

December 2003

Developing a Firm's Absorptive Capacity with Strategic Orientation

Weijun Zheng
University of Oklahoma

Follow this and additional works at: <http://aisel.aisnet.org/amcis2003>

Recommended Citation

Zheng, Weijun, "Developing a Firm's Absorptive Capacity with Strategic Orientation" (2003). *AMCIS 2003 Proceedings*. 343.
<http://aisel.aisnet.org/amcis2003/343>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISEL). It has been accepted for inclusion in AMCIS 2003 Proceedings by an authorized administrator of AIS Electronic Library (AISEL). For more information, please contact elibrary@aisnet.org.

DEVELOPING A FIRM'S ABSORPTIVE CAPACITY WITH STRATEGIC ORIENTATION

Weijun Zheng

Michael F. Price College of Business
University of Oklahoma
wjzheng@ou.edu

Abstract

Absorptive capacity confers an ability to recognize the value of new information, assimilate it and apply it to commercial ends. It is well believed that the stronger absorptive capacity means the greater competitive advantage. However, this perception of firms' knowledge transferring seems to misunderstand real learning due to three characteristics of absorptive capacity: path dependence, relativity, and expensive cost. In contrast, this paper shows that, given that absorptive capacity is highly path dependence, relative, and expensive to develop and maintain, it is necessary for firms to manage this scarce resource under their long-term strategy orientation aiming at continuing competence. From this perspective, three characteristics of absorptive capacity are analyzed in depth. Then, on the basis of a literature review of strategic orientation, the interaction between strategic orientation and absorptive capacity is discussed. Proposition about the effect of both strategic orientation and absorptive capacity on each other are given at the same time. Furthermore, the author builds up a two dimensional organizational learning framework that mixes the firm's strategy orientation and absorptive capacity to explore the source of the firm's competitive advantages. In this framework, only firms that combine explicit strategy and strong absorptive capacity will earn high learning performance and establish ultimate competitive advantages. Overall, the arguments made in this paper depict a complete picture of the relationship between absorptive capacity and firms' strategic orientation, thus push forward our existing understanding of organization learning. It is an attempt to establish the conceptual foundation of strategic design of absorptive capacity for firms.

Keywords: Absorptive capacity, strategic orientation, organizational learning

From KBV to Absorptive Capacity

The knowledge-based view (KBV) of the firm conceptualizes the firm as a heterogeneous, knowledge-bearing entity. The idea of viewing the firm from a knowledge perspective was sparked by Michael Polanyi's (1966) dictum, "We can know more than we can tell". Polanyi classified knowledge into two categories: explicit or codified knowledge that refers to knowledge that is transmittable in formal, systematic language; and tacit knowledge that has a personal quality and thus hard to formalize and communicate. Later, Zander and Kogut (1995) defined the construct of knowledge into 5 dimensions: codifiability, teachability, complexity, system dependence, and product observability. Building on Polanyi's idea, Kogut and Zander (1992) conceptualized the firm as a bearer of tacit, social, and path-dependent organizational knowledge through a wholly different perspective relative to the conceptualization of the contractual approaches (Foss 1996)

Regarding the knowledge-based view of the firm, the primary role of the firm is the integration, and of course, utilization of knowledge (Grant 1996). Therefore, firms confronting changing knowledge environments should, to a large extent, aim at reconfiguring existing component knowledge to grasp and keep their competitive advantages. Reconfiguring existing component knowledge by firms leads to a new knowledge configuration. This new knowledge configuration consequently serves as a platform for producing both adapted and new product-market combinations (Frans, Bosch et al. 1999). Given that outside sources of knowledge are critical to innovation in general, the challenge to create new knowledge configurations within the firm implies that the absorption of different types of new knowledge becomes a key ability to master for a firm's management. Consequently, the ability of the firm to evaluate, assimilate, and utilize outside knowledge for commercial ends is of crucial strategic importance,

This ability is labeled by Cohen and Levinthal (1990) as a firm's absorptive capacity and stems from the premise that a firm needs prior related knowledge to absorb and use new knowledge.

Analysis of Absorptive Capacity

Organization Learning and Absorptive Capacity

Absorptive Capacity is a foundational concept for organization learning theory. According to this theory, organizational learning is a function of an organization's absorptive capacity. Defined as the ability of the firm to evaluate, assimilate, and utilize outside knowledge for commercial ends, absorptive capacity requires learning capability and develops problem-solving skills. Learning capability is the capacity to assimilate knowledge (for imitation), whereas problem-solving skills represent a capacity to create new knowledge (for innovation) (Cohen and Levinthal 1990).

