

Aligning Competencies, Capabilities and Resources

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OVERVIEW: Innovation in technological competencies, organizational capabilities, and the application of resources is a necessary prerequisite to maximize a company's ability to penetrate the market with new products and services. In this paper we extend the work of Prahalad and Hamel (1990) and other authors to demonstrate the importance of aligning innovations in these three core areas. This alignment is illustrated with the analogy of an axe penetrating and splitting wood. The paper illustrates the difference between innovations that are aligned and supportive of a common goal, as compared to organizations in which these three components are independent and not supportive of each other.

“Core Competencies are the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies” (Prahalad and Hamel, 1990). The introduction of core competencies had a major impact on management practice and thinking. Multiple authors adopted, adapted, and extended the ideas of core competencies. One of the most prevalent adaptations was to change “competency” to “capability” and apply a more general definition to the term. Stalk, et al (1992) stated that, “whereas core competence emphasizes technological and production expertise at specific points along the value chain, capabilities are more broadly based, encompassing the entire value chain.” They go on to propose that core capability is “a set of business processes strategically understood” and that it represents “technological and production expertise at specific points along the value chain.” Leonard-Barton (1992) turned core competency into core capability in this way, “core capability is an interrelated, interdependent knowledge system.” Even Hamel and Prahalad sometimes use the terms interchangeably in their later writings (1994).

In this paper I propose that there is an important distinction to be made between competency and capability. Providing different definitions of these two terms is valuable in aligning two different sets of practices within a company. This alignment is essential to the effective penetration of the market with new and existing products. I propose that capabilities refer to a broad set of practices in which a company has proficiency. But that these practices are rooted in production and daily operations. A capability is the organizational ability to execute activities repetitively, efficiently, and predictably.

Contrasting this, a competency refers to a company’s ability to improve its performance continuously. A competency is the source of differentiation for the company allowing it to create and offer unique products, services, and solutions to customers. A competency is the organizational ability to improve continuously.

Further, established companies possess many more capabilities than they do competencies. They have developed the ability to execute repetitively in a number of areas. But they have relatively few competencies, or areas in which they are able to improve their performance continuously. Contrasting this, new companies have relatively more competencies and fewer capabilities. Their entire business strategy is based on a few things that they can do differently than established industry leaders, but they possess very few capabilities to deliver products and services repetitively and efficiently.

Market Penetration

In order to penetrate the market, a company must be able to align innovations in both its capabilities and its competencies for the effective satisfaction of customer needs. Established markets are filled with products that meet the needs of a specific set of customers. New entrants into the market must provide either a better product or a different product in order to displace those that already exist. Porter emphasized two sustainable strategies of entering and remaining in an industry. A company must be able to offer the same products at a lower cost, or they must be able to offer differentiated products that cannot easily be duplicated by competitors (1985). Christensen extended this perspective by demonstrating the power of technological advancements to enable a low-cost strategy to be transformed into a differentiated product (1997). Christensen's disruptive innovation brings out the power of technology to create major competitors from companies that previously would have been permanently relegated to the role of a niche player.

Given the opportunities presented by low cost, differentiated products, and technology disruption, a company must structure itself to deliver these advantages consistently, repetitively, and efficiently to customers. Without a complementary strategy across the company, a new product or service cannot be pressed forward to create a permanent and growing position in the market.

In addition to competencies and capabilities, a company must align its resources to feed the production and management systems that deliver the volume and quality of products needed. Essential resources include personnel, technology, information, finances, and natural resources.

Innovation Alignment: The Axe Analogy

Companies have competencies, capabilities, and resources. All of these must be aligned to be effective in penetrating the market. Without such alignment, a product or service might have sufficient financial resources, but insufficient production capability. It may have world-class manufacturing capabilities, but poor R&D and innovation competencies to create new products. Applying resources, capabilities, and competencies individually or without alignment is not an effective strategy for market penetration.

This idea is illustrated with the analogy of an axe splitting wood (Figure 1). The wood represents the market that is to be penetrated. It is dense with existing products and

services. There are also interlocking relationships among products because a customer uses many of these together. In order to enter this market, a new product must provide a better solution and it must be able to break existing bonds.

