

## ■ Research Article

# A Resource-based Perspective of Developing Organizational Capabilities for Business Transformation

Ganesh D. Bhatt\*

Morgan State University, USA

From a resource-based perspective, organizations are considered heterogenous in relation to their resources and capabilities. Resources and capabilities largely determine the competitiveness of the organization. Organizational capabilities are rooted in the ability of the organizations to reconfigure and recombine organizational resources. In a way, it is the interaction between resources and capabilities that becomes critical in providing sustaining advantages to the organizations. The pattern of interaction is mostly determined by an organization's foreground knowledge and background knowledge. Even though foreground knowledge can be easily imitated, replicated, and transferred, background knowledge remains elusive to imitation. In addition, imitating foreground knowledge may not be that important because for developing capabilities, foreground knowledge and background need to be matched, reconfigured, and recombined. There are several ways through which organizations develop their capabilities. For example, routines set around technological systems are important in developing organizational capabilities, but technologies do not determine capabilities. It is the pattern of interaction between techniques, technology, and people that determine organizational capabilities. Therefore, despite the fact that technologies can be replicated and imitated, an organization may still not be able to develop worthwhile capabilities, because of its inability to comprehend and apply patterns of interactions that are likely to be the sources of sustaining advantages. Copyright © 2000 John Wiley & Sons, Ltd.

## INTRODUCTION

Contemporary approaches in strategy area have seen a shift from the industry-based competitive force analysis to the internal resources of the firms in explaining the advantages in firms' performance (Barney, 1986; Prahalad and Hamel, 1990; Teece *et al.*, 1997). In this approach, each organization is considered as consisting of resources and capabilities, based on which organizations accrue rents

(Teece *et al.*, 1997). In essence, central to the theme of the resource-based view is the role of organizations in developing and deploying scarce resource capabilities, which cannot be easily imitated (Wernerfelt, 1984).

Lately, work in the resource-based view of the firm has tried to differentiate between tangible resources (i.e. people, machinery, financial capital) and intangible knowledge-based resources (e.g. Barney, 1991; Kogut and Zander, 1992; Nonaka and Takeuchi, 1995). Knowledge-based resources allow various ways to use tangible resources for yielding services (Teece *et al.*, 1997: 509). In essence, they are analogous to 'know-how' and skills (Kogut and Zander, 1992: 386). To be precise

\*Correspondence to: Ganesh D. Bhatt, Department of Information Science & Systems, Morgan State University, 1700 E. Cold Spring Lane, 507 D. MecMechan Hall, Baltimore, MD 21251, USA. E-mail: gbhatt@jewel.morgan.edu

in our concepts, we are using the word 'resources' to describe tangible inputs such as people, property, and capital, which can easily be acquired from the market, and capabilities to describe intangible resources, such as know-how and skills, which are developed by people within the organization around tangible resources. Capabilities are not, however, simple accumulation of know-how or skills, rather we believe it is the integration of knowledge and skills which describe the process of capability building. Because these capabilities are developed within the organization, a large part of them is internalized and routinized within the firm. However, at the same time, an organization cannot claim its control over these capabilities, because capabilities are developed by people through their interactions within the organization. Neither capabilities nor resources, alone, are sufficient to offer above average rents to the organization. Capabilities are required because resources are inert, it is only through required capabilities input resources are processed and transformed to add value to the services (Teece *et al.*, 1997: 509). Similarly, capabilities are developed largely within the organization around particular resources, if organizational contexts change, people are required to develop different capabilities around new sets of circumstances (Kogut and Zander, 1992). In essence, it is interaction between resources and capabilities that drive the organization for coordinated use of knowledge and resources.

From a resource-based perspective, the differences in firms' performances are based on the differences in organizational resources/capabilities/endowments. Firms are heterogeneous with respect to their resources, capabilities, and endowments, because firms are constrained from their historical past, existing resources, and accumulated capabilities (Dierickx and Cool, 1989; Mahoney, 1995). It is often difficult to unlearn the past as this may require complete restructuring or overhauling of the organization. Though an organization can readily buy superior resources from the market, it still needs to develop and deploy capabilities in converting those resources into services (Penrose, 1959). Development of capabilities takes time, and the process of capability development is likely to be affected by existing capabilities and organization's absorptive capability (Cohen and Levinthal, 1990). When organizations are unable to develop required capabilities in transforming resources into valuable services, the acquired resources are likely to become overhead, rather than assets to the organizations (Amit and Schoemaker, 1993).