Moreover, absorptive capacity has two important elements, prior knowledge base and intensity of effort (Cohen and Levinthal 1990). The prior knowledge base consists of individual units of knowledge available within the organization. Accumulated prior knowledge increases the ability to make sense of and to assimilate and use new knowledge. Relevant prior knowledge comprises basic skills and general knowledge, but includes the most recent scientific and technological knowledge. Hence, the prior knowledge base should be assessed in relation to task difficulty (Kim 1995)

Intensity of effort represents the amount of energy expended by organizational members to solve problems. Exposure of a firm to relevant external knowledge is insufficient unless an effort is made to internalize it. Learning how to solve problems is usually accomplished through many practice trials involving related problems (Harlow 1959). Hence considerable time and effort must be directed to learning how to solve problems before complex problems can be addressed. Such effort intensifies interaction among organizational members, thus facilitating knowledge conversion and creation at the organization level.

While absorptive capacity is important to explain the performance of organizational learning, what is not very clear so far is the connection between absorptive capacity and firm's competitive advantage—the ultimate goal of organization learning. It is believed that a stronger absorptive capacity has a positive relationship with greater competitive advantage. In one phrase, the underlying philosophy for current organization learning research is: "learn more, learn better". However, this perception of a firm's knowledge transference ignores the limitation from several characteristics of absorptive capacity such as path dependence, relativity, and cost of building. This paper in contrast contends that, given the existing knowledge and building cost constraint, absorptive capacity is both selective and relative. No firm can develop absolute super absorptive capacity for whatever knowledge. To be competitive in its field, the firm must design and develop their absorptive capacity delicately and cautiously. In another word, the learning philosophy I believe is, "learn right, and learn better".

In detail, analysis of three characteristics of absorptive capacity that limit the persuasiveness of "learn more, learn better" philosophy is given first. These characteristics are path dependence, relativity, and expensive building cost of absorptive capacity. The paper is going to discuss their effects sequentially.

Path Dependence of Absorptive Capacity

In their seminal work, Cohen and Levinthal (1989) introduced the absorptive capacity construct as follows: "the firm's ability to identify, assimilate, and exploit knowledge from the environment," pointing out that "a stock of prior knowledge... constitutes the firm's absorptive capacity." In another paper, Cohen and Levinthal (1990) again considered the level of prior related knowledge as a determinant of the efficiency of firms' absorbing knowledge. They argue that the ability to evaluate and utilize outside knowledge is largely a function of the level of prior related knowledge.

The notion that prior knowledge underlies absorptive capacity has important implications for the development of absorptive capacity over time and, in turn, the competitiveness performance of firms. Since there is always some portion of a firm's prior knowledge very closely related to the new knowledge being assimilated, and some other fraction of that knowledge relatively, although not completely, unrelated to effective, creative utilization of the new knowledge, the existing absorptive capacity of firms cannot guarantee firms grasp the most core knowledge necessary to its competitive advantage. By not having developed some absorptive capacity in a particular area, a firm may not readily accumulate the additional knowledge it needs to combat its fierce competition. And this difficulty will further impede the firm's exploitation of any critical external knowledge. At the same time,

without the possession of related expertise, the firm cannot well understand and therefore evaluate the import of intermediate technological advances that provide signals as to the merit of a new technological development (Cohen and Levinthal 1990).

This path dependent characteristic of absorptive capacity implies that the firm might not choose its absorptive capacity as freely as it desires in a rapidly evolving and fiercely competitive environment. From organization learning perspective, the efficiency of organization learning is relative to where the firm is on its learning curve. For example, at the beginning of its learning curve, it is usually difficult for the firm to learn fast. The effect of learning curve implies that organization will face a learning hurdle whenever they get into a new knowledge domain. Once a firm developed its absorptive capacity, its learning efficiency will be improved due to its familiarity with the knowledge domain. At the same time, because existing knowledge and skills have been so widely accepted as "appropriate" in the organization, challenge to the existing absorptive capacity can be difficult. However, the firm's existing absorptive capacity cannot remain the same beneficial as in the past for long within a rapidly evolving environment. Once the environment changes, the existing absorptive capacity can resist new learning expectation formation needed by present competition and hinder the firm in predicting more accurately the nature and commercial potential of technological advances. It thus will be difficult for the firm to develop different absorptive capacity for its existing one.

Relativity of Absorptive Capacity

The path dependence characteristic of absorptive capacity has not only historical influence on the development of absorptive capacity, but also indirectly indicates the relativity of absorptive capacity.

Research on cognitive structures and problem solving (Ellis 1965; Estes 1970; Bower and Hilgard 1981) concludes that an individual's learning is greatest when the new knowledge to be assimilated is related to the individual's existing knowledge structure. As a result, learning is more difficult in novel domains, and easier in familiar domains. Expanding these insights from the individual to the organizational level, Cohen and Levinthal (1989) mentioned in their seminal work the domain-specific features of absorptive capacity. Similar to individual learning, firms with domain specific absorptive capacity will find difficulties in accumulating and assimilating new knowledge when they enter new markets, new industries, or engage new competition with an unfamiliar knowledge domain. These difficulties undoubtedly diminish the firm's competence. Empirical research supporting this judgment can partly be found through research in the low performance of unrelated diversification, in which "novice" firms are trapped into an unfamiliar knowledge domain by its related diversification strategy and executing poorly against its competition (Hill and Hansen 1991, Hoskisson, 1992; Markides, 1992; Porter, 1987).

