

Developing consensus on firm competencies and capabilities

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Executive Overview

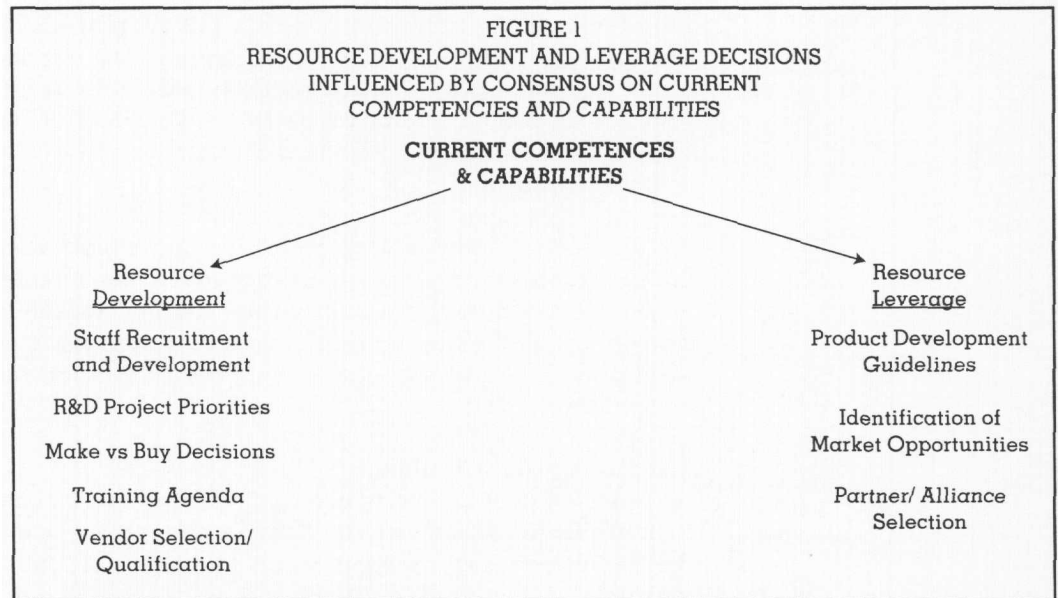
The experiences of Casio, Southwest Airlines, Caterpillar, Canon, Honda, Wal-Mart and others have propelled the resource-based view of the firm to center stage in the arena of general management. These leading companies have gained a sustained competitive advantage by developing and leveraging unique resources and capabilities. It would be difficult today to conceive of a planning effort that did not consider an organization's core competencies and capabilities. But despite the compelling logic to base future decisions regarding products and markets on these attributes, few guidelines exist to help managers define their competencies and capabilities. This paper describes the experiences of three management teams, each seeking a shared understanding of the core capabilities at their disposal. The outcomes of their deliberations, the strategic issues informed by such an understanding, and the pitfalls experienced provide guidelines for other teams as they approach similar planning tasks.

The search for, and the defense of, competitive advantage lies at the heart of the general manager's responsibilities. To that end, a host of decisions intended to both leverage the existing stock of assets and develop new bundles of assets for the future will be made. These decisions, depicted in Figure 1, include prioritizing R&D projects, formulating product development guidelines, selecting alliance partners, and identifying upstream and downstream integration opportunities. A resource-based view of the firm argues that these decisions should be guided by an understanding of the unique resources that the firm controls.¹

The plan for this paper is fourfold: first, to review the conceptual and managerial challenges associated with applying the resource-based perspective; second, to describe a process designed to guide a team of managers toward consensus decisions about the crucial assets they control; third, to review the experiences of three management teams that employed the process, and finally, to offer guidelines for using the process in other organizations.

Resource-Driven Strategies

Proponents of the resource-based view often define resources broadly as the assets, knowledge, capabilities, and organizational processes that enable the firm to conceive and implement strategic decisions. Most assets will fall into one of three categories: physical, human, or organizational. Physical resources include plant and equipment, production technology, financial endowments, location advantages, and raw materials. Human resources include the training,



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abilities, and experience possessed by the organization members.