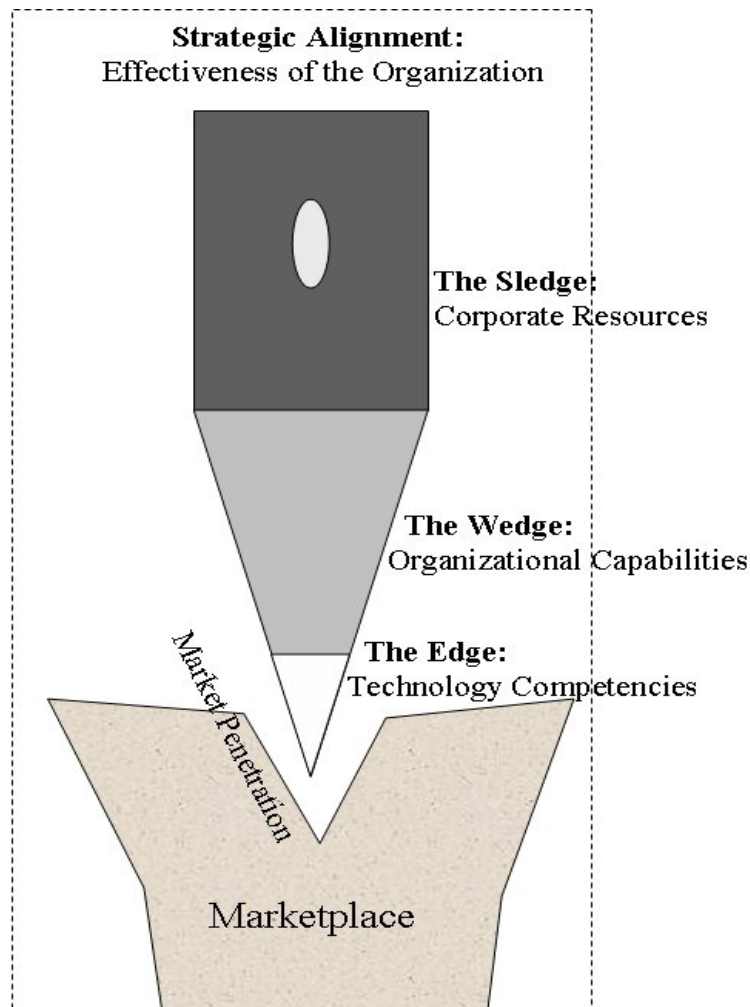


Figure 1. An axe penetrating wood is an apt analogy of the power of strategically aligning competencies, capabilities, and resources to maximize market penetration.

The sharp edge of the axe blade represents the core competencies of the company to create a better product. The edge is honed through research and development, the application of new materials, the creation of new state-of-the-art production capabilities, or the application of products from an adjacent industry. This sharp edge penetrates the market and separates established product relationships.

Separating established relationships is not sufficient for taking market share. Following the edge there must be an organizational wedge that is designed to push aside competing products and replace them with the new competitor's products. The wedge represents the capabilities of the company to continuously deliver the products and services. This includes manufacturing, logistics, marketing, partnerships, labor relations, and a host of

other capabilities to follow-up on the disruptive entry of the edge of the axe into the market.

Finally, the sledge represents the resources of the company to continue to feed competencies and capabilities. The resource sledge includes the people, factories, logistics systems, natural resources, and finances necessary to push the edge and wedge deeper into the market, opening a wider space for the new competitor's products and services.

Using this analogy, we can also demonstrate the limitations associated with applying any one of these individually. Resources alone deliver a blunt object against established products and relationships. It is like chopping wood with a sledge hammer, it may dent the surface and disrupt some small part of the market, but it will not penetrate (Figure 2a). Large oil, gas and gold producers are heavy users of resources that could attempt to enter a new market by applying only the brute force of their resources.

Competencies alone can penetrate the surface and break some relationships, but without capabilities, this will make only a small cut in the wood. There is no wedge behind the edge to open a significant space for the new products (Figure 2b). Many R&D-focused start-up companies are based entirely on competencies. They have excellent skills in a narrow area, but lack the ability to apply them effectively, such as through effective marketing, distribution, customer service, or information processing.

Capabilities alone do not possess the edge to break into the market or the resource sledge to deliver significant force behind the blow (Figure 2c). A large, low-cost manufacturing company typically has significant capabilities, but without either unique competencies or abundant resources. As noted, all three must be aligned to effectively penetrate the market.