## PROPERTIES OF CAPABILITIES

Capabilities are organizing principles that assist organizations in bringing together knowledge related to diverse body of repertoires for integration purposes. The important properties of capabilities are its tacitness (Polanyi, 1966; Nonaka and Takeuchi, 1995), context specificity (Nelson and Winter, 1982), and temporality (Dierickx and Cool, 1989). All the above properties have important consequences in developing, deploying, and renewing capabilities within the organization.

### Context dependency

Capabilities are context dependent, because capabilities developed for a specific purpose are unlikely to be used for other purposes (Galunic and Rodan, 1998). For example, the capabilities developed for R&D may not be appropriate for marketing the products and services (Lieberman and Montgomery, 1998). Therefore, for creating sustained advantages in the markets, the organization needs to develop and deploy a range of capabilities around the customer value-chain, which can be useful in responding to different challenges in the markets (Porter, 1991).

Although context specificity poses the problem of transferring and replicating the capabilities from one context to another, there may be several repertoires subsumed under capabilities that can easily be replicated and transferred. For example, a firm, like Wal-Mart is believed to possess a high level of capability in its logistics systems (Stalk, 1988). Even though none of the firms are able to replicate Wal-Mart's capability in logistic systems, many firms have successfully put together several routines, like just-in-time, and automated inventory systems (Bradley *et al.*, 1993). To be precise, we are differentiating between organizational repertoires and organizational capabilities. Distinguishing them is important, because each capability consists of knowledge of several repertoires, but each repertoire may not necessarily be sufficient to develop a specific capability. This argument helps us to understand that several organizations may consist of many common sets of repertoires, despite possessing diverse sets of capabilities (Starbuck, 1983, Budros, 1999). Each capability is unique since it is developed within a specific set of resources through the integration of diverse sets of repertoires in the organization (Penrose, 1959).

The repertoires can easily be transferred and replicated from one context to another. However, capabilities, developed through the integration of

repertoires in the organization become specific to the organizational context. In other words, organizational routines or repertoires may be understood as general-purpose knowledge, while organizational capability is specific knowledge. For example, firms operating in similar industries are likely to develop and maintain many common repertoires or routines (Zuboff, 1988). However, in developing capabilities, organizations match and integrate knowledge from different repertoires in such a way as to be specific to the organizational context and history. Therefore, despite the ease with which repertoires and routines can be easily imitated, the real advantage of using capabilities still remains beyond the reach of other organizations, because they are often unable to enact a similar history, culture, and interaction pattern for which the specific capability was originally developed and deployed. In essence, organizational capabilities consist of the interactions between foreground knowledge and background knowledge as shown in Figure 1. Background knowledge for each organization is unique, which cannot be easily imitated by others, while foreground knowledge is explicit and general knowledge, which can easily be codified and imitated.

Background knowledge is based on organizational history, culture, and interaction patterns, and forward knowledge is based on organizational repertoires or routines. Foreground knowledge is much easier to capture, codify, and imitate than background knowledge. The characteristics in firm-level differences in managing new capabilities are likely to persist and will have important consequences in the firm-level performance. Even

after capturing and imitating foreground knowledge, a firm may not be able to develop a capability, as it is the symbiotic relationship between foreground and background knowledge which is likely to create organizational capabilities. The important implications of the above argument are twofold: first, each firm possesses unique capabilities; second, firm-level capabilities cannot be reduced to differences in individual capabilities, because the main difference lies in background knowledge of the organizations. The important role of organizations, therefore, becomes synthesizing and integrating foreground knowledge of diverse repertoires within a unique set of circumstances, set by background knowledge. This statement is parallel to Spender's (1996) argument, but we do not think the development of a capability is a matter of simple repackaging of knowledge. We argue that it is the creativity and ability of organizations in integrating knowledge of diverse sets of repertoires which is important in developing organizational capabilities. By creating an environment of knowledge sharing and distribution organizations can be in a better position to integrate diverse bodies of knowledge of repertoires in novel ways (Prahalad and Hamel, 1990; Leonard-Barton, 1992).