Organizational resources include the firm image or reputation, internal systems for research, planning, and motivation, and the processes or routines that support these systems.

In most any firm, an audit of available resources will result in the identification of an extensive array of assets that enjoy markedly different degrees of strategic relevance. In order to employ a resource-driven approach to strategy formulation, the management team will be challenged on two fronts. First, the team must sift through the myriad of resources controlled by the firm and identify those that promise a sustainable competitive advantage. Second, the team must form agreement and consensus regarding those resources.

The Conceptual Challenge

The concept of "core competence," popularized by Prahalad and Hamel,² is based on a series of tests that identify organizational resources offering the greatest strategic value. Prahalad and Hamel argue that to be considered a core competence, a stock of assets should 1) offer real benefits to customers, 2) be difficult for competitors to imitate, and 3) provide access to a variety of markets. Those bundles of assets or resources that pass these three tests are strategic, or most relevant to the future product and market decisions of the firm.

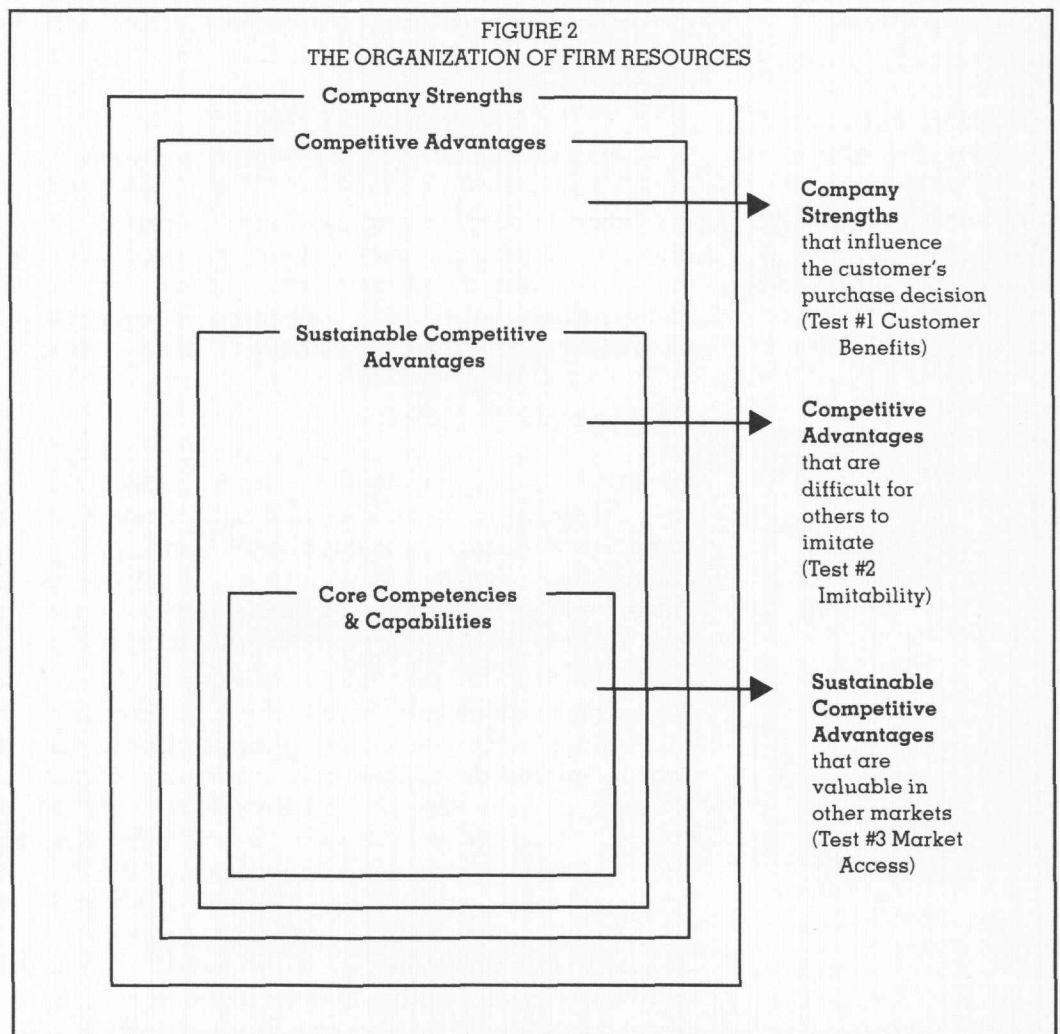
Recent discussions have shifted the focus from competencies to organizational capabilities.³ Competencies, as they have been discussed, have a technology or knowledge-based component. In particular, competencies often result from a blending of technology and production skills. For example, the product portfolio of Casio is supported by knowledge and production skills in miniaturization, microprocessor design, material science, and precision casting. Canon has developed expertise in optics, microelectronic, and precision mechanics that have been leveraged into a wide array of product/market opportunities.⁴ Capabilities, on the other hand, are rooted more in processes and business routines. Marriott's ability to design and administer training protocols and create a hospitality culture, and Black & Decker's ability to support new product

