

California Management Review

Dynamics of Core Competencies in
Leading Multinational Companies

Briance Mascarenhas

Alok Baveja

Mamnoon Jamil

© 1998 by The Regents of
the University of California

University of California
Berkeley
Haas School of Business

Dynamics of Core Competencies in Leading Multinational Companies

Briance Mascarenhas
Alok Baveja
Mamnoon Jamil

A “core competence,” as articulated by Prahalad and Hamel,¹ has three traits: it makes a contribution to perceived customer benefits; it is difficult for competitors to imitate; and it can be leveraged to a wide variety of markets. Knowing a firm’s core competence is important for developing strategy. By concentrating on their core competence and outsourcing other activities, managers can leverage their company’s resources in four ways: they maximize returns by focusing on what they do best; they provide formidable barriers against the entry of competitors; they fully utilize external suppliers’ strengths and investments that they would not be able to duplicate; and they reduce investment and risk, shorten cycle times, and increase customer responsiveness.²

Several studies have emerged on core competencies, and they have typically examined the conditions that make a competence valuable³ or have sought to identify actual core competencies in firms.⁴ Consequently, while we know more about how to evaluate and identify core competencies, the dynamics of competencies are still not clear. Little is known about how core competencies arise in the first place and how managers can develop them. Furthermore, if a firm’s core competencies change over time, a static view can be misleading and can encourage the building of inappropriate types of competencies.

The authors would like to thank the executives who participated in the study from Boeing, Campbell Soup, Citicorp, Crown Cork and Seal, HCL, Inductotherm, Lockheed Martin, Melitta, Merck, National Starch and Chemicals, Okidata, and Siemens. The study benefited from the comments of R. Sambharya. The study was supported by a CIBER research grant from the United States Department of Education.

Methodology

To analyze the dynamics of core competencies, the authors conducted case studies of 12 multinational companies. The companies selected are leaders in global market position and are characterized by their longevity, high levels of profitability, or low top management turnover. They are based in four countries—United States, Germany, India, and Japan—and represent firms from diverse industries ranging from service to manufacturing sectors and from consumer to industrial products. The companies are detailed in Table 1.

Top executives familiar with their firm's way of competing and its industrial context were interviewed. The executives were given the general definition of a core competence and were asked to elaborate on industry developments, their firm's competencies, how they were created, how their competencies changed over time, and the competencies they were planning for the future. The information provided by executives was cross-checked with documentary sources, such as company annual reports, sales catalogs, newsletters, business press reports, academic case studies, videos, book histories, and company web sites on the internet.

The analysis was conducted in three stages. In the first stage, the researchers performed detailed case write-ups for each company, including transcripts of team meetings with company executives. In the second stage, cross-company comparisons were made. The third stage mapped out the sequence in which firm competencies were developed over time. These sequences are compared across firms to develop a dynamic model of how competencies are strengthened, leveraged, and developed.

Finally, the executives were contacted again to check the accuracy of reporting and to make any desired changes. Table 2 reports the competencies uncovered across the 12 companies.⁵

Types of Competence

The identified competencies fall into three basic groups: superior technological know-how; reliable processes; and close relationships with external parties. These three types of competencies are consistent with competencies found in prior studies.⁶

Superior Technological Know-How

A technological competence involves a deep understanding of a subject area. This deep understanding arises from an early, substantial, and continuous involvement in that area. It includes knowledge of the scientific properties, inter-relationships, and latest developments in a subject area. This knowledge is valuable if competitors do not have a similar knowledge base and if the knowledge can be converted into superior products for customers.