This domain specific feature indicates that the firm's absorptive capacity is selective to the knowledge domain it faces in its surviving environment. But this has not been the whole story about the relativity of absorptive capacity. Recently, Lane and Lubatkin (1998) expose the relativity of absorptive capacity from an alliance learning aspect. In their argument, one firm's ability to learn from another firm depends on the similarity of firms' knowledge bases, organizational structures and compensation policies, and dominant logic (Lane and Lubatkin, 1998). This argument suggests that absorptive capacity is not only relative to the knowledge domain but also relative to the learning object, that is, the entity from which the firm learned.

First of all, close knowledge bases benefit firms on understanding the relevant basic knowledge (i.e. a general understanding of the traditions and techniques upon which a discipline is based). This allows the "student firm" (a firm who is learning from others) to understand the assumptions that shape the teacher's knowledge and thereby be in a better position to evaluate the importance of the new knowledge for its own operations. Similar basic knowledge but different specialized knowledge thus give students firms the greatest potential to learn from their teachers.

Secondly, the similarity of institutional arrangements such as organization structure and compensation practice will be helpful to organizational learning. Organization structure (i.e. the degree of formalization and centralization used by the firm when allocating tasks, responsibilities, authority, and decisions) is strongly related to an organization's problem-solving behavior (Galbraith and Merrill 1991). The difference in organization structure thus can hinder firms from efficient absorption of new knowledge from organizations with different structures. Similarly, compensation literature (Quinn, 1991; Galbraith and Merrill 1991; Hoskisson et al. 1993; Henderson and Cockburn 1994) infers that the similarity of two firms' compensation policies serves as one proxy for the similarity of their knowledge processing systems and norms. The absorptive capacity, the ability to assimilate new external knowledge, therefore in part is a function of the relative similarity of the student and teacher firms' compensation practices.

Thirdly, firms usually develop their “dominant logic”, that is, their preference for projects of a given type, size, and risk level, and favor strategies dependent upon certain key success factors, stages of product life cycle, or product market positions (Grant 1988). Similar dominant logic ensures that student firms are familiar with the types of problems and projects that the teacher prefers. The more the firm’s dominant logic (know why) overlaps with the teacher’s, the more efficient inter-organization learning will be.

In addition, cultural variations across organizations are also involved in the success of knowledge transfer. Some organizations are more innovative despite their small size and other resource-related constraints (Kimberly, 1981). An organization’s implementation of technical progress by adopting innovative production techniques and changes in design that accommodate these techniques are dependent on the degree of cosmopolitanism that is inherent in the organization (Child, 1981). Research has already indicated that transfer of technology will be easier if two organizations are similar in terms of their culture-based tendencies to either avoid or embrace uncertainty generated in their organizational context due to such transfers (Kedia, 1988).

Discussion above describes a two-way process occurring in inter-organization learning. This two-way process further demonstrates the relativity of absorptive capacity. This relativity suggests that **firms cannot develop an ultimate absorptive capacity that is not selective to its knowledge domain and learning objects (the entity from which the firm learned). Organization learning is contingent and relative to the content of learning and therefore the teacher of the “student firm” needs to be dedicatedly chosen, and managed.**

Cost of Absorptive Capacity

As any human artifact in this pragmatic world, the firm’s absorptive capacity is certainly not designed and managed without cost. This cost associated with the management of absorptive capacity includes investment of creating, updating, and maintaining the ability of a firm’s employees to develop relevant knowledge bases, recognize valuable external information, make appropriate decisions, and implement effective work processes and structures.

To empirically test a firm’s absorptive capacity, Cohen and Levinthal (1990) proposed to show that a firm’s absorptive capacity can be generated as a byproduct of its R&D. “...Then whatever conditions the firm’s incentives to learn (i.e., to build absorptive capacity) should also influence R&D spending.” They also constructed a simple statistical model of firm R&D intensity, which is defined as R&D divided by sales (Cohen, 1989). Their observation that R&D creates a capacity to assimilate and exploit new knowledge provides a ready explanation of why some firms may invest in basic research even when the preponderance of findings spill out into public domain and implication for researchers to measure and explore the cost of building absorptive capacity.

According to a publication by National Academy of Sciences (Jaffe , 1996), total spending on R&D in the United States in 1994 was \$169.6 billion, and was estimated to be \$171 billion in 1995. The 1994 number was about 2.5% of Gross Domestic Product (GDP). Overall, industry provides about 60% of all R&D funds, and the federal government provides about 35%. Industry performs about 70% of the R&D, federal labs and universities each perform about 13%, and other nonprofits perform about 3%. By far the biggest source-performer combination, with just shy of \$100 billion, is industry-funded, industry-performed research. Federally funded research at private firms and federal labs each account for about \$22 billion. Among the major forms of social investment, R&D cannot be the biggest; however, it is a nontrivial fraction of the total.