introductions are examples of competitively powerful resources that are not necessarily built on a technological foundation. Product development activities at 3M and the logistics infrastructure and vendor relations at Wal-Mart are other familiar examples of core capabilities. Capabilities are complex phenomena that involve the interactions of individuals and structures and, therefore, are difficult to imitate.⁵

The distinction between competencies and capabilities should not distract us; both represent strategically relevant resources. Moreover, the tests proposed by Prahalad and Hamel are appropriate for the assessment of either. The conceptual challenge facing the general manager is depicted in Figure 2. The tests provide the basis for screening organizational resources to identify core competencies and capabilities.

The Managerial Challenge

In order to effect the decisions depicted in Figure 1, core competencies and capabilities must not only be defined, the management team must also agree on the definitions. Otherwise, a consistent pattern of functional decisions required for implementing a strategic plan is unlikely to emerge. In three case studies, Floyd and Wooldridge used questionnaire responses to diagnose the degree of



mutual understanding and commitment to strategy that existed among members of the management teams. They attribute a variety of implementation problems to the lack of consensus they discovered among these management groups.⁶

The process of building consensus has been a central topic in management research for quite some time, and an important issue in the study of top management teams.⁷ Management consensus on either the goals and objectives to be pursued or the nature of the external conditions that the firm faces have been the most common research themes. In these studies, consensus has been positively related to a variety of performance indicators. Agreement on the resources and capabilities controlled by a firm has been studied less frequently, but the results regarding performance have been similar.⁸

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Research directed at top management teams has also identified conditions that influence organizational performance. In particular, team cohesion and social integration have been found to be positively related to performance.⁹ These conditions contribute to a climate in which consensus-seeking exchange and debate might take place.

In a recent study of top management teams, Hambrick interviewed a group of CEO's concerning the major problems that affect their top management team.¹⁰ Two of the major problems identified, fragmentation and "groupthink,"¹¹ define the managerial challenge we face. A fragmented team is defined as a constellation of executives pursuing their own agendas with minimum collaboration or exchange. This is quite the opposite of the cohesive, socially integrated teams that enhance performance. At the opposite extreme, in highly cohesive and socially integrated teams, the pathology of "groupthink" can occur. This tendency toward excessive like-mindedness and unanimity will undermine critical analysis. The managerial challenge is to design a process that operates between these two extremes. The process will have to overcome potential fragmentation and stimulate insightful analysis and debate. The desired outcome of the process is a shared understanding and commitment regarding the core competencies and capabilities of the firm.

