
Resource-based competition and the new operations strategy

Resource-based competition

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Abstract Argues that operations strategy research should integrate recent theories from the resource-based view of strategic management. Going beyond the model of Hayes and Wheelwright, this would call for the end of the market-based view, where operations strategy merely follows the directions set by the marketing function. It would emphasize the dynamic development and leveraging of competencies and capabilities in order to set new business diversification strategies. A new paradigm of operations strategy could emerge, where "management fundamentals" such as learning and culture would be actively integrated within operations, in order to become key sources of competitive advantage. Accordingly, the operations function could progressively: take the leadership of strategy formulation; create "portfolios" of optional capabilities for strategies of organizational agility; and implement world-class practices more effectively through evolutionary strategic frameworks.

Introduction

Ever since Skinner (1969) pointed out the missing links between the manufacturing function and strategy within American firms, Manufacturing Strategy, or what is now called Operations Strategy, has grown rapidly. Although this research area remains confined to the operations discipline, repeated calls have been made to better integrate operations strategy research with related disciplines, such as strategic management and organization theory (Adam and Swamidass, 1989; Miller and Roth, 1994).

We have recently witnessed some interesting attempts to expand operations strategy, relying primarily on Porter's (1980, 1985) generic classification of strategies, as driven by market imperatives, such as cost leadership, product differentiation, or market segmentation. For example, Ward *et al.* (1996) have studied the various configurations of operations and generic strategies. Another example, Chakraborty and Philip (1996), focused on supplier development and Porter's classification. The results of such studies are a first step, confirming that operations could be a key part within a broader configuration of business strategies and industry contexts.

However, the strategic management discipline has moved recently from a "market-based" to a "resource-based" view of competition. The former view sees operations as a perfectly adjustable system focused to successfully follow the rules dictated by markets, while the latter suggests that it is more profitable to focus on developing, protecting, and leveraging a firm's unique operational resources and advantages in order to change the rules of competition. This

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paradigm shift started with evidences that high performance is explained primarily by the strength of a firm's resources, and not by the strength of its market position (Rumelt, 1984; Wernerfelt, 1984). It is only later that the resource-based view has gained more importance, since Prahalad and Hamel (1990) forcefully emphasized the link between core competencies and competitiveness.

In this paper, we discuss a number of new theory-building avenues for operations strategy under resource-based competition. However, we will not review the resource-based strategy literature extensively, since we can easily borrow from previous reviews (Barney, 1991; Mahoney and Pandian, 1992). We rather address three broad issues which have been important within the operations literature and where the resource-based view may help theory building:

- (1) the active role of operations within strategy;
- (2) the demise of trade-offs in hyper-competition; and
- (3) the implementation of world-class practices.

It is interesting to note that the three issues we will discuss could be related directly to what Voss (1995) has termed the three "paradigms" of manufacturing strategy. For example, the paradigm of "competing through manufacturing", based on the Hayes and Wheelwright (1985) model, points directly to the role of operations within strategy, which still remains highly ambiguous. The second paradigm, called "strategic choices in manufacturing", which concentrates on making strategic trade-offs between operating priorities, is being challenged in a time where hyper-competition makes order winners short-lived and where qualifiers are becoming tougher. Finally, the paradigm of "best practices" relates directly to a more fundamental issue, the implementation of new operations management approaches which are expected to yield world-class performance.

As we shall see, these three paradigms will have to be updated in order to take account of the resource-based view of strategy, as a fourth paradigm may be emerging, dealing with "management fundamentals". At the heart of the knowledge-based economy, this new operation strategy may include such issues as culture and learning, which had been considered up to now as secondary "organizational infrastructure" decisions. We will see how these issues do not simply have to be "aligned" with operations, but must be managed integrally, in order to be both supportive and generative of operating excellence. This may change completely the theoretical focus of operations strategy, creating new links with the more "qualitative" theories of organizational dynamics and strategic regeneration (Tranfield and Smith, 1998).