Additionally, in theory, large firms should be able to spread knowledge and information over a much wider base. Hence, other factors equal, they should have higher R&D intensity than small firms. However, this proves not to be the case. In 1991, firms undertaking R&D with fewer than 500 employees spent \$6021 per employee on R&D (excluding federal support), the most for any size category. The largest firms, those with more than 25,000 employees, were second at \$5169, presumably reflecting the public good nature of information, at least within the firm. The high R&D expenditure levels of small firms suggest that whatever disadvantages they have in deploying information is compensated by their advantages in producing it (Zeckhauser, 1996).

The above evidence indicates the firms’ absorptive capacity is so expensive that it is hard to be replaced or changed once developed.

Given the three limitations of developing absorptive capacity above, how can managers develop firm’s absorptive capacity better to achieve its sustainable competitive advantage? The next section attempts to address this question from interaction between firm’s strategic orientation and absorptive capacity and demonstrates how this interaction influences a firm’s ultimate competitive advantage.

A Framework for Organization Learning

Firm's Strategic Orientation

Since absorptive capacity is highly path dependent, relative, and expensive to develop and maintain, it is necessary for firms to manage their absorptive capacity under their long-term competitive strategy consideration aiming at continuing competence. This strategy consideration is conceptualized first by Miles and Snow's (1978) with the typology "strategic orientation" (although slightly different from what the paper refers to here). They categorized four types of strategic orientations: prospector, analyzer, defender, and reactor types. According to Miles and Snow (1978), prospectors, analyzers and defenders are successful types, while reactors are unsuccessful. Prospectors create changes in an industry by product development, introduction of new technologies, etc. Such organizations tend to have low formalization and decentralized control. Analyzers are interested in developing business ideas and locating and exploiting new product and market opportunities. They innovate mostly through imitation. Defenders try to create a stable domain. They do so by being cost efficient. There is little scanning of the market for new opportunities.

Extant literature contains several different definitions and operationalizations of strategic orientation. Narver and Slater's (1990) conceptualization of strategic orientation includes three components: customer orientation, competitor orientation, and inter-functional coordination. Kohli et al. (1993) maintain that strategic orientation includes customer, competitor, and technology information generation; dissemination; and response implementation. On the basis of a prospectively designed meta-analysis of three strategic orientation scales, Deshpande and Farley (1996) propose a reduced strategic orientation scale that focuses solely on customer-related activities. Rather than adopt the more narrow conceptualization proposed by Deshpande and Farley (1996) Gatignon and Xuereb (1998) propose a multidimensional conceptualization that captures the richness of detail and nuance initially included in the conceptualizations of strategic orientation developed by Narver and Slater (1990) and Kohli et al. (1993).

Overall, although clearly not entirely independent of the resources of the firm, a firm's strategic orientation reflects the strategic directions implemented by a firm to create the proper behaviors for the continuous superior performance of the business (Narver and Slater 1990). To some extent, strategic orientation concerns employees' understanding and general acceptance of principles that derive from broader strategic objectives (Parker, Wall et al. 1997). For example, accepting the principle of learning new and different tasks is important if a company has a strategy of increasing flexibility. Oliver and Davies (1990) described case studies of the implementation of cellular just-in-time manufacturing in which problems occurred because the principles underlying these initiatives did not align with past assumptions (such as the modern principle that production is pulled by demand rather than pushed by resource capacity). Employees equated a stock of unfinished work with job security, so that the absence of a stock of visible work-in-progress was very threatening. Oliver and Davies suggested that what is required is not just a change in work practices but also a change in thinking, from "just-in-case thinking to just-in-time thinking" (Oliver and Davies 1990). This is an example of strategic orientation.

The Interaction between Absorptive Capacity and Strategic Orientation

Current competitive strategy orientation literatures are based on Porter's seminal contributions and Miles and Snow's (1978) typology. While they contribute to our understanding of the relationship between strategy and performance, most of these literatures focus on the competitive positioning part of strategy. It only gives a limited highlight to the internal parts of the firm. Day and Wensley (1988) and Spender (1993) called for research addressing the conversion of an organization's skills and resources into positional advantages. The resource based view also suggests that the most critical elements in creating sustainable competitive advantage are found in the internal resource configuration of the firm (Amit and Muller 1995; Barney 1991; Black and Boal 1994). Regretfully, the interaction between the oriented positioning aspects of strategy and the internal resource configuration and governance of the firm is still a "missing link" within business strategy research. A typical instance for this "missing-link" is the interaction between absorptive capacity, i.e. knowledge configuration, and strategic orientation.

As a two way process, both absorptive capacity and strategic orientation have effect on the other.

From Strategic Orientation to Absorptive Capacity

First, as the author points out in the beginning of this paper, absorptive capacity has two important elements, prior knowledge base and intensity of effort (Cohen and Levinthal 1990) and three characteristics, path dependence, relativity, and expensive cost.