TABLE I. Characteristics Of Firms Studied

Firm	Primary Industry	Country of Origin	Outstanding Characteristics
Siemens	Capital Goods	Germany	Second largest German industrial firm. Founded over 150 years ago, operates in 120 countries, and has over 380,000 employees.
Merck	Pharmaceuticals	United States	Rated 'the most admired corporation in America' five years running. Second largest global drug firm.
Boeing	Aircraft Manufacturing	United States	Global market share leader. Founded in 1916. Has had six CEOs during this period.
Citicorp	Financial Services	United States	Largest U.S. bank and a pioneer in international markets.
Melitta	Food Processing	Germany	Privately held firm that operates in over 100 countries. Melitta coffee is ranked second in market share in Europe.
Campbell Soup Company	Food Processing	United States	Founded over 125 years ago. Operates in over 120 countries, has 43,000 employees. Most consistently profitable firm in food processing industry in the 1990s.
Okidata	Computer Office Machines	Japan	Founded over 110 years ago. Pioneered the dot-matrix printer technology.
Lockheed Martin	Defense Aerospace	United States	Largest global defense company.
Crown, Cork, and Seal	Packaging	United States	Largest global packaging company, with \$10 billion in sales and 312 plants worldwide. Founded in 1892. Has had five CEOs since its inception 104 years ago.
HCL	Software	India	Largest computer company from India that is rapidly expanding internationally.
National Starch and Chemicals	Specialty Chemicals	United States	Founded in 1895. \$2.5 billion in sales, 168 million in net income, 8,500 employees in 125 facilities in 36 countries in 6 continents. Has had 6 CEOs in its 100 year history.
Inductotherm	Induction-Driven Furnaces for Melting and Welding	United States	Global market share leader with 85% of the U.S. market and 50% of the global market. Founded 40 years ago.

TABLE 2. Companies Competencies By Type

Firm	Technological Know-How	Reliable Process	Close Relationship with External Parties
Siemens	Semiconductor know-how that cuts across its 14 divisions.	Reliable high-quality, low-cost manufacturing achieved through master/apprenticeship program. Innovation productivity fostered by a long tradition of managing innovation process.	Close ties to German banks provide access to capital to finance customer purchases.
Merck	Excellent functional specialists in research and manufacturing helps to achieve superior performance.	High ethical standards and controls reduce risk of drug failures. Strong record of obtaining drug approvals from policy-makers.	Strong relationship with the profession helps to attract new talent. Credibility with the demanding Food and Drug Administration in the U.S. helps to obtain approvals internationally.
Boeing	Flexible design and assembly of aircraft.	Large scale international system integration for millions of parts that go into a plane.	Close relationship with suppliers helps to make rapid design changes.
Citicorp	Has sophisticated financial product and market trading know-how in the United States.	Ability to provide its 100 million customers any financial service, anywhere, in any currency over its own global network at a low cost without failures.	Leverages its local customer contacts from early international entries over its global network of affiliates to develop their international business.
Melitta		Ability to provide customers a consistent, high-quality 'coffee enjoyment' experience by being the only player that offers an integrated package of coffee makers, coffee filters, and coffee blend.	Uses its 'relationship marketing' with the trade to cross-sell multiple products.
Campbell Soup	Food growing and processing know-how, such as its flavor adding technology.	A company-wide focus on performance encouraged by a 'pay-for-performance' system that is ingrained from the Board of Directors down to the supervisory level. Ability to transfer this 'pay-for-performance system' to international acquisitions.	

The CEO of National Starch, a producer of specialty chemicals, noted that the firm has a core competence in its expertise in both natural and synthetic polymers, two upstream disciplines that are used in diverse end products and markets. The firm was originally in the chemicals business but obtained the expertise in natural polymers unintentionally through an agricultural division that was part of a larger acquisition it made decades ago. Its competitors have

TABLE 2. Companies Competencies By Type (*continued*)

Firm	Technological Know-How	Reliable Process	Close Relationship with External Parties
Okidata	Strong technical research and engineering in Japan.		Close relationship with distributors obtains customer information feedback and provides market access.
Lockheed Martin	Systems engineering and aerospace, composites, and micro-electronics expertise.	Record of mission success. Reach to access resources anywhere to execute on time and on budget projects that have never been done before.	To satisfy its customers' needs, the firm has also developed closer relationships with suppliers, domestically and internationally.
Crown, Cork, and Seal	Tooling investment and know-how to cut metal and reduce material and handling of cans.	Culture of cost reduction manifested in its management, structure, operations, and design of cans. Ability to transfer its cost reduction practices to over 20 acquisitions.	Leverages its close customer relationship across plastic and metal packaging, filling machinery, domestically and internationally.
National Starch and Chemicals	Expertise in both natural and synthetic polymers.	Seamless coordination between research, development, and technical services.	Close relationship with customers leads to customer-driven R&D.
HCL	Expertise in UNIX based software systems where it was an early entrant before it became the global industry standard.	A reliable system of providing offshore outsourcing of software development using the large, low-cost, computer-skilled professionals in India.	Close relationships with clients help to develop customized computer hardware and software solutions and provide servicing.
Inductotherm	Induction melting technology.	Reliability of its furnaces, arising from its integration at the factory instead of customer location, its large installed base, and round-the-clock global servicing.	Its open relationship with vendors generates ideas and components that it integrates into its new products.