Active role of operations within strategy

The ambiguous role of the operations function within modern organizations was among the first issues addressed by operations strategy research (Skinner, 1969). But the problem was posed most clearly by Hayes and Wheelwright (1985), with an evolutionary model of manufacturing's role within a firm. Going through four

stages, from merely ensuring operations are coherent with business objectives, up to using operations as a key competitive weapon, the model was among the most compelling calls to head for unparalleled operating excellence. Beyond this conceptualization effort, Hill (1989) proposed a complete model, which stands today as the main reference for an active practice of operations strategy, emphasizing a direct marketing-operations interface. Along with these models, there now exists clear guidelines as to how operating decisions can be better reflected within corporate decisions.

New content for operations strategy

Unfortunately, the application of these concepts into actual business strategies may have been insufficient (Hayes and Pisano, 1994). It is still difficult today to find those companies which use their operations function as a competitive weapon. One reason is the difficulty to “operationalize” the content of operations strategy (Hum and Leow, 1996). Fundamental changes must be made in the working of the management team before setting corporate strategy according to the key sources of operating excellence. Strategic analysis and performance “scorecards” may often be major deficiencies, leading to lack of commitment to operating priorities (Kaplan and Norton, 1996). Moreover, for those who have attempted to apply a rigorous operations strategy, the prescribed models may not be completely implemented as firms may come to focus only on just a few winning strategies (Ahmed *et al.*, 1996).

The difficulties with the content of operations strategy may be caused by the fact that it is frozen within a “market-based” instead of a “resource-based” view of strategy. The contradictions created by this can be seen in the model proposed by Hayes and Wheelwright (1985), where the fourth stage leads firms to use operations as a competitive weapon. It is clear that moving from stages one to three is simply a matter of better “aligning” operations with marketing. But stepping towards stage four requires a fundamentally different perspective of what is the role of operations, from mere “follower” to active “leader” of strategy. But within a market-based context, the idea of using operations as a competitive weapon, or focusing on operating excellence, could hardly find a taker, due to the now acknowledged dominance of marketing in strategy (Porter, 1996).

This is why a resource-based view may be necessary, one where the primary goal of strategy is to develop and leverage resources in order to create new market qualifiers and order winners. This innovative content for operations strategy would be supported directly by key operational capabilities deeply anchored within business processes and organizational routines (Nelson and Winter, 1982; Stalk *et al.*, 1992; Tranfield and Smith, 1998).

The new architecture of operations strategy would be based on knowledge and skills actually applied throughout processes, but also in terms of technologies which form the basis for delivering various products and services (Prahalad and Hamel, 1990; Winter, 1987). The portfolio of core competencies would be linked to various operating decisions which are normally dictated by a market-based strategy, but may now become determinant (e.g. product and process design,

strategic technological investments, etc.). Along with decisions regarding the organizational infrastructure, such as human resource and management information systems, these critical operating decisions would come to represent the structural expression of core competencies within both the resource-based view and operations strategy.

Towards an emergent process of operations strategy formulation

While the “content” of operations strategy may be related to key resource-based concepts, some more interesting relationships may be found in the “process” of strategy formulation. One of the most practical contributions of the resource-based view of strategy was to reframe the whole “SWOT” analysis towards developing and leveraging resources (Andrews, 1971; Ansoff, 1965). For example, it is interesting to note that the model presented by Grant (1991) stands out as a more “behavioral” view of what happens in the more “structural” models of operations strategy formulation (Garvin, 1994). That is, we can see through the resource-based view those aspects which are difficult to conceptualize within current operation strategy models.

As designed by Grant (1991), and much in the same way as Hill (1989) has put it, the resource-based model starts with an extensive analysis of those operating capabilities and competencies existing within the firm. Second, the management team selects a few core capabilities according to their “superior returns” potential (or what is called their “rent generating” capacity). These are further analyzed through extensive “market tests” to ensure they can provide effective and sustainable competitive advantages. Finally, business diversification and capability development strategies are formulated to ensure operations are rebuilt according to the strengths-opportunities relationship identified through strategic analysis (Collis and Montgomery, 1995). This is a two-way integration, where operating capabilities dictate where strategy should go, with feedback from marketing imperatives as to what operations could do to sustain competitiveness.