Prior knowledge base consists of individual units of knowledge available within the organization. To develop absorptive capacity, it is important to identify the usefulness of a prior knowledge base. It is believed that the usefulness of a knowledge base reflects the “potential ability of knowledge for producing outcomes that will be evaluated as effective in terms of a set of goals” (Kilmann et al. 1983). This definition suggests that different knowledge base may be used on the basis of their perceived strategic utility to the firm. In one study (McAuley 1993), which involved British exporting companies, it was found that smaller, less experienced companies tend to use a diversified range of personal and secondary sources that include banks, trade associations, chambers of commerce, and business acquaintances. In contrast, for experienced companies, personal contacts are more likely to be used. Thus, strategic orientation provides the firm a mechanism to select its knowledge base according to its long-run competition needs.

This leads to the author’s first proposition:

Proposition 1: The utility of firm’s prior knowledge base is positively related to its match with the firms’ strategic orientation.

Intensity of effort represents the amount of energy expended by organizational members to solve problems. Several studies have found that aggressive exporting firms tend to engage in more extensive export planning (Angela, Christensen et al. 1989), acquire more information about foreign markets (Johnston and Czinkota 1982), and have a stronger international (external) orientation (Dichtl, Koglmayr et al. 1990). With much energy being spent to learn how to solve problems through many practice trials involving related problems, the firm needs an appropriate incentive system to continue on its energy payout. Testing in a sample of 50 electric utility firms across a time period covering a total of 10 years, Rajagopalan and Finkelstein (1992) examined the effects of strategic orientation and environmental change on senior management reward systems. It is shown that firms with more discretionary strategic orientations offer greater compensation, more outcome-based compensation plans, and a greater proportion of outcome-based cash compensation than firms with less discretionary strategic orientations. Therefore, firm’s strategic orientation can provide firm an incentive mechanism to enhance the intensity of effort to develop absorptive capacity.

This leads to the author’s second proposition:

Proposition 2: Firms’ intensity of effort on its absorptive capacity development is positively related to the match between firm’s effort and its strategic orientation.

The path dependence of absorptive capacity is also influenced by firm’s strategic orientation. As Cohen and Levinthal (1990) put out, “...once a firm ceases investing in its absorptive capacity in a quick moving field, it may never assimilate and exploit new information in that field, regardless of the value of that information.” This indicates a cause-and-effect relationship between the firm’s knowledge domain development and its strategic investment directed by firm’s strategic orientation. Actually, if the usefulness of the firm’s prior knowledge domain is positively related to the perceived match with the firm’s strategic orientation, it can be expected that the more useful the knowledge domain is for firm’s competitive advantage, the more probably the firm will make strategic investment to develop this knowledge domain, which mean the firm’s strategic orientation leads its investment decision and choice of knowledge domain. In the long run, this leadership causes the overall organization-learning match with the firm’s competition needs. Thus, the firm’s strategic orientation provides the firm a direction mechanism to keep its knowledge domain reflecting the firm’s competition needs.

This results in the paper’s third proposition:

Proposition 3: The more the time sequence of the firm’s knowledge domain is positively related to the firm’s strategic orientation, the better long-term learning the firm does for its competition advantage.

The same thing is for firm’s inter-organization learning. Gatignon and Xuereb (1998) found that the strategic orientation of companies determines the development of product innovations. Their test result shows that competitive orientation is necessary for high-growth markets, technological orientation for high technology markets and customer orientation for markets with uncertain demand. Since the potential allies the firm could set up with depend on the markets it enters into, the firm’s prospective partners, i.e. its learning objects, will naturally differ under different strategic orientation. The firm’s strategic orientation provides the firm a filtering mechanism to pick up appropriate learning objects according to its competition needs.

This results in the author’s fourth proposition:

Proposition 4: The more the learning object of the firm is positively related to the firm's strategic orientation, the better the learning the firm does to attain its competition advantage.

The strategic orientation of organizations also has important influence on the cost of its developing and maintaining absorptive capacity. Despite ambiguity, Cohen and Levinthal's (1990) seminal work indicate the effect of some strategy considerations, such as technological opportunity, competitor interdependence, and appropriability on the firm's R&D investment. In this paper, the effect of strategic orientation on the firm's investment of prior knowledge base and intensity of effort has been discussed earlier. Furthermore, Renate Mayntz (1998) traced the orientation of academic research on user needs. He found that due to the needs of the socialist economy, academic institutes were required to earn a particularly on certain proportion, often more than half of their funds, by acquiring contracts from industry. Even though there is no empirical evidence from capitalist economy so far, we can expect firm's strategic orientation serves as a cost-cutting mechanism for firms to achieve their competition advantages through organization learning.

Proposition 5: The more the firm's absorptive capacity is positively related to its strategic orientation, the less the firm wastes in learning costs while pursuing competitive advantages.