expertise in either natural polymers or synthetic polymers. The combination of expertise in natural *and* synthetic polymers gives National Starch a larger “toolbox” to work on the diverse needs of its industrial customers. For example, one of its customers is a manufacturer of body lotions that desired a certain “feel” in a new lotion. National Starch was able to meet this customer’s need by drawing on its expertise in both kinds of polymers.

The global context provides various opportunities for developing and leveraging superior technological know-how. The special capabilities of diverse countries can be sourced in developing technological know-how. Larger international sales can fund and amortize greater R&D expenditures.⁷ Superior technological know-how gives foreign firms a lever to enter foreign markets and

compete with local firms that may better understand the local context. Since countries vary in their infrastructural context and development, opportunities exist for transferring and extending the life of older technologies to developing countries as newer technologies emerge in industrial countries.

Reliable Processes

A reliable process delivers an expected result quickly, consistently, and efficiently, with the least inconvenience or disruptions to customers. A reliable process can involve the decomposition, re-integration, or transfer of skills across functions, currencies, or countries. It can also be the ability to combine various inputs to customize a product to meet a customer's particular needs. Reliable processes can occur in the research and development of new products, in zero-defect manufacturing, in consistently obtaining rapid regulatory approvals, in international sourcing without disruptions, in executing cross-border transactions efficiently without snags or losses, and in transferring an operating system or organizational culture internationally or to an acquired organization. Reliability is important because customers increasingly consider the total cost of a product over its life, not just its initial purchase price.

Merck has a reliable process competence in the development of new drugs. This reliable process is due to various factors. Its researchers are prominent in their fields and employ higher professional and ethical standards in their research than other pharmaceutical firms. Merck has stringent internal controls to prevent the release of a drug prematurely that are enforced both domestically and in its international affiliates. Employees go through training programs where safety is emphasized. In the testing stages, Merck employs more stringent tests than what is required by the Food and Drug Administration (FDA). For example, company executives noted that while the FDA typically required a sample of 1500 patients in the phase three stage testing of a new drug, Merck employs a sample of 5,000 patients. This added testing increases the reliability of claims about a drug's efficacy and reduces the chances of unknown side effects. The added testing need not slow down the introduction of the drug to market. Merck compensates for more stringent testing by committing more resources to R&D than its competitors, which speeds up the development process. The well-known reliability of Merck's development process helps to obtain faster approval from the FDA. Further, Merck maintains an in-house manufacturing capability in chemicals that enables the firm to quickly ramp up quality production of a new drug upon FDA approval.

A reliable process is valuable when conducting business in a global context. Being able to offer a reliable process is valued by customers since international transactions are subject to great uncertainties and disruptions because of transportation, communication, and customs delays, cultural differences, or red tape. Countries also vary in their production capabilities and desires for a customized product. Few companies have the ability to effectively break up a design

or production process internationally and combine various inputs to meet a specific customer's needs.

Citicorp has a reliable process competence in providing multiple financial services through its own global network to its 100 million customers worldwide. It aims to provide its customers "any banking service, anywhere, anytime, in any currency in any way they choose" without losing transactions and without bureaucratic delay. It is able to provide these cross-border transactions efficiently because of over 100 years of foreign exchange experience. Its presence in some countries with few banking restrictions gives the firm operational flexibility. Citicorp also has a reputation with customers for executing cross-border transactions. Citicorp has been ranked the world leader in foreign exchange trading sixteen years in a row by Euromoney. Citicorp's organizational structure assigns customers a single contact person to enhance the customer confidence in these cross-border transactions. Competitors do not have such a reputation and may have different organizational structures. They also cannot offer such reliable services because they have a more limited network of own affiliates abroad and have to rely on correspondent banks, creating seams between organizations and increasing costs in the process.