However, this “rational” strategy formulation process may encounter key problems, which are common to both resource-based and operations strategic planning (Platts and Gregory, 1994; Schulze, 1992). For example, the identification of core competencies and capabilities may not be as easy as expected in theory, since the management team may not reach consensus as to what is really strategic (Lewis and Gregory, 1996; Marino, 1996; Schroeder and Pesch, 1994). A highly proficient management team is necessary to overcome this “strategic ambiguity”, and to take advantage of blurred market rules to impose new rules based on the firm’s operational forces (Barney and Tyler, 1991; McGrath *et al.*, 1996). Consequently, the process of operations strategy may become much more emergent, where the continuous “crafting” of innovative strategies would make the firm both strategically and operationally stronger in the face of uncertainty (Mintzberg, 1993). The strength of this emergent process should come from a strong managerial commitment to operating priorities (Ghemawat, 1991).

The use of a resource-based view to reinvent operations strategy may lead to far-reaching consequences for management practice. For example, it may imply

that operations managers could become the best people to effectively “grasp” what a resource-based strategy should be. Being the closest to action throughout any business enterprise, the future operations manager knows best how far to set stretch-goals and “strategic intents” (Hamel, 1989). Therefore, an emergent strategic planning process may allow operations to effectively enhance its role within strategy, leading more firms into the fourth stage proposed by Hayes and Wheelwright (1985). One hopes that such a drive may lead far beyond, into a form of “competing for the future” (Hamel and Prahalad, 1994; Hayes and Pisano, 1994). But beyond this stage, the enriched version of operations strategy will necessarily allow several formulation processes to be used, whether they be structured or emergent (Leong and Ward, 1995).

Demise of trade-offs in hyper-competition

Another interesting contribution of the resource-based view relates to the issue of “trade-offs” in operations strategy. Using a “market-based” view of strategy, such decisions as “factory focus” used to help firms select one or two key competitive dimensions, and then ask operations management to meet the appropriate order winners and qualifiers, assuming a fairly stable competitive environment (Skinner, 1976). However, Schroeder and Pesch (1994) have shown that this kind of trade-offs cannot be sustained for a long time, since as soon as a firm has mastered some focus, changes in the environment can reduce its relevance rapidly. This marked somehow the entry of operations strategy into the era of hyper-competition, where strategies and capabilities will inevitably become short-lived in global industries (D’Aveni, 1994).

As Corbett and Wassenhoff (1994) argue, the only way to keep operations strategy relevant under hyper-competition is to forget trade-offs.

Operations strategy as the driver of competitive agility

Essentially, there is a need to find the various coherent systems that can be built out of many competitive dimensions, and create organizational processes which embody them all in the right proportions needed to face hyper-competitive markets. The build-up of such processes would be made with especially one key resource, that is knowledge worker, which would form the basis for long-term sustainability of processes. In a world where nurturing markets would be increasingly difficult, this perspective would call instead for creative strategies to nurture competencies and capabilities (Hamel and Prahalad, 1994). Operations strategy would be a matter of “shifting gears” or effectively switching across competitive dimensions as made necessary by hyper-competition, and as made possible through dynamic organizational processes to face the future (Hayes and Pisano, 1994).

This is where a resource-based view comes in with strong support for operations strategy. Trade-offs were the foundation of this research area for many years, and now it must be drawn back to more fundamental decisions regarding long-term resource build-up. As Volberda (1996) argues, hyper-competition requires that competencies and capabilities be dependent on organizational

change processes which allow for flexibility. This goes beyond mere operational flexibility, since it entails total “organizational agility”, one which increasingly depends on dynamic capabilities to face future competition (Teece *et al.*, 1992).