A Process for Developing Consensus: Case Applications

The process model illustrated in Table 1 incorporates the elements of traditional strategic planning model into two phases. The first phase focuses on the internal assessment of the firm's resources. The steps in Phase 1 reflect three beliefs: 1) resources should be assessed from the customers' perspectives; 2) the current, existing resource base is the appropriate starting point; and 3) the rigorous application of Prahalad and Hamel's rules is the best way to maintain objectivity and avoid the pathology of "groupthink."

The second phase is future-oriented and involves decisions about resource development and new product/market opportunities. The remaining half of the strategic management equation—the external environment—is matched with internal capabilities during Phase 2.

Case Applications in Three Organizations

This process was employed by management groups in three manufacturing subsidiaries of public companies. The organizations varied in size and in the composition of the consensus-seeking group. The firms are similar in that each manufactures and supports a limited group of core products for industrial customers. Each is well established in served markets and operating profitably.

Table 1
Developing Consensus

Phase 1: Identification of Core Capabilities		
Step	Objective	Major Question
1. Prepare current product/market profile	<ul style="list-style-type: none"> delineate the markets for each product line. identify principal competitors. establish the contributions of each segment to division sales, earnings, and asset commitments. review current growth, market share, and competitive position. 	What are we selling, to whom, and how are we doing?
2. Identify sources of competitive advantage and disadvantage in the principal product/market segments	<ul style="list-style-type: none"> identify the cost, product, and service attributes that explain the current level of performance. 	Why do our customers choose our products instead of our competitors'?
3. Determine organizational capabilities and competencies	<ul style="list-style-type: none"> identify the physical and knowledge assets held or controlled by the division that contribute to the competitive advantages enjoyed. enumerate the organizational skills and abilities that create the cost, product, and service competitive advantages. 	What about our organization gives us cost advantage, superior quality or reliability, after-sale support, or whatever it is that our customers value?
4. Sort out the core competencies and capabilities	<ul style="list-style-type: none"> apply the tests of wide market access, tangible customer benefits, and difficult imitation to the skills, assets, and capabilities identified in Step 3. sort out core capabilities, i.e., those most relevant for product/market decisions. 	Which of our strengths and capabilities are most important for building the future of the organization?
5. Synthesize and reach consensus on core capabilities	<ul style="list-style-type: none"> combine, restate, challenge and debate the results of Step 4. arrive at a reduced set (generally 2-5) of core competencies and capabilities accepted as valid by the group. 	Can we agree on our organization's core capabilities?
Phase 2: Developing and Leveraging Core Capabilities		
Step	Objective	Major Question
6. Assess future conditions in existing served markets	<ul style="list-style-type: none"> evaluate likely changes in customer demands in the next 3-4 years. determine the relevance of current core capabilities to meeting these future requirements. 	Do our skills and capabilities put us in a favorable position to serve our customers' future requirements?
7. Identify emerging markets related to our skills	<ul style="list-style-type: none"> determine market opportunities in which our skills and capabilities might afford a sustainable competitive advantage. 	What characterizes markets in which our skills provide substantial value to the customer and opportunities to earn margins that exceed our costs of capital?
8. Formulate development plans	<ul style="list-style-type: none"> develop plans to meet the needs of future capabilities, asset requirements, market opportunities, and product extension opportunities. 	What do we need to do to enable the organization to achieve its performance objectives?

Case 1: Engine Design and Manufacture

An autonomous division of a Fortune 100 firm engaged in the manufacture of power generation equipment, this organization operates on a global basis, providing a limited line of engines supported by a network of field offices, licensees, and agents. The planning activity observed was motivated by several perceived threats to both market position and profitability. These threats included new competitors entering the original equipment and aftermarket segments, and the development of substitute products.

A voluntary cross functional group was invited by the head of development engineering to participate in the project. The group of seven individuals represented manufacturing, manufacturing planning, information systems, engineering, marketing, and customer service. A series of meetings was held over a four-month period during which assets were identified and tested (Steps 2 through 5).