From Absorptive Capacity to Strategic Orientation

As a two way process, the interaction between absorptive capacity and strategic orientation not only mean the influence of strategic orientation on the development of absorptive capacity, but also include the influence of absorptive capacity on the formation of the firm's strategic orientation. Cohen and Levinthal (1990) find that "a form of self-reinforcing behavior similar to lockout may also result from the influence of absorptive capacity on organizations' goals or aspiration levels." The work of March and Simon(1958) suggests that: "a firm's aspiration level in a technologically progressive environment is not simply determined by past performance or the performance of reference organizations. It also depends on the firm's absorptive capacity. The greater the organization 's expertise and associated absorptive capacity, the more sensitive it is likely to be to emerging technological opportunities and the more likely its aspiration level will be defined in terms of the opportunities present in the technical environment rather than strictly in terms of performance measures. Thus, organizations with higher levels of absorptive capacity will tend to be more proactive, exploiting opportunities present in the environment, independent of current performance. Alternatively, organizations with a modest absorptive capacity will tend to be reactive, searching for new alternatives in response to failure on some performance criterion that is not defined in terms of technical change per se (profitability, market share, etc.)" This is evidenced in a study by Kim (1998) which investigated the crisis construction in Hyundai Motor Company, an evocative and galvanizing device in the personal repertoires of proactive top managers. In this study, it was found that with expanding its prior knowledge base and proactively constructing crises as a strategic means of intensifying its learning, Hyundai Motor shifted learning orientation from imitation to innovation. This further indicates that the development of absorptive capacity is a co-evolution process with its knowledge environment (Frans, Bosch et al. 1999), the firm's strategic orientation could be adjusted by the development of absorptive capacity because of changing management and employee's knowledge base. Thus, we have the sixth proposition:

Proposition 6: The less firm's absorptive capacity is relevant to its strategic orientation, the more possible the firm will be late in changing its strategic orientation.

New Organization Learning Framework

The above discussion about the interaction between absorptive capacity and strategic orientation depict a two-way, interactive process. On one hand, since absorptive capacity is highly path dependence, relative, and expensive to develop and maintain, it is necessary for firms to manage this scarce resource under their long-term strategy orientation. On the other hand, the existing absorptive capacity and its co-evolution with knowledge environment will influence the developing and adjustment of its strategic orientation. During this interaction, the firm learns necessary and appropriate knowledge as well as skills in a changing environment, which results in and keeps its sustainable competitive advantage.

Thus, the performance of organization learning can be distinguished by different level of interactions between strategic orientation and absorptive capacity. Here, the paper defines two types of strategic orientations and two levels of absorptive capacity. The explicit strategic orientation is defined as clear and appropriate strategic direction chosen by firms for specific competition environment. The inexplicit strategic orientation refers to an ambiguous and wrong-headed strategic direction instead. Strong

absorptive capacity means that the firm’s ability to evaluate, assimilate, and utilize outside knowledge is strong enough for particular competition ends. Weak absorptive capacity otherwise refers to the firm’s absorptive capacity is weak for particular competition. The interaction between strategic orientation and absorptive capacity thus can be illustrated in the following diagram.

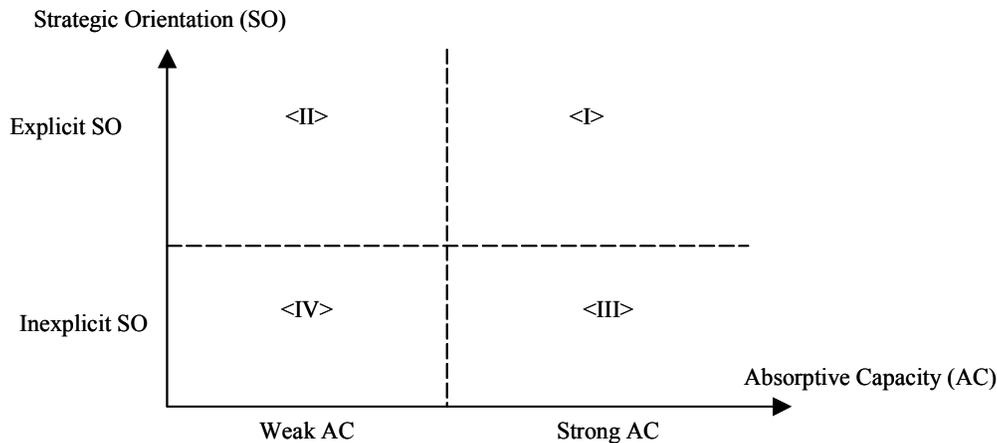


Figure 1. Two Dimensions Organization-Learning Framework

In the above diagram, different combination of strategic orientation and absorptive capacity distinguishes four types of firms. Category (I) has explicit strategic orientation and fitted strong absorptive capacity. The firm thus is able to require appropriate knowledge for its explicit strategic goals and establish its competitive advantages. Firms in category (II) and (III) are either weak at their absorptive capacity or implicit at their strategic orientation. Their learning performance therefore is lower than those firms in category (I). However, as the paper suggested earlier, both strategic orientation and absorptive capacity can affect each other. In category (II), although the firm does not hold a strong absorptive capacity at the beginning, explicit strategic orientation helps the firm to selectively utilize its prior knowledge base and push the firm to enhance its intensity of effort developing an appropriate absorptive capacity. It can be expected that absorptive capacity can be strengthened later on and finally help firms to achieve its competitive advantages. Similarly, firms in category (III) have already held strong absorptive capacity but are not aware of their strategic orientation very explicitly. In this case, knowledge absorbed by strong absorptive capacity may not be directly helpful to firms’ competition. However, strong absorptive capacity will let the firm be able to detect the change in knowledge domain and help to foster the formation of explicit strategic orientation and the adjustment of exiting implicit strategic orientation. In time, firms in category (III) can also jump into category (I) and have their own competitive advantages. Later on, when firms’ strategic orientation gets explicit, their learning performance will be improved. At last, firms in category (IV) have both implicit strategic orientation and weak absorptive capacity.