**Tacitness**

Tacitness refers to the extent to which knowledge can be captured, codified, and imitated (Polanyi, 1966; Itami and Roehl, 1987). Even though an organization may imitate specific sets of routines or repertoires from its competitors, it will still find

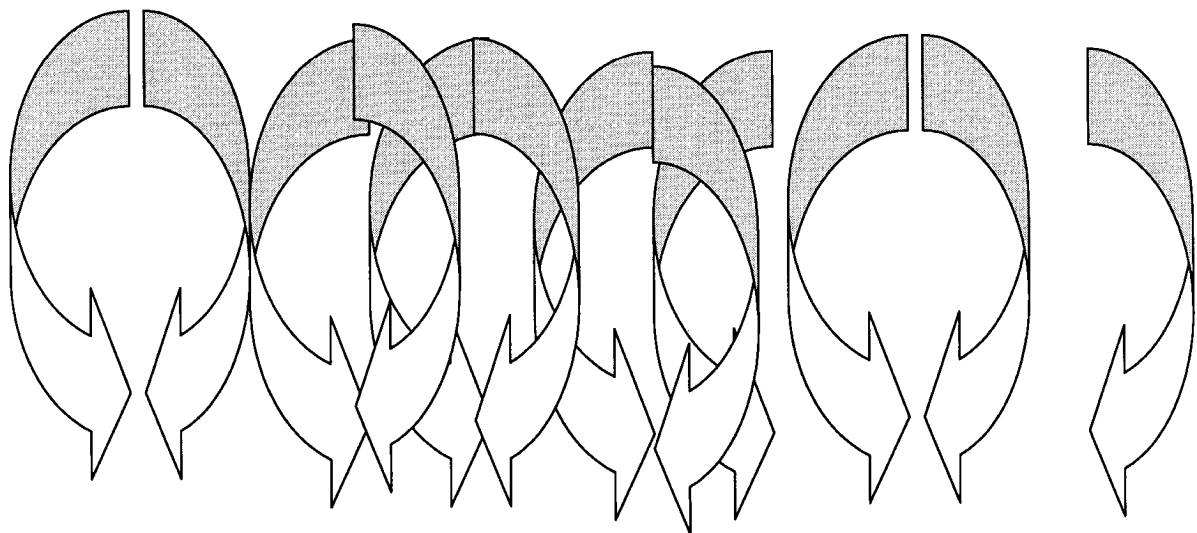


Figure 1 The interaction between background knowledge and foreground knowledge. (Only shaded part of knowledge visible, a large part of knowledge remains elusive to codification and imitation)



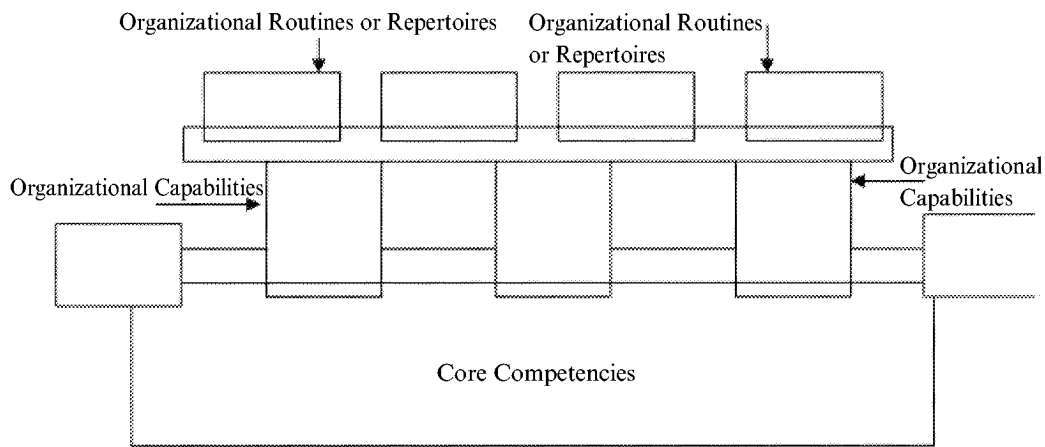


Figure 2 Relation between organizational repertoires, capabilities, and core-competencies

it difficult to imitate capabilities, because capabilities, as we argued earlier, are developed by integrating diverse bodies of knowledge of the repertoires, shaped by unique background knowledge. Even if an organization becomes successful in imitating specific sets of capabilities, these are unlikely to be of much use to the organization until the organization is able to modify them to its unique circumstances, contexts, and history (Wernerfelt, 1989). For example, in a survey of the automotive industry, McKinsey Inc. found a superior process quality performance in Japanese companies in comparison to European companies (Rommel *et al.*, 1994). Rommel *et al.* (1994) argue that Japanese companies possess unique attributes to work on ambitious problem-solving processes.