The motivation for the firm's planning effort was based on the corporate parent's aggressive growth expectations. Annual sales growth targets could not be achieved through penetration of the existing product/ market configuration. Identification of core competencies and capabilities was required to guide the search for new product and market opportunities.

Consensus was reached on three existing competencies, one knowledge-based and two capability-based. The knowledge-based competence, labeled Turbo Machinery Technology, results from expertise in blending solutions for balance and vibration problems with solutions for heat transfer, combustion, and emissions challenges inherent in these forms of equipment. These engineering competencies are supported by extensive investments in testing facilities and archival data on field performance of an installed base of products. The capability-based competencies were labeled Custom Manufacture and Design, and After-Sale Support. Assets and skills that support the custom manufacturing capability include the breadth of manufacturing technologies employed at the production facilities, a history of backward integration that can accommodate requests for customized components and designs, job rotation programs, and a climate in which reaction to last-minute customer requests and/or specification changes is revered. The capability to provide after-sale support is based on plant and equipment investment in overhaul and remanufacture facilities, working capital investment in parts inventories and replacement engines housed at strategic locations, and the development of application engineering skills required to upgrade the performance of installed equipment during the refurbishment process.

Several initiatives were undertaken to develop and leverage resources. First, elements of the fuel injectors and electronic controls which had been outsourced were brought in-house to build expertise and proprietary knowledge. Second, development engineering projects were prioritized. Third, a customer service engineering group was proposed to focus specifically on performance enhancement in the aftermarket. Fourth, particular components and product line models were targeted for growth in remanufacture operations.

Case 2: Flow Meter Manufacture

This firm is a member of an industrial equipment manufacturing group, one of four groups in the corporation. The firm manufactures flow measurement meters for the agricultural and municipal waste treatment markets. Current customers are domestic, although some components are sourced on a global basis. About 100 people are employed at the single manufacturing facility. Sales and field support are accomplished through several networks of manufacturer's representatives that focus on distinct end users.

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The entire management team of this organization was convened for a one-day planning session. This included the top three marketing managers, two engineering managers, two production managers, the controller, and the general manager. Each member received an overview of the process and background materials to guide in preparing for the planning session.

The group identified four competencies of the organization, one knowledge-based and three based on capabilities or business routines. The knowledge-based competence was labeled Closed Conduit Flow Technology. The training and experience of the management team in flow measurement applications and an archival data base capturing performance of the existing products under a variety of field conditions form the basis of this competence. Investment in laboratory test facilities and patented mechanical and non-mechanical measurement techniques further contribute to this core competence.

The first core capability involved the ability to rapidly incorporate design modifications, particularly with substitute materials. Speed and Flexibility in Design Modification results from a modular product design, dedicated manufacturing equipment, cross-trained employees, and streamlined administrative flows. A second core capability is the result of strong brand recognition, demonstrated commitment and loyalty to dealers and representatives, and the willingness to understand the purchase methods and constraints of different flow product customers. Design of Effective Marketing Networks leads to the development and management of multiple distribution networks tailored to specific market segments and facilitates new product introductions. The final core capability fosters experimentation in product design and application. Support of an Entrepreneurial Climate is based on the encouragement of employee development and continuous learning. A management system that values open communication, joint problem-solving, and tolerance of failed efforts contributes to this capability.

The primary Phase 2 decision faced by the flow meter manufacturer involved the development of new product screening criteria to guide the search for product line extensions. These criteria define characteristics of the ideal product, characteristics of the ideal customer, and characteristics of the ideal market opportunity in which the competencies and capabilities of this firm are likely to lead to a sustainable competitive advantage. For instance, the ideal product would be flow-based, operating in a closed-conduit environment. It would also be differentiable based on proprietary measurement technology, or on controls and programming available from strategic partners. The ideal customer would be dissatisfied with existing flow measurement solutions and experiencing increasing demands for flow measurement accuracy, probably from a third party regulatory, municipal, or insurance organization. The ideal customer would also be called on by the existing representative networks. The ideal market opportunity was defined in terms of the existing competitors, initial investment requirements, and the overall market size.