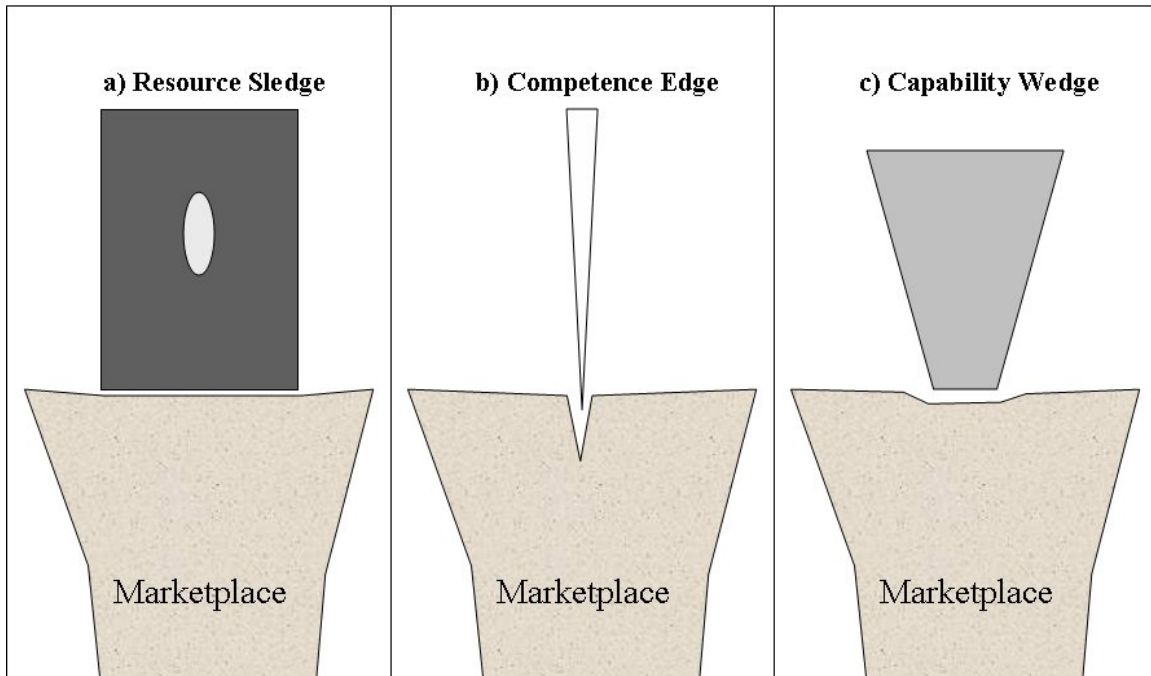


Figure 2. Individual innovations in resources, competencies, or capabilities are significantly less effective at market penetration.

Competencies: The Edge

In their 1990 HBR paper, Prahalad and Hamel state that, “core competencies are the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies.” They go on to emphasize that core competence should: (1) provide potential access to a wide variety of markets, (2) make a significant contribution to the perceived customer benefits of the end product, and (3) be difficult for competitors to imitate. (Prahalad and Hamel, 1990)

Further, in their 1994 book, *Competing for the Future*, these same authors provide a much more distinct definition that is more useful to us in differentiating competencies from capabilities. They state that, “a core competence is a tapestry, woven from the threads of distinct skills and technologies. ... Many companies have had difficulty blending the multiple streams of science or technology that comprise their heritage into new, higher-order competencies” (Hamel and Prahalad, 1994, p.214).

These new higher-order competencies refer to a company’s ability to improve continuously. Investments in R&D are one traditional method of continuous improvement. To remain relevant and valuable, competencies must be renewed and changed. They must be able to make “significant contributions to perceived customer benefits”. If competencies are not renewed, then the customer will move away from the solutions offered yesterday toward better solutions offered by new competitors.

Sharif (1995 and 1999) emphasizes that a company’s competencies must include an ability to seek out solutions, to ask questions, and to experiment with new ideas. It cannot

limit itself to better efficiency with existing products and processes (a capability). Competence is “solution seeking” and requires the synthesis of ideas from many domains and time periods. It looks beyond what is practical, feasible, profitable, and immediately approachable. This aligns well with Christensen’s description of the emergence of a disruptive product from roots that at first appear to be inferior to current solutions. The key is that the new roots have much greater future potential than the old roots. Seeing this, appreciating it, and pursuing it requires the freedom to look beyond current capabilities.

Organizational learning is an important ingredient in maintaining a competency. The organization must be able to absorb and integrate multiple streams of knowledge (Prahalad, 1998). They must be able to share this knowledge across the organization such that it can move from where it is discovered, created, or appreciated to where it can be effectively applied. In many companies, strong organizational boundaries have the effect of fracturing core competencies because they separate complimentary knowledge, prevent communication, and disincentivize collaboration (Leonard-Barton, 1992).

