
# Organizational Competencies:
## A Content Analysis

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## Introduction

What is an organizational competence? How does one enable a firm to compete over time? Utilizing different terms such as *distinctive capability*, *distinctive competence*, or *core competence*, researchers have done much to advance understanding of the organizational competence construct, especially since Prahalad and Hamel (1990) published their article entitled “The Core Competence of the Corporation.” Arguing that an organizational competence must be larger than the capabilities held by individuals within an organization, researchers have proposed definitions from a variety of perspectives.

As von Krogh and Roos (1995) point out, "The term competence is often used similarly to the way it is used in our daily speech; to code a broad range of our experiences related to craftsmanship, specialization, intelligence, and problem solving. As such, competence remains an experience-near concept which needs further conceptual clarification if it is to serve the purpose of theory building" (p. 62).

This purpose of this study was to contribute to this clarification by developing a definition for organizational competencies. It did so by addressing two research questions:

1. How do organizational competencies work?
2. What are organizational competencies made of?

## Literature Review

Perhaps the central problem of organizational competence definition has been one of balance: trying to include within the definition both the notions of *knowledge* (know-how) and *action* (skill application) simultaneously (Bogner & Thomas 1994; Fowler et al. 2000; Lei 2000; Leonard-Barton 1992; Nelson & Winter 1982; Penrose 1959; Pitt & Clarke 1999; Post 1997; Sanchez et al. 1996; Walsh & Linton 2001). Perspectives vary as to what people holding competencies know and what the competencies enable them to do. Most broadly, in an extensive literature, researchers have applied four major perspectives to understand them. Please see Table 1 for citations to articles presenting these different perspectives.

**Table 1. Article Citations by Competence Perspective**

Perspective 1: Phenomena and Related Disciplines

| | | |
|---|---|---|
| Bakker et al. 1994 | Grandstrand et al. 1997 | Meschi & Cremer 1999 |
| Banerjee 2003 | Guimaraes et al. 2001 | Miyazakil 1999 |
| Chaston & Mangles 1997 | Hafeez et al. 2002 | Onyeiwu 2003 |
| DeCarois 2003 | Henderson & Cockburn 1994 | Petroni 1998 |
| Gallon et al. 1995 | Leonard-Barton 1992 | Prahalad & Hamel 1990 |
| Goddard 1997 | Lorenzoni & Lipparini 1999 | Walsh & Linton, 2001. |

Perspective 2: Technology and Related Products

| | | |
|---|---|---|
| Bakker et al. 1994 | Duysters & Hagedoorn 2000 | Leonard-Barton 1992 |
| Bogner & Thomas 1994 | Gorman & Thomas 1997 | Onyeiwu 2003 |
| Daneels 2002 | Grandstand et al. 1997 | Petts 1997 |
| Day 1994 | Hafeez et al. 2002 | Torkkeli & Tuominen 2002 |
| Drejer 2001 | Hamel & Prahalad, 1994 | Walsh & Linton 2001 |
| Drejer & Sorenson, 2002 | Klein & Hiscocks 1994 | Wang et al. 2004. |

Perspective 3: Skills

| | | |
|---|---|---|
| Bogner & Thomas 1994 | Hitt & Ireland 1985 | Onyeiwu 2003 |
| Bove et al. 2000 | Javidan 1998 | Petts 1997 |
| Davies & Brady 2000 | King & Zeithaml 2001 | Snow & Hrebiniak 1980 |
| De Carolis 2003 | Klein & Hiscocks 1994 | Stuart et al. 1995 |
| Gallon, et.al. 1995 | Knudsen 2000 | Thomas & Pollock, 1999 |
| Goddard 1997 | Leonard-Barton 1992 | Torkkeli & Tuominen, 2002 |
| Hafeez et al. 2002 | Meyer & Utterback 1992 | Walsh and Linton, 2001 |
| Harmsen et al. 2000 | Moorman & Slotegraaf, 1999 | Wang et al. 2004 |

Perspective 4: Integration of Technology and Skills

| | | |
|---|---|---|
| Collis & Montgomery 1995 | Hafeez et al. 2002 | Prahalad & Hamel 1990 |
| Gallon et al.1995 | Hamel & Prahalad, 1994 | Sanchez et al.1996 |
| Gorman & Thomas 1997 | Henderson & Cockburn 1994 | Torkelli & Tuominen, 2002 |
| Grant 1996 | Petts 1997 | Wang et al. 2004 |

One perspective used by researchers states that an organizational competence involves an understanding of specific phenomena and their related disciplines. Examples of these phenomena can include pharmaceuticals, electronics, or engines. Examples of related disciplines understood by corporate employees include biochemistry, physics, and mechanical engineering.

A second perspective defines an organizational competence to include a technology—such as computing, printing, or internal combustion—and its related products. One issue in the literature (Knott et al. 1996; Petts 1997) is the extent to which knowledge concerning individual products arising from technologies, such as computers or printers, should be included in an organizational competence. Most researchers say this knowledge type should not be included, arguing that competition is instead occurring at several levels: that of end product, core product, and organizational competence (e.g., Petts, 1997, p. 552). For example, a desktop computer is an end product; a hard drive is a core product; and the underlying competence lies in the technology of magnetic data storage. The result is that the competence supports provision of multiple products arising from the technology.