Case 3: Industrial Process and Filtration Equipment

This firm manufactures centrifuge and filtration equipment for food and chemical processing customers. Its products are marketed under long-standing,

respected brand names. The firm employs 200 employees at a single production facility. Customers are predominantly U.S. firms that purchase for foreign and domestic facilities.

The core competence identification process was motivated by anticipated shifts in customer demands coupled with accelerated growth expectations. Customers had signaled the desire for operator-free equipment, a consolidated supplier base, and global product support capabilities.

The top management team was convened by the division general manager. As in the case of the flow meter manufacturer, the team included senior individuals from the production, engineering, marketing, and accounting functions. Participants were briefed prior to the one-day planning session.

The group concluded that the organization enjoyed no knowledge-based competencies. Typical comments offered in support of this conclusion cited the maturity of centrifuge technology, in existence "for a thousand years," and production technology focused "on bending metal." The group did reach consensus on five core capabilities instrumental to the success of the organization. Two of these core capabilities involve the ability to establish external relationships. Development and Management of Vendors has permitted the firm to reduce production cycle time and minimize working capital requirements. Commitment to the vendor base has been established over a long time period. Technical assistance and training activities have resulted in unusually close working relationships. The management team also concluded that the firm was effective in Building Alliance Relationships. Alliance agreements that brought new production technology had been negotiated with a Japanese partner. Other agreements extended the product line, and discussions were progressing with several European firms for distribution alliances. Resources that supported this capability for prospecting and negotiating were entirely within the personal skills repertoires of the management team.

Entry barriers to these sorts of capital equipment markets were believed to be substantial. Market Access formed a third core capability, founded on the installed base, manufacturer's representative network, brand and trademark recognition, and training provided the sales support staff.

The fourth capability identified by the group dealt with manufacturing flexibility and was labeled Custom Design and Manufacture. Each order required the integration of drive and control components supplied by various vendors and the solution of load-balancing problems that vary from customer to customer. Cross-trained employees, engineering skills, and experience in working with a variety of exotic metals contributed to this capability. The final capability focused on the culture of the organization and was labeled Support of a Continuous Improvement Climate. Open communications, employee involvement in the design of work processes, compensation, and recognition programs that encourage collaboration across functions all contribute to this organizational climate.

Phase 2 decisions for the centrifuge and filtration equipment manufacturer involved classifying and prioritizing development prospects. The categories reflected the short-term needs of the existing customer base, international market development in Mexico and the PRC, and the search for new market applications for centrifuge and filtration equipment. An immediate implication

of the development priorities was the ranking of proposals competing for a limited pool of internal R&D funds.

Guidelines for Other Organizations

In each of the case organizations, this process resulted in consensus and stimulated significant decisions, summarized in Figure 3.

Each of the case organizations had primary and anecdotal information on the purchase motivations of the current customers. These data would have been more effectively digested and considered had they been distributed to the participants prior to the planning sessions.

By all accounts, the participants felt their deliberations were valuable, and the senior executives felt their purposes had been achieved. The experiences of these teams and the outcomes they generated can be used to improve this sort of planning activity in other organizations. The following six guidelines will help a facilitator anticipate, or avoid, the pitfalls that were encountered.

Advance Preparation

Participants were supplied an outline of the process and a packet of articles describing core competence and capabilities in advance. The sessions could have been more productive with additional preparation. For instance, Steps 1 & 2 represent the compilation of performance and market research data. Each of the case organizations had primary and anecdotal information on the purchase motivations of the current customers. These data would have been more effectively digested and considered had they been distributed to the participants prior to the planning sessions.