Winter (1987) has looked at the nature of knowledge based on its complexity. They argue that an independent unit of knowledge can easily be grafted to new circumstances and contexts. However, complex knowledge, which is highly interdependent on other knowledge units for its use, cannot be easily grafted onto new sets of circumstances or contexts. In other words, organizational repertoires or routines are almost similar to independent units of knowledge, which can easily be imitated. Organizational capabilities are almost similar to complex or interdependent units of knowledge, which are mostly context-specific, shaped by existing organizational resources.

### Temporality

Temporality refers to the duration to which specific capabilities can provide sustaining advantages to organizations. Capabilities do not remain constant. They emerge, grow, mature, and decline (Dierickx and Cool, 1989). Therefore, specific capabilities are likely to provide a temporary

advantage, since a specific capability is likely to become rusty as many competitors over time can develop similar, substitute, or better capabilities. Advantages erode over time not only because other organizations have been able to develop similar or superior capabilities, but because specific sets of organizational capabilities become ineffective in responding to new market realities. Therefore, management should not be overly committed to particular sets of capabilities.

Prahalad and Hammel (1990) popularized the concept of organizational 'core-competence'. Core-competencies are comparatively more durable than simple capabilities (Prahalad and Hammel, 1990). The main difference between core-competencies and capabilities is that core-competencies comprise organizational capabilities, but organizational capabilities are not necessarily core-competencies. Core-competencies build the foundation for the development of organizational capabilities as shown in Figure 2. In essence, core-competencies can offer the advantages of developing different sets of capabilities, by bringing and integrating together diverse bodies of organizational routines or repertoires. Take the example of Sony, which has perfected in miniaturization techniques by bringing a variety of electronic products, including innovating multimedia video-games, to markets earlier than its competitors (Idei and Schlender, 1999). This competence has enabled Sony to integrate diverse sets of capabilities, ranging from coordination of complementary design techniques (i.e. modular designs) to the manufacture of various products, such as portable televisions, radios, and computers.

Unlike capabilities, core-competencies are quite robust, because they can be extended over a longer duration and under differing circumstances. Most often, core-competencies lose their effectiveness,

not because of evolutionary changes but because specific sets of competencies are substituted with superior competencies. However, these kinds of revolutionary changes resulting from substitution of core-competencies do not occur frequently. The robustness of core-competencies often enables organizations to develop new capabilities to respond to changing market realities.

The other way to respond in a dynamic environment is by the use of organizational flexibility, which can assist in developing and deploying new capabilities quickly (Sanchez, 1995). With its ability to mount and modify existing and developing new capabilities, an organization can take advantage of responding to various environmental contingencies (Volberda, 1998).

In essence, both capabilities and core-competencies are important, because if an organization does not focus its efforts on developing capabilities it is unlikely to build core-competencies, and in the absence of core-competencies, the organization is unlikely to create sustained advantages due to the temporality of the organizational capabilities.

#### INDIVIDUAL EXPERTISE AND ORGANIZATIONAL CAPABILITIES

Individual expertise is necessary for developing organizational capabilities. However, these capabilities cannot be reduced to individual expertise, because organizational capabilities are determined by unique patterns of interactions between technologies, techniques, and people, which cannot be easily imitated, since these interactions are shaped by the organization's unique history and culture (Barney, 1986).