An example of this reliable process capability is reflected in Citicorp's "Globe Deposit Account" that is targeted to ethnic market retail customers in many countries. Potential account holders are offered a choice of 15 currencies in which to hold their deposit, which is held by Citicorp in Singapore, where there are few banking restrictions. Citicorp allows depositors the option to change the currency of their deposit every week and in increments of \$1,000 of their total deposit. Further, in order to improve communication, each depositor is assigned a relationship manager who may also be from the same ethnic community. Customers obtain the potential benefits of being able to choose their currency exposure and take advantage of relative shifts in currencies.

Close External Relationships

A close relationship with suppliers, regulators, professional organizations, distributors, and customers yields several benefits. The firm and partner can identify opportunities for mutual benefit (such as joint cost reduction by removing purchasing and sales functions or off-peak scheduling). Suppliers can suggest ideas for new product development or execute rapid design changes needed in parts. Professional organizations can provide superior talent. Regulators can facilitate and hasten product or manufacturing quality approvals. Distributors can provide market access and customer information. Customers can suggest new competencies that the firm should develop.

Inductotherm is the global market leader for induction furnaces that use electric current to create a magnetic field which, in turn, creates an electric current to heat and melt a target metal. Henry Rowan, its CEO and founder, noted that he constitutes the bulk of the R&D effort within the firm. In addition, the firm relies on close, open relationships with vendors for R&D by welcoming

them instead of screening them out. These vendors expose the company to new ideas and components that Inductotherm then integrates into its own product development instead of developing new products and components from scratch, which would be slower and more costly. Not being tied to an internal technology gives Inductotherm the flexibility to innovate with lower financial investments and to provide customers continuously improved products.

Developing close relationships is important in the global environment. Firms can leverage their international distribution reach. In some industries, developing a relationship with a local partner can help to defuse protectionism. In cultures with long time frames, firms seek to develop relationships before conducting business. Relationships are particularly useful in reducing opportunistic behavior in countries that are less legalistic than the United States. A strong relationship with a local partner can be used to leverage a firm's other assets internationally. Relationships are useful to buffer the inevitable disruptions and uncertainties that characterize international business. Firms can also reduce their financial foreign investment outlays by conducting international business through close relationships with other organizations instead of through creating and operating subsidiaries abroad.

In the defense aerospace business, Lockheed Martin has close relationships with its defense agency customers. Its managers call this competence "customer intimacy" and it involves satisfying not only its own objectives, but those of its customers. Its deeply shared motto is: "The customer's mission is our mission!" The close relationship with the customer enables Lockheed Martin to understand and satisfy the varied needs that exist in the client organization: it gauges and tries to satisfy the different needs of politicians in the capital, of military generals in the defense department, and of technicians in the field. Further, as part of the long-term relationship the firm provides not only the purchased product, but the on-going servicing and support. Consequently, Lockheed Martin strives to reduce the customer's total project cost, which is quite different from the initial purchase price.

Siemens produces large capital equipment goods such as power generation, telecommunications, and transportation equipment. Siemens markets these high-ticket items in over 120 countries. Historically, German companies have had close relationships with German banks. Siemens, in particular, has had a close relationship with Deutsche Bank, with executives sitting on each other's boards. This close relationship with a major German bank provided Siemens with ample, low-cost financing for its customers, enabling the firm to make international sales to many countries. Siemens's international competitors based in other countries may not have this close relationship with their banks and cannot exercise such a financial advantage.