ORGANIZATION	COMPETENCIES IDENTIFIED	PHASE 2 DECISIONS AFFECTED
Engine Design & Manufacture	<ol style="list-style-type: none"> 1) Turbo Machinery Technology 2) Custom Mfg. & Design 3) After-sale Support 	Backward Integration of fuel injectors and electronic controls Prioritize development engineering projects Creation of customer service engineering group Target remanufacture market
Flow Meter Manufacture	<ol style="list-style-type: none"> 1) Closed Conduit Flow Technology 2) Speed & Flexibility in Design Modification 3) Design of Effective Marketing Networks 4) Support of an Entrepreneurial Climate 	Develop New Product Screening Criteria: Product Characteristics (e.g. ability to exploit patent rights) Customer characteristics (e.g. demands for increased flow measure accuracy) Market Characteristics (e.g. market size)
Industrial Process & Filtration Equipment	<ol style="list-style-type: none"> 1) Development and Management of Vendors 2) Building Alliance Relationships 3) Market Access 4) Custom Design & Manufacture 5) Support of Continuous Improvement Climate 	Prioritize R&D Projects: #1 Meet requirements of existing customers #2 Market penetration of Mexico & PRC #3 New markets for centrifuge and filtration equipment

Focus on the Present

The purpose of Phase 1 is the identification of the current competencies and capabilities of the organization. Because a planning exercise is future-oriented, it is difficult for those involved not to jump ahead and start thinking of what should be developed, or how some capability should be exploited. Those decisions are best left to Phase 2. Debating the merits of a particular product line extension should not occur before a group reaches consensus on the existence of the resources on which the proposal is predicated. It is important to focus the initial discussions on what is, and avoid engaging in questions of what should be.

Let the Debate Begin

Steps 3 through 5 generated lively discussion and debate in each of the three case organizations. In particular, Step 4, the application of the three tests to the perceived organizational strengths, involved constructive and focused argument. In two of the cases, the process was scheduled to be conducted in a single day and the debate was apparently curtailed in the interest of finishing the agenda. In case Number 1, these steps were accomplished over a series of meetings. It was clear that positions were reevaluated and rethought between sessions, which contributed to a more rigorous analysis. Time constraints that might inhibit the thoughtful and critical interchange that leads to consensus rather than acquiescence should be avoided.

Imitation Is the Stickler

Applying the tests of customer benefits and market access was much easier for the management teams than applying the test for imitation. Only the flow meter manufacturer held patents that offered some protection from outright imitation. The discussion concerning replication of other competencies and capabilities most frequently focused on the amount of time and resources a serious competitor would have to commit. This topic of imitability appropriately commands the most attention in the literature on resource-based strategic planning.¹² Some advance reading or a preliminary discussion on the barriers to imitation is likely to reduce the frustration participants experience in applying this test.

Expect to Compromise

There were capabilities identified in each of the case studies that do not meet the three tests of strategic value. This is a likely outcome in consensus-seeking activities. A particular individual, a vested interest, or a pet project are going to intrude into the process. The objective application of the core competence tests can root out many of these; indeed that is the function of the tests. There were situations in which no amount of discussion could dissuade a champion, and the group conceded. For example, in the case of the power generator manufacturer, a fourth capability dealing with information technology was added in the final report to senior management. This had been the subject of intense discussion in the group meetings. The proponent was developing an information system that would assist in the anticipation of customer service requirements and enhance product reliability over time. The system would yield a competitive advantage, but clearly failed the imitation test and probably the market access test. Relentless advocacy led to its inclusion, although the group opinion was that it supported the after-sale support capability already agreed upon.

The capability to design effective marketing networks in case Number 2, and the capability to build alliance relationships in case Number 3 represent so-called

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"weak passes" at best. These were included in the interest of group harmony. Be prepared to accept some "weak passes" (Type II errors) at the conclusion of Phase 1; chances are they will have little influence on the Phase 2 decisions.