Like organizations, individuals possess two kinds of knowledge: foreground and background. Foreground knowledge is explicit and declarative and background knowledge is procedural and tacit (Nelson and Winter, 1982). Foreground or explicit knowledge of individuals can be considered similar to the knowledge of organizational routines and repertoires, which can easily be captured, codified, and imitated. Background or tacit knowledge of individuals is similar to an organization's background knowledge that is mastered by individuals after years of experience and practice in. How individuals match, modify, and integrate their explicit knowledge in light of different circumstances and situations is referred as individual expertise. As the Nobel prize-winner, Herbert Simon (1981), succinctly states, 'In a

couple of domains where the matter has been studied, we do not know that even the most talent people require approximately a decade to reach top professional proficiency. Except for Bobby Fischer, who reached grandmaster status in nine years and some months from the time he first began to play chess, there is no record of anyone achieving that level in less than a decade' (p. 108).

From Simon's (1981) statement it is apparent that developing background knowledge is not a matter of simple imitation, but requires years of practice. That also means individuals, with minor modifications, can match their foreground knowledge with the unique circumstances presented to them. That is, the capabilities, as produced in a unique environment, no longer remain specific to the environment, rather, they become distinctive to the individual. In this sense, organizational capabilities, become expressions of personal expertise, experience, and creativity. Based on their expertise and experience, experts can easily make sense of new information, which is usually either ignored or not well understood by other individuals (Hansen *et al.*, 1999).

Despite the advantages that an organization can obtain from personal expertise or expert knowledge, the organization itself becomes vulnerable to the mobility and idiosyncrasies of experts. Therefore, even after employing a number of experts, the organization may still not gain the full potential of experts. That is because the organization finds it difficult to use individual expertise throughout the company. As long as experts identify with an organization, the organization can gain a unique advantage of their expertise. However, the organization cannot claim rights to individual expertise.

One way to deal with the problem of directing individual expertise for organizational use is that organizations must strive to create an environment of knowledge diffusion, integration, and transformation. This is likely to make the organization less dependent on individual expertise. By debating and interacting with organizational members, an organization can learn 'in-house' the merits of an individual organizational routine and make attempts to integrate internalized organizational repertoires for developing organizational capabilities.

#### DYNAMICS OF ORGANIZATIONAL CAPABILITIES

By using standard rules and scripts, organizations can easily routinize their repertoires and fore-

ground knowledge (March and Simon, 1958). Reuse of repertoires and foreground knowledge can economize on the 'attention' and, thereby, help in increasing the efficiency of the execution of different tasks (Nelson and Winter, 1982: 125). However, in dynamic environments, an organization should not be so preoccupied with maintenance and reuse of its repertoires as to lose sight of new market challenges, which may require quite a different set of capabilities. Because many routines may no longer be useful either in increasing the efficiency of the tasks or for the integration purposes, an organization should closely experiment with reconfiguration and recombination of new sets of repertoires to build alternative and superior capabilities. The experience gained in such experiments may help in increasing the absorptive and transformative capacities of organizations, as argued by Cohen and Levinthal (1990) and Garud and Nayyar (1994).

In fact, exploitation of past capabilities can be useful only to the point when environments remain stable (March, 1991). If environments start changing, existing rules, standards, and technologies can be overhead to organizations, because organizations find it difficult to unlearn well-learned programs and develop new sets of capabilities. Because organizations are embedded in their histories, new market realities, which do not match with the organizations' historical perspectives, are likely to be ignored. This creates one of the problems in development of organizational capabilities. On the one hand, organizational capabilities are context-specific, and on the other, organizations are unlikely to change their contexts easily. As long as existing capabilities can respond to market realities, management is reluctant to review and modify their rules, standards, and procedures. Only when organizational advantages start slipping does management begin to realize the ineffectiveness of existing programs, rules, and routines.

Opening new information channels is considered important in quickly reassessing changing market realities (Davenport *et al.*, 1997). By reassessing new market realities, organizational members are likely to be in a better position to provide a fresh perspective on organizational weaknesses and strengths, and accordingly, take adequate steps for improving organizational capabilities (Hansen *et al.*, 1999). The process of information collection, manipulation, and exchange enables an organization to create and recreate different forms of realities for integrating diverse bodies of knowledge in bringing fresh perspectives to organizational capabilities.

Information systems can certainly help in collection, manipulation, and distribution of information throughout the organization. However, the essence of offering a 'meaning' depends on individuals. As individuals in organizations interact with other people, they are likely to understand each other's views about the disparate realities of the same situation (Huber, 1991). This process is helpful in developing a holistic view of the realities, thereby facilitating the integration of diverse bodies of knowledge in creating new sets of capabilities, specific to the organizational contexts. A large part of capabilities is, thus, dynamically created, maintained, and reassessed through multiple interactions by people.