TABLE 3. How Firms Developed the Three Types of Competence
(Number of firms in which ??? Emphasized in Interviews)

Technological	Reliable Process	Close External Relationships
Exposure to a demanding technical, operating, or economic environment where firm is located (6)	Use of corporate culture that abhors waste, operating controls, and expected standards to reduce disruptions (5)	Use acquisition of other firms to obtain their relationships (4)
Defy prevailing assumed technical or operating limits (4)	Conduct analyses to identify activities that should be outsourced as well as to identify most reliable suppliers (4)	Market firm's international reach to develop relationships across countries (4)
Use magnitude of development task and deadlines to motivate employees (4)	Use of logistical innovations to improve communication and customer response (3)	Use of compelling technical and/or reliable process competencies to forge external relationships (4)
Commit resources early (4)	Utilization of experience associated with having a large installed base (1)	Use of an existing relationship with one party to develop relationships with others (3)
Commit substantial resources to an area (3)	Use of personal contacts and audit teams to monitor and facilitate coordination (2)	Understand and satisfy various needs by implanting a high-level team in partners (2)
Use of scope economies to justify resource commitment (2)	Use of a company-wide rewards and incentive system to promote firm efficiency and avoid waste (1)	Cross-sell multiple new products using an umbrella brand name (2)
Use of early reputation and talent to continuously attract quality resources (2)		Use of increasing firm size to develop large, efficient, mutually beneficial, long-term agreements (2) Use of early entry and longer time period to build a relationship (1)

Dynamics of Competencies

Table 3 reports the factors mentioned by executives that contributed to development of the three types of competencies. (In parentheses is the number of firms in which a each factor was emphasized in interviews.) Clearly, different approaches and multiple methods are needed to develop each type of competence.

Developing a Technological Know-How Competence

With regard to developing a technological competence, the most common factor emphasized in the interviews was exposure to a demanding technical, operating, or economic environment. Often, the firms have combined upstream technologies that were accessible where it was located or home-based. Managers operating in such an environment have defied the prevailing assumed limits and pushed the performance boundaries beyond what was commonly deemed possible. They often use a demanding deadline to emphasize the magnitude of the development task and thus motivate employees. Resource commitment is important for developing expertise in a subject area, particularly if the commitment is made early on. With an early commitment, competitors may not yet exist and the firm has a longer time frame in which to accumulate expertise. It also helps if the resource commitment is substantial, which can be encouraged by scope economies. Further, the resource commitment should be continuous to maintain forward momentum and to avoid the dysfunctional effects of stops and starts in development.

Merck provides an example which illustrates the roles played by these factors in the development of a technological competence. In 1933, George Merck set up a lab in New Jersey and hired prominent researchers in chemistry and biology. The existing chemical and health care industries in the New Jersey/Philadelphia region provided a rich base from which to draw talent. Research at the intersection of these two upstream disciplines helped to develop various pharmaceutical products, such as vitamin B12, cortisone, and streptomycin. The combined research approach also contributed to the synthesizing of chemical compounds that block the formation of disease enzymes rather than just treat disease symptoms.

Merck was still primarily a research organization, licensing out many of its patents to other companies for royalties. Despite having prominent scientists, Merck fell behind other companies in introducing drugs to the market. This prompted Merck to become more proactive and it began to improve on competitors' drugs and license technologies from foreign drug companies. It also acquired Sharp and Dohme, another pharmaceutical company, whereby it obtained an extensive drug marketing and distribution network that could better commercialize new drugs.

In the late 1980s, Merck's CFO Judy Lewent persuaded then-CEO Roy Vagelos to sharply increase R&D expenditures, arguing that they would translate

into a disproportionate increase in pioneering new drugs and firm profitability. By the late 1980s, Merck's stepped-up research program accounted for 10% of the industry's total R&D expenditures. The firm adopted a policy of hiring the top 10% of scientists and of "sparing no expense" to recruit top talent. The stature and competence of Merck's functional specialists helped to recruit and train the next generation of specialists. Within a decade, these steps resulted in Merck doubling its sales, tripling profits, and achieving the highest ratings in industry surveys, all of which catapulted the firm into becoming the undisputed leader in the pharmaceutical industry.⁸

Developing a Reliable Process Competence

Firms utilize a mix of informal corporate culture and formal operating controls and standards to develop a reliable process. The informal corporate culture minimizes waste and delivers customer value. The formal operating controls and standards reduce the number and extent of deviations in the process. Some firms seek to minimize disruptions by analyzing what activities should be performed in-house versus outsourced, and then they conduct a rigorous analysis of supplier reliability before they select suppliers. The use of logistical innovations to improve communication and transportation (such as satellite links, common software platforms, or private jets and airfields) can also improve the firm's operational reliability and response. Diverse other methods are used by companies to enhance reliability, such as using personal contacts to achieve coordination, using analysis of a database on the firm's installed products to identify weak spots and design them out, or using a rewards and incentive system to promote efficiency.

