

# 1

## Absorptive Capacity Theory

Absorptive capacity theory examines the extent to which a firm can recognize the value of new external information, assimilate it, and apply it toward achieving organizational goals (Cohen & Levinthal, 1989, 1990). The theory assumes that absorbing new knowledge can help an organization become more innovative and flexible and achieve higher levels of performance than it would without absorbing new knowledge. The theory also assumes that firms that have higher abilities for absorbing new knowledge will have a competitive advantage over firms with lower abilities.

A firm's technical knowledge tends to come from four sources.

(1) The firm conducts its own research and development (R&D). (2) The firm derives new knowledge from its own current manufacturing operations. (3) The firm borrows new knowledge from other organizations or other sources. (4) The firm purchases new knowledge, such as through buying new equipment, hiring new knowledgeable people, or paying a consultant to train individuals in the use of a new method.

The theory assumes that organizations require a knowledge base to be able to absorb and use new knowledge. Firms that have no knowledge base may never be able to absorb new knowledge, no matter how they obtain it or how much they spend to obtain it. Firms that have never developed a knowledge base are said to be "locked-out" for subsequent knowledge and technological developments, a situation that can result in the creative destruction of an organization (Schumpeter, 1942).

The possession of prior knowledge is helpful for organizations in two ways. First, creating an absorptive capacity for new

knowledge in one period will help the absorption of new knowledge in the next period. Second, the successful use of new knowledge can be self-reinforcing and can motivate a firm to continue to absorb new knowledge indefinitely. Firms with higher absorptive capacities tend to proactively search for and absorb new knowledge regardless of current performance, but firms with lower absorptive capacities tend to reactively scrounge for new knowledge in response to some failure or decline in performance.

In order to recognize, assimilate, and use new knowledge, firms must have a knowledge base that is relatively similar to the new knowledge that is being processed. However, the new knowledge must be fairly diverse in relation to the firm's existing knowledge base in order for the new knowledge to be applied in new, helpful ways. Most organizational innovations come from borrowing ideas from other people, rather than through inventing them (March & Simon, 1958). However, the firm must have some idea of how the borrowed new knowledge can be applied to current methods for the process to be successful.

There are two factors that will affect an organization's incentives to acquire new knowledge. (1) the quantity of knowledge available to absorb and exploit and (2) the difficulty and costs involved in absorbing that new knowledge. Some types of new knowledge and expertise are more expensive to assimilate than others. Therefore, firms will tend to absorb new knowledge when doing so is inexpensive and will tend not to do so when it is expensive. However, a potential mediator of those two influences is the firm's interdependence with its rivals. The more that competitors tend to benefit from absorbing and using new knowledge, the less a firm will be motivated to increase its absorption of new knowledge.

A firm's ability to find and use new knowledge depends on the absorptive capacity of its employees. However, a firm's absorptive capacity is not just the sum of its individual members' absorptive capacities. Organizations depend on knowledgeable individuals to assess and evaluate the potential positives and negatives of new knowledge. These people can serve as "gatekeepers" who can prevent or facilitate the absorption of new knowledge. These individuals must be excellent transmitters, disseminators, and disciples of new methods, who champion and advocate the

use of new knowledge in the firm. Organizations rely on these strong, knowledgeable, “boundary spanners” to help absorb and utilize new knowledge.

Zahra and George (2002) reconceptualized part of the theory. They took the steps of recognizing the value of new knowledge and assimilating and applying it, and created four capabilities or dimensions: (1) acquisition, (2) assimilation, (3) transformation, and (4) exploitation. (They refer to acquisition and assimilation as “potential” absorptive capacity; transformation and exploitation are “realized” absorptive capacity.) The acquisition capability refers to the firm’s prior expenditures; prior knowledge base; and intensity, speed, and direction for obtaining new knowledge. The assimilation capability refers to the firm’s routines and processes that enable it to assess, interpret, understand, and learn new knowledge. The transformation capability refers to the firm’s ability to add, delete, recombine, and reconfigure the new knowledge for use in the company. The exploitation capability refers to the firm’s ability to actually change its routines and processes and use the new knowledge. Zahra and George separated potential versus realized absorptive capacity because some firms may have strong potential to absorb new knowledge, but are then unable to actually use that knowledge (Baker, Miner, & Eesley, 2003).

Murovec and Prodan (2009) demonstrated that there can be two kinds of absorptive capacity: demand-pull and science-push. Demand-pull refers to new knowledge derived from market sources (for example, customers, competition, and suppliers). Science-push refers to new knowledge derived from research and scientific sources (such as books, journals, conferences, trade shows, and other academic sources). Organizations will need to assimilate new knowledge from both sources if they want to be as effective and innovative as possible.

## **Criticisms and Critiques of the Theory**

The theory has been criticized for not adequately defining the term “absorptive capacity” or for using various differing definitions (Murovec & Prodan, 2009; Volberda, Foss, & Lyles, 2010). Some researchers have used the term without providing a definition (for example, Glass & Saggi, 1998; Keller, 1996). Also, most often the concept of absorptive capacity has been defined

according to R&D aspects and not according to other organizational aspects.

As noted earlier, Murovec and Prodan (2009) found that there are two different kinds of absorptive capacity: demand-pull and science-push. As a result of this finding, they argued that researchers should not use a single-construct survey to measure absorptive capacity.

Todorova and Durisin (2007) criticized the Zahra and George (2002) reconceptualization of the theory, saying that the changes did not build enough on the original work. First, they criticized the reformulation for removing the step of “recognizing the value” of new knowledge. Todorova and Durisin recommended that the first step in the process of absorbing new knowledge should be recognizing the value of that knowledge. They emphasized the importance of this step in that firms often fail to identify and absorb new knowledge because they are hindered by their existing knowledge bases, inflexible capabilities, and path dependencies (Gavetti & Levinthal, 2000; Tripsas & Gavetti, 2000). Todorova and Durisin thus recommended that “valuing new knowledge” should be put back into the theory as was originally formulated by Cohen and Levinthal (1989, 1990).

