operations can be defined in terms of how the function contributes to the competitive strategy of a business unit (based on Chase & Hayes, 1991; Hayes & Wheelwright, 1984; Hayes, Wheelwright, & Clark, 1988; Wheelwright & Hayes, 1985). This can consist of a negative or neutral contribution, the fulfilment of an internally supportive role or an externally supportive role.

| Underlying category (1) | Observable element and measure (Q1 on the X-axis questionnaire) | The neutral strategic role of operations. In manufacturing operations, this is termed “internally or externally neutral” (Wheelwright & Hayes, 1985). In service operations the term employed are “available for service or service journeyman” (Chase & Hayes, 1991).

Observable element and measure (Q2) | The firm may undervalue the potential of its staff who work for relatively low wages (Chase & Hayes, 1991, p. 18). This can be measured by comparing the pay and conditions of the firm’s operations workforce with industry norms.

Observable element and measure (Q3) | Experts are used to make decisions about “obvious” strategic operations issues (Hayes & Wheelwright, 1984, p. 396; Wheelwright & Hayes, 1985), which can be measured by how regularly the service firm requests the help or the advice of outside consultants concerning operations-related matters.

Observable element and measure (Q4) | Operations tend to follow industry practice and build facilities, use equipment and systems that are similar to those of competitors (Chase & Hayes, 1991, p. 19). Performance improvements in operations are accomplished by the acquisition of technologies considered as relatively standard in the industry. Such a low risk investment approach can be measured by the extent of in-house process technology development.

Observable element and measure (Q5) | Operations mission is almost totally reactive (Chase & Hayes, 1991, p. 18) measured by whether those engaged in new product development design an entirely new production for its supply.

Underlying category (2) | Operations strategy is reactive, intended to keep the function from being locked into the wrong set of facilities or processes (Hayes & Wheelwright, 1984, p. 397; Wheelwright & Hayes, 1985). This can be measured by how important is the ability to reverse a capacity or technology-related operational decision once it has been made.

Observable element and measure (Q6) | The organization of the service operations function reflects a coherent strategy and the leadership and tactics to implement it (Chase & Hayes, 1991, p. 20). This is what the operations function must accomplish in order to be a source of competitive benefit to the firm (Wheelwright & Hayes, 1985). It can be measured by the ability of the operations manager to articulate the relationship between operational accomplishments and their competitive benefit.

Observable element and measure (Q7) | The service operating system achieves strategic coherence when all its individual components contribute to the organization’s customer service and performance objectives (Chase & Hayes, 1991, p. 23). This can be measured by the consistency between the objectives of the components of the operating system and the strategic objectives of the business.