Beware of the Difficulties in Defining Capability

Defining capabilities was difficult for the management teams because capabilities come in different varieties. The most recognizable form deals with the ability of a firm to perform some basic functional activity better than competitors. Brand management¹³ or distribution logistics¹⁴ are examples of this variety of capability. In the case studies, after-sale support (case Number 1), speed and flexibility of design modification (case Number 2), and development and management of vendors (case Number 3) are also examples of garden variety capabilities. A second form of capability involves the ability to change, innovate, or adapt over time.¹⁵ These sorts of capabilities embody a dynamic theme that portends the creation of new competencies and capabilities.

Perhaps the real resource is the capability to design structures and processes that lead to continuous improvement. Then again, maybe the real capability is assembling management teams that can innovate in the design of structures.

Support of an entrepreneurial climate (case Number 2), and support of a continuous improvement climate (case Number 3) fall into this higher-order category of capability. These sorts of capabilities can, of course, be very valuable, but two problems occurred when they were discussed. First, there is a high degree of social desirability attached to these organizational conditions. It is therefore important to assess their relevance to competitive advantage in the existing and anticipated market conditions. In light of the sales expectations and the environmental conditions that the respective case organizations face, it was agreed that these were valuable capabilities.

The second problem is that opening the door to such learning to learn capabilities makes it difficult to determine when to stop. For example, if the team feels that support of a continuous improvement climate is an important capability, where did the capability come from? Perhaps the real resource is the capability to design structures and processes that lead to continuous improvement. Then again, maybe the real capability is assembling management teams that can innovate in the design of structures. The pursuit of the ultimate source of competitive advantage leads to "an infinite regress."¹⁶ These abstractions move the discussions away from the existing activities of the firm and offer less guidance to the Phase 2 decisions. If proposed, it is useful to keep the definition of higher-order capabilities as close to the actual work processes as possible.

Conclusion

Application of the resource-based perspective requires a management team to take stock of the internal resources under its control. Those resources most likely to lead to a sustained competitive advantage should be nurtured, while other resources deemed less valuable for the future may be allowed to deteriorate or be disposed of. A process to determine the value of resources should be guided by objective standards, and afford ample opportunity for debate and analysis. If the process does not result in mutual understanding and commitment regarding core competencies and capabilities, there is little hope for consistency in the decisions each member of the management team will make. The process presented here seemed to work, but there is room for improvement. The experiences of these management teams could provide some guidance to other firms.

Endnotes

¹ A resource-based view of the firm has its roots in the industrial organizations economics literature and has been central to the strategy field. See E.H. Chamberlin, *The Theory of Monopolistic Competition*. Cambridge: Harvard University Press, 1933; and K. R. Andrews, *The Concept of Corporate Strategy*. Homewood, IL: Irwin, 1971.

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¹⁰ D.C. Hambrick, "Fragmentation and the other problems CEOs have with their top management teams," *California Management Review*, 37(3), 1995, 110-127.

¹¹ I.L. Janis, *Victims of Groupthink*. Boston, MA: Houghton Mifflin, 1972.

¹² Barriers to imitation are discussed in most every article on resource-based strategy formulation; unfortunately, the language often is arcane. Perhaps the most readable are: R.M. Grant, "The resource-based theory of competitive advantage: Implications for strategy formulation," *California Management Review*, 33(3), 114-135; J. Barney, op. cit., 1991. Other noteworthy treatments include I. Dierickx & K. Cool, "Asset stock accumulation and sustainability of competitive advantage," *Management Science*, 35, 1989, 1504-1511; S.A. Lippman & R.P. Rumelt, "Uncertain imitability: An analysis of interfirm differences in efficiency under competition," *Bell Journal of Economics*, 13, 1982, 418-438. S.G. Winter, "Knowledge and competence as strategic assets," in D. Teece (Ed.), *The Competitive Challenge* Cambridge: Ballinger, 1987.

¹³ R. Amit & P.J. Schoemaker, "Strategic assets and organizational rent," *Strategic Management Journal*, 14, 1993, 33-46.

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