Second, Todorova and Durisin (2007) criticized the reformulation of the theory for stating that transformation was a consequence of assimilating new knowledge. Instead of specifying that acquisition and assimilation of new knowledge lead to transformation and exploitation of new knowledge, Todorova and Durisin argued for a more complex relationship among acquiring, assimilating, transforming, and exploiting new knowledge. Todorova and Durisin argued that these four steps can influence each other and do not occur linearly from one to the other.

As a result, Todorova and Durisin (2007) remarked that the “neat” new concepts of potential and realized absorptive capacity would have to be removed from the theory (p. 775). Zahra and George (2002) argued that potential absorptive capacity (acquisition and assimilation) leads to realized absorptive capacity (transformation and exploitation). However, if one acknowledges the existence of a complex relationship among acquiring, assimilating, transforming, and exploiting new knowledge, the concepts of potential and realized absorptive capacity would not work.

Third, Todorova and Durisin (2007) argued that the theory should be reconceptualized as an ongoing process that involves feedback loops. They argued that Cohen and Levinthal's original formulation of the theory (1989, 1990) emphasized the accumulation of knowledge over time and the absorption of new knowledge into current routines and processes. Therefore, Todorova and Durisin argued for the inclusion of feedback loops in which the successful process of absorbing new knowledge looped back and influenced future absorption actions.

### Measuring Variables in the Theory

**Absorptive capacity measure.** Cadiz, D., Sawyer, J. E., & Griffith, T. L. (2009, December). Developing and validating field measurement scales for absorptive capacity and experienced community practice. *Educational and Psychological Measurement*, 69, 1035–1058.

**Absorptive capacity measure.** Jimenez-Barrionuevo, M. M., Garcia-Morales, V. J., & Molina, L. M. (2011). Validation of an instrument to measure absorptive capacity. *Technovation*, 31, 190–202.

**Absorptive capacity measure.** Samison, C., & Fores, B. (2010). Knowledge absorptive capacity: New insights for its conceptualization and measurement. *Journal of Business Research*, 63, 707–715.

**Absorptive capacity scale.** Flatten, T. C., Engelen, A., Zahra, S. A., & Brettel, M. (2011). A measure of absorptive capacity: Scale development and validation. *European Management Journal*, 29, 98–116.

**Absorptive capacity measures.** Kotabe, M., Jiang, C. X., & Murray, J. Y. (2011). Managerial ties, knowledge acquisition, realized absorptive capacity and new product market performance of emerging multinational companies: A case of China. *Journal of World Business*, 46, 166–176.

### Suggestions for Further Research

1. Explore the idea that the faster the pace of technological change, the greater the impact of absorptive capacity on a firm's profitability.

2. Examine the trade-offs between complementary versus supplementary resources in absorbing new knowledge.
3. Compare the costs and benefits of obtaining both types of new knowledge from various sources (for example, licensing, contracting).
4. Explore the influence of firm size on firms' absorptive capacities and the effects on organizational outcomes.
5. Examine both the positive and negative effects of absorption of spillovers and other sources of absorption on firm performance.
6. Compare and contrast the influences of intraindustry, inter-industry, and scientific absorptive capacity on organizational outcomes.
7. Examine a range of types of knowledge (for example, domestic versus foreign) and the influence of those types on absorption and use.
8. Explore and empirically test the similarities and differences among organizational learning and absorptive capacity models.
9. Study the influence of absorptive capacity on what individuals know and what they can do, and how absorptive capacity influences their interactions.
10. Examine the influence of ownership type, R&D investment levels, and alliance ties with foreign firms on absorptive capacity.

## References to Know

- Cohen, W. M., & Levinthal, D. A. (1989, September). Innovation and learning: The two faces of R&D. *Economic Journal*, 99(397), 569–596.
- Cohen, W. M., & Levinthal, D. A. (1990, March). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1, Special Issue), 128–152.
- Lane, P. J., Koka, B. R., & Pathak, S. (2006). The reification of absorptive capacity: A critical review and rejuvenation of the construct. *Academy of Management Review*, 31, 833–863.
- Lane, P. J., & Lubatkin, M. (1998). Relative absorptive capacity and interorganizational learning. *Strategic Management Journal*, 19, 461–477.

Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27, 185–203.

## Implications of the Theory for Managers

Absorptive capacity theory examines how firms recognize the value of new knowledge, assimilate it, and use it toward achieving organizational goals. Firms that are able to absorb and use new knowledge will have a competitive advantage over those that aren't.

Your job as a manager is to help your firm better absorb and use new knowledge to accomplish your organizational goals. First, you'll need to build a strong knowledge base by helping everyone see and understand what your organization currently does. Second, set up a knowledge culture in which everyone sees the importance of learning about and incorporating new knowledge that can help the company better reach its goals. Third, find ways for the organization to monitor the environment and identify better and newer ways of doing things. Fourth, select knowledgeable people who can adapt and modify the new knowledge for your organization. Fifth, create teams of people who can promote acceptance and use of the new knowledge. Last, monitor the progress of the new knowledge, keep track of what went well and what didn't, and use that information to keep the cycle going for finding and absorbing new knowledge into your organization to make it the best that it can be. This theory examines why some firms perform better than others. This book will examine other theories that use this same approach but employ a different variable, such as the dynamic capabilities, resources, and knowledge of a firm.

<http://www.pbookshop.com>