Despite its historic competence in the design and production of airplanes, Boeing was facing both increasing competition from Europe's Airbus and rising labor costs in the United States. Airbus is state-owned and the bulk of their planes are produced in the four member countries: France, Germany, Spain, and the United Kingdom. International cost-conscious customers, such as Japan Air Lines, were increasingly demanding local sourcing in return for plane orders. Top management at Boeing reasoned that international sourcing could provide a competitive edge if it could better satisfy customer needs and if overseas production reduced production costs, and if Airbus, being state-owned and confronting stronger unions, did not have the flexibility to engage in international sourcing.

To develop a reliable process for international sourcing, however, Boeing first had to determine which items of the plane should be outsourced and which should be kept in-house. Boeing decided to retain in-house wing design and production because it was a critical component (affecting safety, lift, efficiency, strength) and one in which it had accumulated substantial expertise.

Boeing also had to determine which suppliers could be counted on. Boeing's existing technological competence in plane design and production proved useful in setting technical standards for potential suppliers. It developed a detailed, hierarchical protocol for evaluating suppliers with regards to the

design team (the prospective supplier's ability to meet the needed technical specs), project management (the supplier's ability to execute projects on time), procurement (the supplier's ability to meet cost budgets), and top management (the supplier's history with other projects).

After choosing suppliers, Boeing developed an audit procedure to check not only the end-products, but the process through which they were produced at the suppliers. This audit involved weekly visits to some of its suppliers. Suppliers had to develop a planning system for their projects and had to adhere to a protocol for safety and configuration management (how proposed design changes were to be managed and communicated). Suppliers were required to provide extensive documentation to Boeing. Electronic mail was not used for communication because of potential piracy. To facilitate communication and coordination, all suppliers were placed on a common software platform developed by Dassault and a computer-aided design package that allowed concurrent three-dimensional interactive design capability.

Developing a Close External Relationship Competence

Firms can use early acquisitions to buy relationships that would be time-consuming and prohibitively expensive to develop from scratch. Firms that develop relationships from scratch can offer potential partners their capability to serve international markets. They can use an existing relationship to develop a relationship with another party. Their existing competencies can be offered in a prospective relationship or the lack of a competence can be the motivator to form a relationship to attract the needed resources.

In order to effectively build a relationship, firms make a commitment to understanding and satisfying the various needs that exist in their partner's organization. This commitment can involve creating a team led by a high-level sales manager personally responsible for serving larger partners' accounts. This team can be implanted in the partner's organization to identify its various needs and better satisfy them. As firms increase in size, they can seek to broaden and deepen relationships with suppliers and buyers through, for example, longer-term contracts, purchasing economies, or joint research and development. Being an early entrant also gives the firm more time under less competition in which to build relationships with potential partners.

Citicorp's origins can be traced back to 1791. As early as 1890, its President James Stillman articulated a vision to provide numerous special services as a partner to big business. By 1921, this vision of becoming the first full-service bank to businesses was accomplished. Citicorp then expanded its vision to encompass individuals as well, who up to that time had been handled by a separate set of savings banks.

Citicorp grew through several acquisitions both domestically and internationally. These early acquisitions gave it not only a quick national and international presence, but brought with it numerous relationships with the clients

TABLE 4. Dynamic Shift in Competencies
(total number of existing planned competencies by type)

Time Period	Type of Competence			
	Technological Know-How	Reliable Processes	Close External Relationships	Total
Existing	21 (42%)	16 (32%)	13 (26%)	50 (100%)
Planned	1 (9%)	2 (18%)	8 (73%)	11 (100%)

of the acquired banks. Access to these clients would have been time-consuming and costly to develop from scratch. The international acquisitions also gave Citicorp the opportunity to devote its energy to cementing relationships with new clients rather than to the lengthy process of trying to gain approvals for entering into foreign markets.