They will have a hard time to change their learning performance and gain necessary competitive advantages. It can be predicted that this type of firms will languish. The above discussion suggests the last proposition if this paper:

Proposition 7: The more firm’s absorptive capacity is positively related to its strategic orientation, the stronger the competitive advantage the firm has.

Conclusion

Absorptive capacity confers an ability to recognize the value of new information, assimilate it and apply it to commercial ends. Through its analysis of three characteristics of absorptive capacity—highly path dependent, relativity, and expensive cost to develop and maintain, This paper points out that it is necessary for firms to manage absorptive capacity under their long-term strategy orientation aiming at continuing competence. The paper views the relationship between absorptive capacity and strategic orientation as an interactive, two way process. During this interaction, both absorptive capacity and strategic orientation have effect on each other. Strategic orientation can lead firms to select its knowledge base and intensity of effort of absorptive capacity according to its competition needs in the long run. On the other hand, absorptive capacity can foster the formation of strategic

orientation through influencing organizations' goals or aspiration levels and knowledge environment. The paper believes this interaction between strategic orientation and absorptive capacity determines the firm's competitive advantages. Only firms that own both explicit strategy orientation and strong absorptive capacity will earn high learning performance and establish ultimate competitive advantages. Overall, this argument made in this paper depicts a complete picture of the relationship between absorptive capacity and firms' strategic orientation, thus push forward existing understanding of organization learning. It is an attempt to establish the conceptual foundation of strategic design of absorptive capacity for firms.

While previous relevant literature support the paper's arguments, the author feels that an empirical test in the future for all seven propositions in this paper will be very helpful to explore the relationship between absorptive capacity and strategic orientation. Either case study or hypothesis testing are feasible research method. Due to the relevance of time factor in the paper's framework, further empirical test should consider historical data. In addition, the types of strategy orientation (explicit vs. inexplicit) and absorptive capacity (strong vs. weak) can need to be further specified and developed before quantitative measurement. Conceptually, the categories discussed in this paper are distinguishable. However, it can be difficult to do so in an empirical test. This suggests that further development on the paper's organization learning framework can be needed for the empirical purpose. The author will keep on developing the paper's conceptual model and prepare for future empirical test.

References

- Amit, R. and E. C. Muller, I. "Opportunity costs and entrepreneurial activity," *Journal of Business Venturing* 10, 1995, pp.95-106.
- Angela, R. d., Christensen, C.H., Cunha, C.E. da, "Aggressive and Passive Exporters: A Study in Brazilian Furniture Industry," *International Marketing Review*, (7:5), 1989, pp.6-15.
- Barney, J. B., "Firm resources and sustained competitive advantage," *Journal of Management*, 17, 1991, pp.99-120.
- Black, J. A. and K. B. Boal, "Strategic resources: Traits, configurations and path to sustainable competitive advantage," *Strategic Management Journal* 15, summer 1994, pp.131-149.
- Bower, G. H. and E. R. Hilgard, *Theories of Learning*. Englewood Cliffs, NJ, Prentice-Hall. 1981.
- Cohen, W. M. and R. C. Levin, "Empirical studies of innovation and market structure," *Handbook of Industrial Organization*, I. R. C. S. a. R. W. (eds.), Amsterdam, Elsevier, 1989.
- Cohen, W. M. and D. A. Levinthal, "Absorptive Capacity: A New Perspective on Learning and Innovation," *Administration Science Quarterly*, 35, 1990, pp.128-152.
- Day, G. S. and D. S. Fogel, "Assessing advantage: a framework for diagnosing competitive superiority," *Journal of Marketing*, (52:17), 1988.
- Deshpande, R. and J. U. Farley, "Understanding market orientation: a prospectively designed meta-analysis of three market orientation scales," Cambridge, MA, Marketing Science Institute, 1996.
- Dichtl, E., Koglmayr, H.G., Muller, S., "International Orientation as a Precondition for Export Success," *Journal of Business Studies*, (21:1), 1990, pp.23-40.
- Ellis, H. C., *The transfe of learning*. New York, Macmillan, 1965.
- Estes, W. K., *Learning Theory and Mental Development*. New York, Macmillan, 1970.
- Foss, N. J., "Knowledge-based approaches to the theory of the firm: Some critical comments," *Organization Science*, 7, 1996, pp.470-476.
- Frans, A. J., Bosch, V. D., Volberda, H. W., Boer, M. D. "Coevloution of Firm Absorptive Capacity and Knowledge Environment: Organizational Forms and Combinative Capabilities," *Organization Science*, 10, 1999, pp.551-568.
- Galbraith, C. S. and G. B. Merrill, "The effect of compensation program and stucture on SBU competitive strategy: A study of technology-intersive firms," *Strategy Management Journal*, (12:5), 1991, pp. 353-370.
- Gatignon, H. and J.-M. Xuere, "Strategic orientation of the firm and new product performance," *Journal of Marketing Research*, 34, February 1998, pp.77-90.
- Grant, R. M., "On ' Dominant Logic', relatedness, and the link between diversity and performance," *Strategic Management Journal*, (9:6), 1988, pp.639-642.
- Grant, R. M., "Toward A Knowledge-Based Theory of The Firm," *Strategic Management Journal*, 17, Winter 1996, pp.109-122.
- Harlow, H. F., "Learning set and error factor theory," in *Psychology: A Study of Science.*, S. K. (ed.). New York, McGraw-Hill. 2, 1959, pp.492-537.
- Henderson, R. M. and I. Cockburn, "Measuring competence? Exploring firm effects in pharmaceutical research," *Strategic Management Journal*, 15, Winter 1994, pp.63-84.
- Hill, C. W. L. and G. S. Hansen, "A longitudinal study of the causes and consequences of changes in diversification in the US pharmaceutical industry 1977-1986," *Strategic Management Journal*, 12, 1991, pp.187-199.