Underlying category (3) | The externally supportive role of operations. In manufacturing operations this is termed “externally supportive” (Wheelwright & Hayes, 1985). In service operations, this is “world class service delivery” (Chase & Hayes, 1991). Wheelwright and Hayes define this role as one when the competitive strategy of the firm is based, to a significant degree, on its operational capabilities.
<table>
<thead>
<tr>
<th>Underlying category (1)</th>
<th>The neutral strategic role of operations. In manufacturing operations, this is termed ‘‘internally or externally neutral’’ (Wheelwright &amp; Hayes, 1985). In service operations the terms employed are ‘‘available for service or service journeyman’’ (Chase &amp; Hayes, 1991).</th>
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<tbody>
<tr>
<td>Observable element and measure (Q8)</td>
<td>Changes in business strategy are automatically translated into manufacturing implications (Wheelwright &amp; Hayes, 1985). The planned changes should determine the performance priorities for the operations function.</td>
</tr>
<tr>
<td>Observable element and measure (Q9)</td>
<td>A trade-off between performance priorities implies that all measures of performance will not have equal importance; their relative importance being determined by both the competitive characteristics of the market and the strategic positioning of the firm (Boyer &amp; Lewis, 2002). The influence of trade-offs on strategic operations management can be measured by the extent of their recognition in the setting of business performance priorities.</td>
</tr>
<tr>
<td>Observable element and measure (Q10)</td>
<td>Operational performance can be improved through practice and reflection. Knowledge and skills actually applied throughout processes form the bases for building improved capabilities (Prahalad &amp; Hamel, 1990). The extent that this is done can be measured by the formal learning practices employed for the management of operations performance improvement.</td>
</tr>
<tr>
<td>Observable element and measure (Q11)</td>
<td>Significant attempts are made by competitors to poach managers and key employees (Hayes et al., 1988, p. 23) measured by the frequency of such attempts.</td>
</tr>
<tr>
<td>Observable element and measure (Q12)</td>
<td>The firm is less concerned with technological risk than losing first-mover advantage (Chase &amp; Hayes, 1991, p. 20). The firm invests in first-to-market technologies (Hayes et al., 1988, p. 23). This can be measured by the evidence of its possession.</td>
</tr>
<tr>
<td>Observable element and measure (Q13)</td>
<td>The service firm installs practices and reward schemes to motivate continuous improvement (CI) to the standards achieved by its best competitors and gives its employees the tools and training to accomplish best-practice CI in its industry (Chase &amp; Hayes, 1991, p. 20). This can be measured by the range of CI and process capability assessment practices trained and employed.</td>
</tr>
<tr>
<td>Observable element and measure (Q14)</td>
<td>Dominant industry positions, through the use of new technology, require the effective integration of managerial and procedural refinements over many years (Chase &amp; Hayes, 1991, p. 18). This can be measured by the extent to which the firm continues to improve its operations facilities, support systems and state-of-the-art skills so that they surpass their initial capabilities.</td>
</tr>
<tr>
<td>Observable element and measure (Q15)</td>
<td>Customers become consultants, sources of ideas as well as revenue (Chase &amp; Hayes, 1991, p. 20). Suppliers (who may also be customers) routinely seek advice from the firm on possible modifications to their equipment or seek suggestions for new equipment (Hayes et al., 1988, p. 23). This is measured by how often suppliers or customers seek such opinions or ask for their new models to be piloted by the firm.</td>
</tr>
</tbody>
</table>
Appendix E. x-Axis questionnaire

Preliminary question.

<table>
<thead>
<tr>
<th>How do you define operations (or operations function) within your company?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probes</td>
</tr>
<tr>
<td>Difference between types of processes?</td>
</tr>
<tr>
<td>What are not operations activities?</td>
</tr>
</tbody>
</table>

Q1 How do the pay and conditions of employees working in operations compare with the rest of your industry?
5 Much higher than average
4 Higher than average
3 Average
2 Less than average
1 Much less than average

Q2 How regularly does the organisation request help or the opinions of outside consultants concerning operations related matters?
5 Never
4 Seldom
3 Regularly
2 Very regularly
1 Continually

Q3 Improvements that have occurred in operations performance in the past two years have largely been achieved from input from our internal service providers or external suppliers (e.g., IT group)
5 Strongly disagree
4 Disagree
3 Neither agree nor disagree
2 Agree
1 Strongly agree

Q4 R&D and those engaged in NPD, design an entirely new production process whenever a new product may require it.
5 Never
4 Seldom
3 Regularly
2 Very regularly
1 Continually

Q5 An important factor in reaching a decision that your firm has taken in the past two years regarding changes to the firm's capacity, technology or related to your operations facilities has been a requirement to be able to minimize the difficulty of undoing that decision once made.
5 Strongly disagree
4 Disagree
3 Neither agree nor disagree
2 Agree
1 Strongly agree

The degree to which operations managers are able to articulate the firm's business strategy into implications meaningful to operations
Q6 What must operations accomplish in order to provide competitive support for the firm in the market place?
5 Clear recognition that operations can be used as a competitive weapon
4 Clear recognition of an operational improvement but this is not fully developed as a competitive weapon
3 Recognition of operational improvements that support the competitive strategy
2 Stated accomplishments partially support the competitive strategy
1 Accomplishments not operations-based

Q7 How is operations performance judged in your company?
5 It is considered that it must acquire capabilities to enable the company to be the leader in its industry or sector
4 The link with company strategy fulfilment is evident from the KPIs
3 KPIs are focussed on customer service and satisfaction
2 Performance improvement objectives derive from industry best practices
1 Performance improvement targets derive from benchmarking

Q8 What are the priorities for operations?
5 Customer needs analysis is treated as a source of stimulation ideas and opportunities for improvement
4 The needs of the customer and their interpretation by operations management
3 The relative importance of the basic needs of the customer shape operations strategy
2 Customer needs, no relativities
1 A range of performance objective, e.g., cost and quality without direct reference to customer needs