Inside the organization, there must be entrepreneurs who are able to pursue new and innovative paths. These people must “learn to forget” (Prahalad, 1998) about established practices and seek out new solutions (Sharif, 1995). Over time, these groups must even learn to forget about established competences. When a competence no longer meets customers’ needs or cannot be extended further, it does not provide competitive advantage. Continuing to adhere to these exhausted competences is a “competence trap” (Levitt and March, 1988) or a “core rigidity” (Leonard-Barton, 1992)

Capabilities: The Wedge

“Whereas core competence emphasizes technological and production expertise at specific points along the value chain, capabilities are more broadly based, encompassing the entire value chain.” (Stalk et al, 1992, p. 66) Capabilities are “a set of business processes strategically understood ... the key is to connect them to real customer needs” (p.62)

Capabilities are those things that the company can do well repetitively. Production, logistics, daily human resource management, and partnerships -- executing these day in and day out, handling the constant stream of issues that threaten to break these systems is an important capability for the company. Stalk (1992) points to the business processes that are established to insure that the system continues to work. He calls for strategic investments in the support infrastructure for these capabilities. Investments can only be strategic if the strategy aligns capabilities with competencies and resources as argued above.

The goal is to outperform the competition in the speed of response to customer needs, the consistency of the product specifications, an understanding of where the market is going and what it wants from its suppliers, and maintaining an agility to adapt to market and world changes (Stalk, 1992).

Given a specific set of resources, a company's capabilities allow it to apply those in an efficient manner. These enable continuous and uninterrupted operations. Improvements to existing processes, practices, and partnerships are part of these capabilities because they address incremental improvements to existing practices based on knowledge about those practices. They are an integrated part of operations, rather than being purposefully separated from operations. The competency to improve refers to the ability to see a product or process differently and to design the next generation that will replace it, not simply modify it.

“Core capability is an interrelated, interdependent knowledge system” (Leonard-Barton, 1992). These relationships limit progressive improvements to a rate and opportunity that can be accommodated within the entire current system, which differentiates them from competencies.

Resources: The Sledge

Sharif (1995 and 1999) suggests that there are four types of technology resources that are applied by a company that is innovating in its products and services (Figure 3). He describes these as:

- Technoware – object-embodied physical facilities
- Humanware – person-embodied human talents
- Inforeware – record-embodied codified knowledge
- Orgaware – organization-embodied operational schemes

He also accepts that there are financial and natural resources available which are not necessarily related to technology.

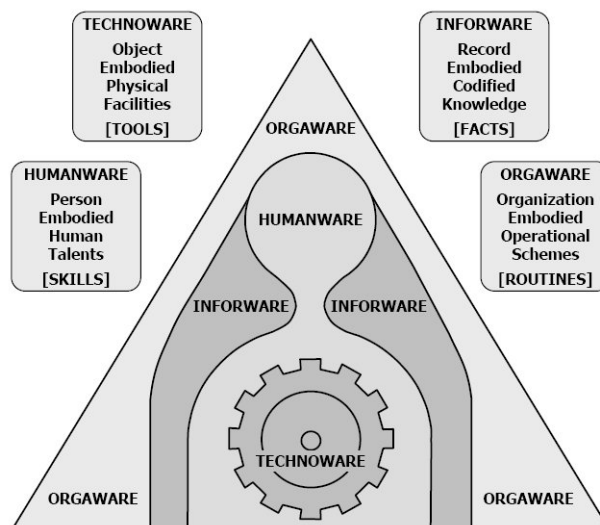


Figure 3. The technological resources available to a company fall into four major categories.

Source: Sharif, 1995

Leonard-Barton (1992) suggests that there are 4 dimensions (or resources) that make up the knowledge set that enables capabilities and competencies. These are:

- Skills and Knowledge Base -- knowledge and skill embedded in employees (i.e. Humanware)
- Technical systems – knowledge embedded in technical systems (i.e. Technoware)
- Managerial systems – formal and informal ways of creating knowledge (i.e. Orgaware and Infoware)
- Values and Norms – traditions from the founders (i.e. Orgaware)