Innovation at Citicorp generated many new products that were used to obtain new clients and to cross-sell to existing clients. Citicorp was the first bank to introduce: travelers' checks; interest-bearing savings accounts that individuals could open with as little as one dollar; negotiable CDs (certificates of deposit); ATM teller machines; credit cards with revolving credit, photo identification, risk-adjusted pricing; and worldwide consumer banking that enables customers to make deposits in a choice of countries and currencies. The bank employed the umbrella brand name prefix "Citi" with its new products (e.g., Citicard, CitiTeller). This practice branded generic products and showed customers that Citicorp provided an innovative, one-stop shopping service for all their needs that could be reported on one unified financial statement. The proliferation of ventures into new products and markets was encouraged by the bank's emphasis on revenue growth over profitability.

A Dynamic Shift in Competence Types

Table 4 reports the frequency of existing competence types across all firms as well as the new competencies being planned for the future. A fundamental finding is that these firms, though they may be leaders in their field, are not standing still or resting on their prior competencies. Leading firms are constantly being challenged by ascendants. Consequently, those leaders are changing by developing new competencies.

A new emphasis is emerging on external relationship competencies. These new relationship competencies can complement a firm's traditional competencies and enable it to cope with the demands of globalization, mass customization and higher quality, and shorter product cycles. Relationship competencies help firms extend their traditional technological and reliable process

competencies to worldwide markets that they may not be able to reach on their own. Closer relationships among buyers and suppliers help to customize products and improve quality. Finally, closer relationships help firms source new ideas and technologies to develop the next generation of competencies in a world of rapid product and process change.

The development of multiple types of competencies bestows various advantages over competitors. Multiple competencies are more difficult for competitors to imitate than a single type of competence. Multiple competencies allow the option of an interactive effect that is greater than each effect alone. In the accumulation of multiple competencies, firms can develop a new competence that is needed for a changing era, enhancing their adaptability and long-term survival.

Crown Cork and Seal provides an illustration of how a company transitioned from the technological to the reliable process to the closer external relationship competencies.

In the early days after its founding in 1927, Crown Cork and Seal's technological competence stood out. The firm had a patent on crowns for cans and expertise in the efficient manufacturing of three-piece steel cans. This technological competence resulted in the firm's early introduction of the crown, the aerosol can (including the improved version that did not propel fluorocarbons into the atmosphere), and the pull-tab opening can.

When John Connelly became President in 1957, however, the firm was on the verge of bankruptcy and lacked strong leadership. Connelly was an "ultraconservative, tight-lipped, and tight-fisted" boss who saved the firm from bankruptcy by cutting overproduction, unprofitable product lines (such as ice cube trays), and headquarters' overhead (by laying off 25% of the staff and managers). Unlike other can producers, he stayed away from the introduction of the two-piece aluminum can because it would have entailed substantial retooling costs, research and development expenditures, and exposure to a limited number of large aluminum producers that could control raw material costs. Connelly stayed with the three-piece steel can but devised a welding process instead of the traditional soldering to counter growing health concerns about solder poisoning. In contrast, competitors that ventured into the two-piece aluminum can were weakened financially and later sought to diversify out of the canning industry.

The reliable process competence became pronounced in the early 1990s. William Avery, Connelly's successor, embarked upon an ambitious acquisition campaign to buy struggling can producers at bargain prices. In a short five-year period, Crown Cork and Seal made over 20 acquisitions of canning companies and plastic packagers, becoming the world's largest packaging firm. After each acquisition, Crown Cork and Seal reliably transferred its production and headquarters cost-reduction know-how to the acquiree. Crown Cork and Seal

reduced the ratio of SGA as a percentage of sales of the acquired companies, typically around 8% -10%, to its own benchmark of 5%.