Q9 What may have to suffer or is traded-off in order for operations priorities to be achieved?
5 Trade-offs identified and their consequential constraints on customer service offering are understood
4 Trade-offs identified and rationalised through business performance priorities
3 Trade-offs identified and rationalised within the operations strategy
2 Trade-offs recognised and compensated for through adjusting performance priorities
1 Trade-offs not recognised in the achievement of operations performance priorities

Q10 Which of the following documentary evidence related to operations activities exists in your firm? Remember to tick all that apply
[ ] Operations charters, mission or task statements exist that help facilitate understanding of expectations and objectives from operations
[ ] Operations diagrams or slogans are used to communicate expectations and objectives of operations
[ ] Recorded minutes of meetings which provide evidence that operations investment decisions were evaluated in terms of the contribution that new investment is expected to make in the maintenance or achievement of competitive advantage
[ ] Written evidence of equipment or process technology investigation having been carried out
[ ] Evidence of operations personnel having attended association events, conferences or site visits with the intention of improving their knowledge of latest equipment or process technology

Q11 How regularly do competitors attempt to poach managers and/or employees from your operations?
5 Continually
4 Very frequently
3 Frequently
2 Seldom
1 Never
### How do you define operations (or operations function) within your company?

**Q12** Being ‘first to market’ or a technological leader is amongst your firm’s operations capabilities
- 5 Strongly agree
- 4 Agree
- 3 Neither agree nor disagree
- 2 Disagree
- 1 Strongly disagree

**Q13** Can you explain the approach you adopt to developing a ‘continuous improvement’ (CI) habit within your operations?
- 5 Training in the full range of CI and process capability assessment practices
- 4 Management acknowledge the need to provide time and resources to support the development of a CI culture
- 3 Performance improvement recognised to need both target setting and the use of basic CI practices
- 2 CI culture grounded on targeted improvements on previous performance
- 1 No explicit objectives for performance improvement other than linked to fundamental objectives such as unit cost and quality

**Q14** To what extent does your firm’s approach to the management of and investment in its operations facilities, support systems and skill acquisition conform to the following statement?
*We continually improve our operations facilities, support systems and skills that were considered ‘optimal’ or ‘state of the art’ when first introduced so that they increasingly surpass their initial capabilities*
- 5 Describes precisely our approach
- 4 Describes the approach that we are close to achieving
- 3 Describes the approach that we aspire to achieve at an established point in the future
- 2 Describes the approach we would like to achieve if a blank cheque were available
- 1 Is inappropriate in describing our approach since our facilities, support systems and skills were not state of the art when first introduced

**Q15** To what extent does your external provider of your equipment or technology seek your advice about possible modifications to their equipment, or seek your agreement to be test site for one of their pilot models?
- 5 Continually
- 4 Very frequently
- 3 Frequently
- 2 Seldom
- 1 Never
development and testing of the questionnaires’ use for these purposes are needed. Other alternative relationships could come to light.

There are other observable elements that could be used in the y-axis questionnaire to investigate the types of competitive strategy pursued by a firm. Those four categories we selected have been emphasized in previous research yet, they do not comprise all possible categories that could represent the environment-market based and resource-based constructs. For example, in future research, a separate category that probes for greater insights into external factors (such as societal influences and environmental uncertainty) as part of the environment-market based construct might be added. Likewise, a specific knowledge management category could be included to examine knowledge creation as part of the resource-based construct. Additional statements or questions might also be added to the 15 that were developed. This would strengthen (as well as also lengthen) the instrument. However, questionnaire length can constrain response rate so this consideration does have a significant impact upon research instrument design.

References


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Questionnaire design and attitude mea-


Bob Lillis is Senior Lecturer in Service Operations Management within the School of Management at Cranfield University in the UK. He is a ‘second career’ academic having spent 18 years prior to joining Cranfield at senior management levels with organisations in the hospitality and leisure sector in the UK and Middle East. He has a Doctorate in Strategic Service Operations Management awarded by Cranfield School of Management. Bob now specialises in teaching and researching the process and content of operations strategy and how service organisations can achieve strategic fit.

Mike Sweeney is Emeritus Professor of Operations Management at Cranfield School of Management where he was previously the head of the innovation and process management community. Before this, he was the Director of the School of Defence Management at the Royal Military College, Shrivenham, UK. He is the author of many articles and reports and acts as a consultant to a number of international manufacturing and service organizations.