- Hoskisson, R. E., Hitt, M. A., Hill, C. W., "Managerial incentives and investment in R&D in large multiproduct firms." *Organization Science*, (4:2), 1993, pp.325-341.
- Jaffe, A. B., "Trends and patterns in research and development expenditures in the United States," Colloquium of "Science, Technology, and the Economy", Irvine, CA, National Academy of Sciences. November 1996.
- Jaworski, B. J. and A. K. Kohli, "Market orientation: antecedents and consequences," *Journal of Marketing*, 57, July 1993, pp.53-70.
- Johnston, W. and M. Czinkota, "Managerial Motivations as Determinants of Industrial Export Behavior," *Export Management: An International Context*. M. R. C. a. G. Tesar. New York, Praeger, 1982, pp.3-17.
- Kilmann, R. H., Thomas, K., Slevin, D., Nath, R., Jerrell, S. L. *Producing useful knowledge for Organizations*. New York, Praeger Publishers, 1983.
- Kim, L. "Absorptive Capacity and Industrial Growth: A Conceptual Framework and Korea's Experience." *Social Capability and Long-Term Economic Growth*. B.-H. K. a. D. P. (Eds.), London, St. Martins, 1995, pp. 266-287.
- Kim, L. "Crisis Construction and Organizational Learning: Capability Building in Catching-up at Hyundai Motor," *Organization Sciences*, (9:4), 1998, pp.506-521.
- Kogut, B. and U. Zander, "Knowledge of The Firm, Combinative Capabilities and the Replication of Technology," *Organization Studies* 3, 1992, pp.383-397.
- Lane, Peter. J and Lubtkin, Michael, "Relative absorptive capacity and interorganizational learning" *Strategic Management Journal*; (19:5), 1998, pp.461-477
- March, J. G. and H. A. Simon, *Organizations*. New York, Wiley, 1958.
- Mayntz, R. "Socialist academies of sciences: the enforced orientation of basic research at user needs." *Research Policy*, (27:8), 1998, pp.781-791.
- McAuley, A., "The perceived usefulness of export information sources," *European Journal of Marketing*, (27:10), 1993, pp.52-64.
- Miles, R. E. and C. C. Snow, *Organization Strategy, structure, process*. New York, McGraw-Hill, 1978.
- Narver, J. C. and S. F. Slater, "The effect of a market orientation on business profitability." *Journal of Marketing*, 54, October 1990, pp.20-35.
- Oliver, N. and A. Davies, "Adopting Japanese-style manufacturing methods: A tale of two (UK) factories," *Journal of Management Studies*, 27, 1990, pp.555-570.
- Parker, S. K., Wall, Toby D., Jackson, Paul R. "'That's not my job': developing flexible employee work orientations." *Academy of Management Journal*, (40:4), 1997, pp.899-929.
- Polanyi, M., *The Tacit Dimension*, Anchor Day, New York, 1966.
- Rajagopalan, N. and S. Finkelstein, "Effects of Strategic Orientation and Environmental Change on Senior Management Reward Systems," *Strategic Management Journal*, 13, 1992, pp.127-?
- Spender, J. C., "Business policy and strategy: An occasion for despair, a retreat to disciplinary specialization, or for new excitement," *Academy of Management, Best Paper proceedings*, 1993, pp.42-46.
- Zander, U. and B. Kogut, "Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test," *Organization Science*, 6, 1995, pp.76-92.
- Zeckhauser, R., *The Challenge of Contracting for Technological Information*. Colloquium of "Science, Technology, and the Economy", Irvine, CA, National Academy of Sciences, November 1996.