## ORGANIZATIONAL CAPABILITIES AND TECHNOLOGY

The dynamics of capabilities cannot be completely divorced from tools and technologies, because these are considered to be the main catalysts for the growth of organizational capabilities (Clark, 1989). At the same time, however, tools and technologies do not inherit organizational capabilities. It is only through people that tools and technologies get a 'meaning' (Davenport *et al.*, 1997).

The success of tools and technologies in the development of organizational capabilities is likely to depend on the firm's information processing and decision-making capacity. Technologies are critical in developing new capabilities, but, at the same time, they can also develop irrelevant capabilities. A steady investment in technology is often necessary in the context of future market opportunities (Garud and Nayyar, 1994). At the same time, however, too much emphasis on technologies, without paying adequate attention to people's perceptions about technologies and market realities, is likely to create irrelevant knowledge (see Berggren, 1992).

In dealing with the dilemma of which technologies to internalize from outside the organization and which to develop inside it, the absorptive and transformative capacity of the organization can provide useful guidelines in assessing the potential of technologies for the development of capabilities. Cohen and Levinthal (1990) used the concept of 'absorptive capacity' to refer to an organizational ability to recognize and exploit outside technologies. Garud and Nayyar (1994) used the term 'transformative capacity' to denote organizational ability to redefine capabilities in light of the technologies developed within the

organization. The importance of absorptive capacity stems from the fact that the organization is sensitive to outside technologies and new market realities, which can direct an organization for internalizing outside technologies and learning new techniques. The importance of absorptive capacity, however, is short lived, as argued by Garud and Nayyar (1994: 367) who stated that 'However, absorptive capacity is not sufficient for creating a sustainable competitive advantage when: (1) path-dependent, cumulative knowledge is involved; (2) entry timing is important, or (3) a firm operates in a continually changing environment in which it does not just react to external changes, but instead, creates them by its own actions'. This is especially true when technologies and techniques are too complex to be 'mastered' easily. Their thesis is similar to our arguments. As we argued earlier, imitation of technologies does not necessarily lead to new capabilities, because capabilities are developed around specific organizational resources and contexts, set by historical patterns of interaction between technologies, techniques, and people in the organization.

In a sense, technologies are critical for the development of capabilities, but they do not determine the capabilities. It is only through the interaction between technology and people that capabilities are developed, deployed, and used. A very similar statement was made by Clark (1989: 94-95) who said '[T]echnology cannot be management's primary solution because it is every competitor's potential solution. A good offence can seem to be only defense. It is nearly impossible to build a lasting edge through a well unique device developed by R&D or through an innovative, computer-driven process'. He further added, 'The advantage goes, as it always has gone, to superior strategy and execution. Take another look at the diemaker. It flourishes not because of any technological advantage *per se* but because it positioned itself at the center of the system of its own making—a system that exploits its own engineers' distinctive competence' (p. 95).

The goal of technology should be to allow participants bring and integrate diverse bodies of knowledge to make better use of existing capabilities and provide opportunities to quickly develop potential capabilities to meet changing market realities. Here lies the complementary relationship between technology and organizational capabilities. Clark (1989: 95) put forth this point clearly, which he stated, '...Scale and speed require the application of new sensor technology. They require new control algorithms based on mathematical models of the process and new equipment

designs, with ultrahigh precision operation. They will also require, and this is imperative, an organization capable of managing an integrated, science-based process...'

Mastering technology is important is important for developing new organizational capabilities. It is almost impossible for an organization to divorce itself from technology for gaining advantage from the market. Because technology does not merely mediate market realities but also shapes our surroundings in which we work and interact, it is difficult for an organization to create its understanding of capabilities without reaping the advantages of technologies.

## ASSESSING MARKET REALITIES

The relationship between organizational capabilities and sustained competitive advantages reflect the assessment of market realities (Brush and Artz, 1999). Market challenges and opportunities are largely driven through the customer value-chain, which includes totality of the capabilities used from the moment an organization initiates providing a product or service to customers until those products or services are finally delivered to the customers. The need to understand and analyze organizational capabilities throughout the customer value-chain is important to assess how quickly and satisfactorily an organization can meet customers' specific demands (Collis, 1994). Though the literature has not stated the importance of multifunctional capabilities, it has been found that different functionalities provide advantages only in specific domains (Lieberman and Montgomery, 1998). The use of techniques such as quality function deployment (QFD), total quality management, and customization can help organizations to understand the criticality of improving multifunctional capabilities, which are largely driven to understand, analyze, and meet customers' demands in products and services.