Following this line of thought, if a firm continues with a “market-based” view of strategy under hyper-competition, it runs the risk of leaving its overall business strategy with fundamental inconsistencies. That is, failure may emerge as a firm tries to fight hyper-competition with “static” organizational processes, which fail to embody the required agility and “dynamic” features to build up capabilities as needed. It simply means that competitive conditions no longer allow marketing to set priorities and then let operations adjust. This is why resource-based competitive strategies would be required for changes in operations strategy to take effect. Otherwise, the various components of business strategy could be left out of phase, leading to dramatic consequences.

Some interesting current examples of this “strategy-operations” mismatch could be found in one of the most important revolutions that follow hyper-competition, which is customization (Pine, 1993). In many industries, traditional leaders have fallen behind due to their failure to apply flexible technologies “flexibly” (Dean and Snell, 1996). That is, they failed to build-up the proper organizational processes required to take advantage of flexibility as markets called for. These organizations have often encountered what McCutcheon *et al.* (1994) see as the “responsiveness-customization squeeze”. In hoping to attack markets from a traditional “market-based” viewpoint, these firms have failed to respond on time to demand because they have tried to set customization objectives according to strategic marketing prerogatives, and then have drawn their operations function into some impossible mission to deliver the goods. Under such circumstances, operations was not allowed to liberate its full potential to survive in the face of hyper-competition. Such firms may actually fall apart due to inappropriate flexibility strategies.

Operations strategy and the protection of strategic resources

Once operations strategy is strengthened with a resource-based view of strategy, it is required not simply to let down trade-offs and to build up fundamental resource flexibility, but also to question the sustainability of competitive advantages drawn from such flexibility. Essentially, operations must contribute to a broader “resource protection” strategy (Amit and Schoemaker, 1993; Barney, 1986a, 1991; Grant, 1996; Lei *et al.*, 1996). Operations managers become the guardians, ensuring that key sources of competitive advantage (e.g. new product development processes) are continuously upgraded so that competitors are unable to copy them. Operations strategy could then focus on making trade-offs in “resource” (or advantage, or asset) management, determining the sustainability of the firms’ competitive strengths.

Therefore, operations’ role in a resource-based view may help a firm to reach up to more sustainable competitive advantages within a “hierarchy” of resources. For example, Collis (1994) suggests three levels with increasing potential to offer sustained advantages:

- (1) functional capabilities (e.g. making a plant layout);
- (2) change capabilities (e.g. reengineering); and
- (3) management capabilities (e.g. strategic insight).

Another example is found in Brumagim (1995), where resources are separated according to their relative level of intangibility and sustainability, going from mere financial to pure cultural resources. Closely related, Hall (1992) offers a classification of intangible resources and capabilities only, but it provides a clear weighing of the conditions that determine their relative strategic values. We find among these such diverse items as patents and licenses, up to reputation and know-how.

Unfortunately, even if a firm attempts to assess the strategic value of its resources, it appears as if there is no “ultimate” competitive advantages. As suggested by Collis (1994), the problem would be one of “infinite regress” toward ever higher levels of competencies within the hierarchy, as firms compete on tougher grounds each time. One solution in the face of hyper-competition is not simply to reach out for the most strategic resources, but especially to “graduate” towards the “hard-to-copy” or “hard-to-diffuse” capabilities (Slater, 1996; Zander and Kogut, 1995). Operations strategy should provide opportunities to help make core competencies and capabilities more tacit and untouchable, so operating excellence leads to more sustainable competitive advantages (Wright, 1996).

Operations strategy as resource leveraging

Once a resource-based view of strategy is adopted, the rules of resource analysis, development, protection, and leverage could change the fundamental ideas behind operations strategy. Its strength would depend on key trade-offs in the management of capabilities, and in their proper emergence as long-term competitive weapons. Operations strategy could become more emergent and less structured, more of an art to be practiced than a readily available skill. In the end, only a few excellent companies may be able to “graduate” to the top of the hierarchy and sustain competitive advantages over long periods of time.