Currently, Crown Cork and Seal is developing closer external relationships with customers and suppliers: The numerous acquisitions expanded the firm's national and international reach and broadened the firm's product scope to include plastic and metal packaging, as well as the package-filling machinery and the imprinting color lithography on packages. With this broadened scope, Crown Cork and Seal seeks to develop closer relationships with larger customers by providing a one-stop shopping service for all their international packaging needs. It also plans to offer its larger customers a joint research and development service. At the same time, the firm now plans to exploit its larger size with suppliers: it will pool the purchasing needs of its acquisitions to obtain purchasing economies by developing closer relationships with fewer suppliers.

Conclusion

The study of these leading companies has several implications for strategists. Leading companies do not stand still and rest on their traditional competencies. Instead they develop new competencies that respond to or anticipate emerging business conditions. A shift is occurring in relative emphasis from internal technological and reliable process competencies toward external relationship competencies. Having multiple competencies can make it that much more difficult for competitors to imitate. It also increases the adaptability of the firm and should promote long-term survival.

Notes

1. C.K. Prahalad and G. Hamel, "The Core Competence of the Corporation," *Harvard Business Review*, (May/June 1990) 79-91.
2. J. Quinn and F.G. Hilmer, "Strategic Outsourcing," *Sloan Management Review*, (Summer 1994)
3. B. Wernerfelt, "A Resource-Based View of the Firm," *Strategic Management Journal*, 5/2 (1984): 171-180; L. Dierckx and K. Cool, "Asset Stock Accumulation and Sustainability of Competitive Advantage," *Management Science*, 35 (December 1989): 1504-1511; D.J. Collis and C. Montgomery, "Competing on Resources," *Harvard Business Review*, (July/August 1995): 118-128.
4. Prahalad and Hamel, op. cit.; J.B. Barney and M.H. Hansen, "Trustworthiness as a Source of Competitive Advantage," *Strategic Management Journal*, special issue on Competitive Organizational Behavior, 15 (Winter 1994): 5-9; D. Levinthal and J. Myatt, "Co-Evolution of Capabilities and Industry: The Evolution of the Mutual Fund Processing," *Strategic Management Journal*, special issue on Competitive Organizational Behavior, 15 (Winter 1994): 45-62; H. Rao, "The Social Construction of Reputation: Certification Contests, Legitimation, and the Survival of Organizations in the American Automobile Industry, 1895-1912," *Strategic Management Journal*, special issue on Competitive Organizational Behavior, 15 (Winter 1994): 29-44; R. Henderson and I. Cockburn, "Measuring Competence? Exploring Firm

- Effects in Pharmaceutical Research," *Strategic Management Journal*, special issue on Competitive Organizational Behavior, 15 (Winter 1994): 63-84.
5. The outstanding firms studied have multiple competencies. The median number of competencies per firm is four, with the minimum being two and the maximum being five. Marino observed a similar number of competencies in the firms he studied. Multiple competencies can provide more sources of customer value and competitive advantage than a single competence. K.E. Marino, "Developing Consensus on Firm Competencies and Capabilities," *Academy of Management Executive*, 10/3 (1996): 40-51.
 6. Prahalad and Hamel, op. cit.; Marino, op. cit.; M. Treacy and F. Wiersema, *The Discipline of Market Leaders* (Reading, MA: Addison-Wesley, 1995); Henderson and Cockburn, op. cit.; Collis and Montgomery, op. cit.; Levinthal and Myatt, op. cit.; Barney and Hansen, op. cit.
 7. R.E. Caves, *Multinational Enterprise and Economic Analysis* (Cambridge, UK: Cambridge University Press, 1982).
 8. A.D. Gasbarre, "Merck & Co, Inc.," in T. Derdach, ed., *International Directory of Company Histories* (Chicago, IL: St. James Press, 1996), pp. 289-291; "Merck Wins the Hearts and Minds of Physicians' Most Admired," *Medical Marketing & Media*, January 22, 1997.
 9. E.M. Hedblad, "Citicorp," in T. Derdach, ed., *International Directory of Company Histories* (Chicago, IL: St. James Press, 1996), pp. 123-126.