As we argued earlier, capabilities do not remain static, they evolve over time and become routinized within the organizational context. Therefore, the foremost and the most critical organizational capability can be considered as the ability of an organization to quickly reassess changing market realities, and, accordingly, develop new capabilities to respond to changing market conditions. Take the examples of IBM and Microsoft. When Microsoft was emerging, IBM was already enjoying a huge electronic market share due to its superior capabilities. However, IBM's ignorance of the evolving computer network market in the

1990s made it noticeably vulnerable for using its existing skills, because of the new market realities, thus rendering a part of its products and services obsolete. On the other hand, Microsoft, after studying, understanding, and anticipating the needs of its customers, developed more feature-rich applications, an easy user interface, and in general, brought a set of innovations to the marketplace to meet the demands of its customers. This was in contrast to Apple. The capability for bringing almost similar types of features in computers, several years ago, by Apple, however, did not offer any sustaining advantage to Apple. These examples point out the importance of multifunctional capabilities, which organizations should be able to develop and use.

The main aim of management in this process is to be of a facilitator of issues to reassess market realities and ensure sufficient commitment in developing new capabilities so that the organization is ready to respond to potential market opportunities and threats. In addition, management should not be overly obsessed with a particular set of capabilities, because in dynamic environments, many of the specific capabilities become obsolete.

## IMPLICATIONS

In essence, so far we have argued that each organization encompasses distinct sets of capabilities. These capabilities are largely framed around organizational resources though a pattern of interaction between techniques, technology, and people that is historically shaped by the organization. We further argued that each organization makes use of several organizational repertoires and some of these repertoires may be common in diverse sets of organizations, because organizational repertoires usually represent 'common knowledge', not the distinct capabilities. It is only through the integration of diverse organizational repertoires that organizations develop distinct capabilities. In a way, it is the creativity and ability of organizations in integrating knowledge of diverse sets of repertoires which is important in developing organizational capabilities.

The implications of the above arguments are that development of organizational capabilities is a dynamic process, and the usefulness of the capabilities is largely determined by the market. Therefore, for creating sustained advantages, organizations should focus their capabilities on meeting or satisfying customers' needs in superior ways. This can be done by making customers an

integral part of the interaction patterns in the organization. If customers are taken into account, even simple 'routines' over time are transformed into distinct sets of organizational capabilities. Take the case of Federal Express's Web, an online package tracking system, which has grown into an integrated logistic system facilitating various customer-business interactions and business operations online (Nash, 1996).

The other implication of our arguments is based on the temporality of the capabilities. Despite the advantages organizational capabilities may provide, these capabilities do not remain constant. They change, and their effectiveness is often dictated by the market. It is very hard, if not impossible, to identify which capabilities will and will not survive in a particular market. Therefore, the only way a business can ensure sustained advantages is through the development of multifunctional capabilities. This view is a little uncomfortable to those who believe that an organization can achieve lasting advantages because of a specific set of organizational capabilities (see Collis, 1994). In this light, we come to the basics of business again, 'Try to understand your customers' because customers are the jury who give their ultimate verdicts on organizational capabilities.

## Lessons for business managers

Business managers can learn several lessons from the theoretical arguments in this study. First, the strategy of knowledge imitation can be only a shortsighted solution to organizational competitiveness. Without a strong foundation of core-competencies, externally acquired knowledge may be not of any advantage, except for a solution of a specific problem. However, as we have discussed earlier, in a fast and dynamic environment, business problems change rapidly, as do the requirements for new knowledge.

Second, managers should make a careful assessment of which capabilities need to be maintained and modified and which need to be created in-house. In a dynamic and changing environment, firms should continually reinvent themselves to take advantage of new market realities. For example, a number of companies, such as Canon, are known to continually cannibalize its own razors to bring superior products to the market (Prahalad and Hamel, 1990).