But even the strongest industry leaders are still vulnerable to built-in rigidities which may prompt their own downfall. As Leonard-Barton (1993) has argued well, once capabilities have reached the strategic core of an organization, they can easily become core rigidities. That is, best practices can progressively become major impediments to operational innovation. In the same way, Miller (1993) has shown how operating excellence may not simply be hampered by internal rigidities, but especially by some form of simplicity in strategies. As a leading firm comes to abuse of a “winning formula”, and as it becomes so focused, it comes to lose touch with its environment.

Consequently, operations strategy may become a means of leveraging the firm’s strategic resources so they are constantly regenerated (Tranfield and Smith, 1998). Organizational agility would depend directly on operations’ proficiency in analyzing, developing, and leveraging resources, capabilities, and

competencies. Thus, operations management would not simply be a matter of structuring processes, but especially a highly intelligent activity geared to ensuring that a firm knows well what tangible and intangible resources it has, where they are headed, and how to protect them in avoiding their decay or stagnation.

Implementation of world-class practices

Our review has raised mostly fundamental issues of operations strategy, such as its importance within business strategy, and the various decisions required to ensure that operations remain strategic. However, we may need to take a look at how a resource-based view may help face more present problems of operations management. As indicated by research on the “content” of operations strategy over the past ten years, the strategic agenda was concentrated to a large extent on the implementation of best practices, such as just in time (JIT), total quality management (TQM), and business process reengineering (BPR). The trend, set in motion mostly by management leaders, has been well synthesized in the lean production paradigm, later followed and merged with BPR, and which remains current, even after several years of application in industry (Womack and Jones, 1996; Womack *et al.*, 1990).

Effectiveness of best practices in a resource-based operations strategy

Unfortunately, the implementation of best practices has not been as effective as expected at first. As recently as the mid-1990s, surveys still indicated high failure rates for TQM, BPR, and JIT, ranging as far as 66 percent for TQM (Brown, 1994; Ramarapu *et al.*, 1995; Tippett and Waits, 1994). This may be indicative of some fundamental flaws in the operations strategy supposed to guide these efforts.

Common to all of these failures is one alleged reason, which may have been that too many business leaders would have turned to these best practices for the sake of “cure-all” solutions, and would reveal fundamental management deficiencies (Gagnon, 1996). It would have led to a so-called “management fad bubble” fueled by a complex process of which management consultants make the core (Abrahamson, 1996). This process is often claimed to be an important factor for the lack of operating performance, as it takes management away from the fundamental principles of running an organization and reduces the cognitive capability of the firm within the limited hands of some turnaround doctors (Mintzberg, 1996). In the end, business leaders miss the mark and fail to grasp the fundamental managerial revolutions behind such new approaches (Grant *et al.*, 1994).

Obviously, the management fad process runs counter to the fundamental principles of both the resource-based view and operations strategy. In such a context, operations strategy has become somewhat discordant with business strategy, prompting a radical realignment. As Garvin (1994) suggests, there is concern for how new management approaches could be better implemented beyond traditional strategic planning processes. The first step would be to

debunk the fad problem and start best practices projects only in accordance with evolving operating strengths and weaknesses. In the long run, their integration into building blocks would allow more diversity and flexibility in operations strategies, and would guarantee that firms are getting the maximum returns from various initiatives (Flynn *et al.*, 1995).

This approach is further supported under a resource-based view of strategy. Recent research has looked specifically at the performance impact and implementation conditions of new operations management approaches such as TQM, JIT, and other process technology improvement initiatives (Bates and Flynn, 1995; Dyer, 1996; Powell, 1995). The evidence is strong in showing that resource-based competitive strategies are directly linked to strategic operations management, and that the latter benefits increasingly from the dynamic processes established under a resource-based view, to allow new competencies to be developed and leveraged.