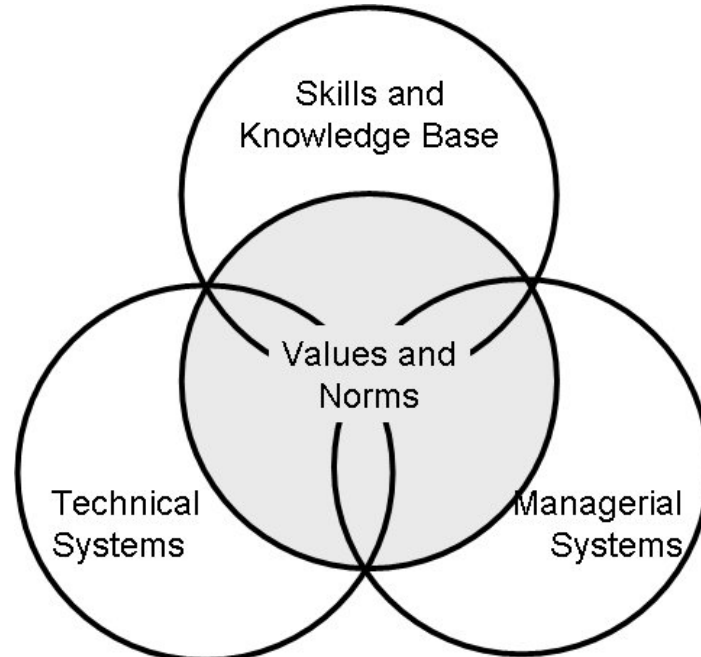


Figure 4. Leonard-Barton offers four dimensions of knowledge that contribute to organizational capabilities.

Source: Leonard-Barton, 1992

The resources categorized by both authors are those that make-up the sledge behind the blade of the axe. These resources put weight behind organizational capabilities and the technological competencies that are penetrating and opening a market. Resources enable the organization to function.

Innovation Alignment Strategy

“From a competitive strategy point of view, technology can be used defensively to sustain achieved advantage in product differentiation or cost, or offensively as an instrument to create new advantage in established lines of business or to develop new products and markets.” (Burgelman, 2004, p.143)

Burgelman also suggests that there are four dimensions of technology strategy:

- deployment of technology in the firm's product-market – position for differentiation (i.e. competencies),
- technology broadly applied across all activities of the firm's value chain (i.e. capabilities),
- resource commitment to various areas of technology (R&D) (i.e. resources), and
- use of organization design and management techniques to manage the technology function (i.e. daily operations).

These are consistent with the need to align competencies, capabilities, and resources in order to achieve significant and sustainable market penetration. In the introduction we also illustrated the effects of attacking the market with each one of these alone.

Attacking with resources alone refers to applying personnel, money, IP, or other assets without creating an organization that can deliver consistent products and services to companies. It also lacks the penetrating power of competencies to create new and innovative products that meet customer needs better than current offerings.

Attacking with competencies alone creates a prototype product and attempts to enter the market without the production, logistic, and marketing efforts required to consistently deliver the product or to make customers aware of its existence.

Attacking with capabilities alone creates a production and delivery system for a product that is mediocre and lacking innovative solutions to customer problems. This may succeed in placing yet another product on the shelves, but it will not significantly impact the market. This approach is most effectively used when the differentiating feature of the product is merely its price.

Aligning all three of these creates an organization and a product that can make a unique place for itself in the market, maintain its momentum, and grow its marketshare over time. Apple Computers is a strong example of this type of alignment. Their competency is in creating unique products that are differentiated in style and power from PCs. That competency continuously adds new innovations to existing products (i.e. iMac) and creates entirely new products (i.e. iPod and iPhone). They back this up with the capability to produce the products with high quality and in sufficient quantities, accompanied by a marketing thrust that makes it clear why their offerings are unique and valuable. Behind these competencies and capabilities are the resources in personnel (humanware), technology (technoware), and organizational structure (orgaware) to source new products. They also possess unique values and norms that give everyone in the organization permission to think, act, and create differently. Google is another company that appears to have aligned its competencies in Internet search and data analysis, with its capabilities to deliver targeted advertising based on search results, and supports these with abundant human and financial resources. The company continues to create new products like Google Mail, Maps, Earth, Desktop, Toolbar, Blogger, Picassa, YouTube, Finance, Books, Shopping, Docs, Calendar, News, and 411 all of which build upon and extend their core competencies in collecting, analyzing, understanding, and selling data.

CONCLUSION

Prahalad and Hamel suggested that a company has only a few core competencies and emphasized the fact that corporate strategy must be built around these competencies. In this paper we build on those authors' ideas to create an innovation framework of competencies, capabilities, and resources which must work together to effectively penetrate the marketplace. This alignment is an essential part of the company's technology innovation strategy. If these three pieces are not aligned, then a competencies-based strategy will be ineffective because it will not be backed by the organizational processes or capabilities that are necessary to repeatedly carry those competencies to customers. Also, without sufficient resources, competencies and capabilities will be starved and unable to meet the demands of a market that has been penetrated. Initial successes will not persist long enough to capture a leadership position or to introduce subsequent waves of improved products and services.

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