Third, managers should realize that developing core-competence requires time and effort before 'knowledge' can be perfected. Managers looking for quick solutions of chronic problems are



unlikely to grasp the seriousness of challenges encountered over years of practice and dedication. In companies where management performance is reviewed in short time spans managers are unlikely to take up the challenge of developing new competencies in the firm.

Fourth, management should take a holistic perspective of the business to develop multifunctional capabilities. The need to understand and analyze organizational capabilities throughout the customer value-chain is important. For example, Lieberman and Montgomery (1998) state that different functionalities provide advantages in their specific domains.

Finally, by getting a better perspective on organizational routines, capabilities, and core-competencies, managers can make a judgment as to whether they would like to develop their capabilities in a bottom-up (starting from core-competencies) or top-down (starting from matching and reconfiguring organizational routines) way. There are advantages and disadvantages to both the approaches. For example, a bottom-up approach may take a large amount of time and effort. However, its advantages are that capabilities built around core-competencies are flexible. The example of Cannon illustrates this case (Prahalad and Hamel, 1990).

On the other hand, a top-down approach may be quick, but capabilities developed through this approach are specific and therefore lack the flexibility to be used in other circumstances. The example, of Kodak in the development of their throw-away camera provides an example (Grant, 1998).

#### Lessons for academic researchers

Recently, a plethora of business literature has discussed the issue of core-competencies, capabilities, and organizational resources. However, the literature is not very clear in defining these concepts. This study has made a distinction between organizational resources, capabilities, core-competencies, and repertoires. We believe this is an important contribution to further research in this area. This research can empirically examine the relationship between these concepts.

We have also clarified the concept of foreground and background knowledge and shown why organizations often face difficulties in grafting externally acquired knowledge for their advantages. We believe an emphasis on background knowledge provides a whole new set of research areas in integrating the interpretative aspects and rational perspectives of knowledge. This line of

inquiry also opens doors for examining the critical difference between artificial and organizational knowledge.

A critical aspect on which further research can be done is the area of background knowledge. Although several studies highlight the importance of organizational culture, innovative managerial practices, and brand image in knowledge development (Barney, 1986), none of them has clearly articulated how background knowledge affects the configuration and transformation of foreground knowledge. This line of inquiry can be fruitful in understanding the role of cultural and social practices in configuring knowledge.

#### CONCLUSIONS

In this paper we have offered an explanation of organizational capabilities and have shown why it is so difficult to imitate capabilities. We based our theoretical arguments on organizational repertoires, organizational background knowledge, and foreground knowledge. Background knowledge is elusive to capture and imitate, while foreground knowledge can be captured, codified, and imitated. Capabilities are developed and deployed based on interactions between foreground and background knowledge. A similar kind of interaction pattern is also reflected in the use of tools and technologies.

The important feature of capabilities is that capabilities are not ends. They evolve through a dynamic process of interactions between technologies, techniques, and people. Capabilities emerge, grow, mature, and decline. The life cycle of each capability is determined by its effects on the markets. The critical task for the organization is to create a balance between maintenance and modification of existing capabilities and development of new ones. That is why in complex and dynamic environments, organizational flexibility may be considered the best capability, as it allows organizations to respond to various environmental contingencies (Ashby, 1956; Sanchez, 1995).

Despite the heightened importance of capabilities in organizations, many are realizing that building, cultivating, and exploiting capabilities is not easy. The reasons are contained in the capabilities themselves. Once an organization develops and exploits capabilities in a particular domain, it often becomes a prisoner of its own knowledge, because information which does not fit the existing cognitive frame of reference is either ignored or considered to be irrelevant.

Capabilities are not permanent. It is the market

that often dictates which capabilities need to be mastered and which need to be discarded or shelved in light of existing market realities. Therefore, often a number of capabilities, which are not considered important at a particular time, become useful later. That the market is not particularly interested in understanding organizational capabilities, rather it looks at the products and services, created by those capabilities.

Depending on the importance of specific routines or capabilities, an organization can transform its knowledge in two ways: organizational absorptive capacity and organizational transformative capacity. When the knowledge to be internalized is independent and simple, the absorptive capacity of organizations can offer advantages in importing knowledge from outside sources. However, when the knowledge to be internalized is complex, the absorptive capacity of organizations may be of little use. For internalizing complex knowledge, organizations should take advantage of their transformative capacity.

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