Operations strategy as a portfolio of optional resources and best practices

As a resource-based operations strategy may come to focus on effectively leveraging strategic resources and processes, it may help build a broader portfolio of optional resources, and this at all stages of the value chain. This could be driven by what Mahoney (1995) calls “resource learning”, where separate firms, divisions, and groups learn to work under one operational strategy. As resource leveraging becomes the primary task, the various competencies and capabilities would not simply follow the directions set by management, but would literally develop their respective potentials and allow for their integration within the broader strategy in the most productive way to become a truly resource-based competitive value chain.

The implementation of best practices would help build up “strategic options” on a continuous basis, in order to exercise them forcefully in order to change market rules (Sanchez, 1993). The resource development task of operations strategy would create as many alternative options it could afford to favor new competitive capabilities. The relative value of each option in facing hyper-competition with agility would be assessed in the same way as a “portfolio of competencies” (Hayes and Pisano, 1994). These optional capabilities may also be used as a form of “competence-based strategic defense”, where operational excellence could be used to prevent other firms from invading a firm’s own territory (Zeev and Amit, 1996).

Finally, a resource-based operations strategy may help strengthen the dynamic build-up of competitive advantages. For example, Kotha (1996) demonstrates some learning mechanisms, where operational systems of mass-customization cause a direct feedback between operational change initiatives on the one hand, and the dynamic competence building efforts on the other hand. In other words, operations strategy becomes the “integrator” of all change initiatives within the organization, as operations progressively learn how to dominate market rules and create new ones in hyper-competition.

Conclusion

This literature review has identified some key issues that may become the basis of a “new resource-based operations strategy”. First, the resource-based view may help operations reach up to the leadership of strategy, ensuring a firm’s resources, capabilities, and competencies are properly used as competitive weapons. Second, the resource-based view offers a number of lessons in the management of capabilities under hyper-competitive conditions, providing clear rules to develop, protect, and leverage resources in a dynamic manner. Finally, in order to overcome major failures in the implementation of world class practices, the resource-based view may help operations strategy to better integrate the sources of strategic advantages within a coherent portfolio of optional capabilities.

Essentially, the new rules emerging from resource-based competition may change the fundamental role of operations strategy. This role may eventually evolve from merely taking charge of the functioning of processes, toward creating new systems to manage emerging strategic advantages required to reach higher levels of operating excellence.

While the integration of the operations strategy and resource-based strategy literatures is only starting, there are reasons to believe it may be a major research issue within the next few years. Going beyond the three paradigms of operations strategy already outlined in Voss (1995), we may be able to infer that a fourth paradigm will emerge, to focus on the development of the “management fundamentals” at the heart of operating excellence. This new paradigm could be geared toward ensuring that investments in the “organizational infrastructure” are both supportive and generative of operating excellence. This approach contrasts with previous operations strategy where such decisions were considered secondary (Hill, 1989).

Consequently, several new research issues may be addressed within the “management fundamentals” paradigm. For example, researchers could explore how operations strategy may better assess competitive priorities in terms of their impact on the natural and social environment, and the sustained positive feedback this may have on operational performance (Harrison and Storey, 1996; Hitomi, 1996; Newman and Hanna, 1996). In the same way, operations strategy may become concerned with the creation of new forms of organizational cultures, where key sources of operating excellence may be better rooted (Barney, 1986b; Bates *et al.*, 1995; Mariotti, 1996; Maurer, 1992; Scott-Morgan, 1994). Finally, in order to build a strong momentum for improving management fundamentals, operations strategy may provide a new outlook on the design of operational systems focussed on organizational learning and effective knowledge creation and diffusion (Feurer *et al.*, 1996; Garvin, 1993; Karlsson, 1996; Lei *et al.*, 1996).

To conclude, as a new paradigm of operations strategy may be emerging, going back to the operational roots of management fundamentals, a new integrated research agenda could emerge between the areas of operations strategy and resource-based strategy. This may help overcome some of the unresolved theoretical issues in operations strategy research (Swink and Way,

1995). But more importantly, the resource-based view may help refocus operations strategy making as a truly creative and future oriented activity, geared toward integrating and building new strategic advantages through learning and operational regeneration (Tranfield and Smith, 1998).

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