Perspective three suggests an organizational competence includes skills, usually functional ones, within an organization. Examples include marketing, manufacturing, distribution, or production scheduling.

The fourth perspective proposes that an organizational competence includes an integration of some kind, usually of technology and skills. An example would be the Honda Corporation's ability to integrate the technology of internal combustion with the functional skills of engineering and manufacturing to create high quality small engines (Hamel & Prahalad, 1994, p. 204).

Multiple conceptualizations of organizational competencies clearly exist. Researchers have proposed competencies to include expertise in disciplines, specific phenomena, technologies, and skills. It has also been suggested these bodies of expertise must be integrated by the competence. Thus, organizational competence is viewed as an organizational-level phenomenon - a meta construct encompassing multiple, individual member-held bodies of knowledge and skills.

**Methodology**

Four global technological firms, each with annual revenues in excess of one billion dollars, were examined for this study. Oriented around delivering information, these corporations provided products and services related to communication, documents, and computing.

To study these firms' competencies, the competence-related perspectives reviewed above were identified. Then two procedures were used to examine these perspectives in more detail. The first was a content analysis of internally approved corporate documents. The second was a set of semi-structured interviews with corporate professionals.

***Content Analysis***

Manifest and latent content analyses were applied to each firm's corporate documents describing their products and services. Manifest content analysis examines the actual words and phrases making up content, whether in physical or digital format. Latent content analysis, in contrast, is focused on the content's underlying meaning, which may or may not be easily detectable solely by examination of content in its manifest form (Babbie 1992, p. 318). For useful discussions of analyzing textual content, see Corman, Kuhn, McPhee, and Dooley (2002) as well as a more thorough treatment by Krippendorf (2004).

In order to determine each firm's organizational competencies, documents either authored for or approved by the firm were analyzed. However, no confidential documents were used. All analyzed documents were publicly available, usually through the firm's corporate website. These documents were designed to provide a reader with an overview of the firm's capabilities and activities.

Overall, 150 pages of documents across the four firms (between 35 to 40 pages per firm) were submitted to manifest analysis; these pages, as well as hundreds of additional pages of documents (between 75 to 100 for each firm), were also submitted to latent analysis. In both manifest and latent analysis, the most general materials were analyzed first, such as business statements within annual reports as well as corporate factbooks. These documents described the firm's overall vision, customers, product capabilities, and products. Then, the more specific documents with more detailed content about the firm's capabilities and operations, such as product catalogs, technical briefs, and research agendas of corporate laboratories were analyzed.

Using publicly available, rather than private, documents authored or approved by a firm for content analysis accomplished two things. First, it helped ensure that the knowledge and skills isolated for inclusion in the organizational competence were in fact ones which people employed by the firm considered themselves to have. Second, it avoided inadvertently disclosing the firm's confidential information. One disadvantage of analyzing public documents, however, was that the documents by themselves did not always penetrate completely to the real competence since the firm intended to present tangible products and services rather than drawing attention to its underlying strengths making those services and products possible. It was only the interviews with internal professionals which consistently allowed the actual competence to emerge.

***Interviews***

Interviews with corporate professionals employed by the four firms were conducted to verify the results of the content analysis. Contact persons (all corporate managers or professionals within the four firms) were asked to identify intellectually diverse interviewees with reputations for being knowledgeable about the firm's intellectual competencies. Two to five interviews of corporate professionals were conducted per firm, for a total of 15 interviews. The interviewees' educational and professional backgrounds included physics, computer engineering, computer science, research and development, finance, marketing, strategy, manufacturing, and customer service.

The interviews, all conducted by telephone, usually lasted between one to two hours. A copy of the instrument presenting a structured set of questions was mailed to these corporate professionals two to four weeks prior to the interview, so that interviewees had time to consider their responses. The instrument presented the content analysis' results describing the competence held by each professional's firm. Questions were designed to elicit the interviewees' responses to these results.

**Results and Analysis**

The four examined corporations provide an array of advanced products such as switches, multiplexers, routers, transmitters, copiers, printers, scanners, and integrated circuits. They also offer complex services such as communication network planning, network design and implementation, and document management.

Across the four firms, five competencies were identified as supporting these products and services. Three emerged from an understanding of the communication network. A fourth was based upon an understanding of both physical and digital documents. The fifth was based upon understandings of silicon and the creation of silicon-based integrated circuits.

***Research question one: How do organizational competencies work?***

The common dynamic among these five competencies was initially revealed during latent content analysis of corporate documents, and then refined by the interviews with corporate professionals. The interviewees stressed the dynamic's progressive iteration.

For instance, Figure 1 depicts one of the three organizational competencies emerging from an understanding of the communication network. Here corporate understandings of the general technologies of communication and networks converge into a thorough corporate understanding of the communication network core phenomenon (see items in bold). Out of this emerges familiarity with specific product technologies, such as switching, and, using an understanding of the general technology of light, with product sub-technologies, such as optical switching. Drawing upon familiarity with the general technology of computing hardware, this focused expertise brings about an understanding of the product class of optical switches.

Emerging from—and contributing back to the understandings of network technologies and product classes—are the functional skill in manufacturing optical switches to be components of communication networks as well as the technological skill of optical switching. These skills are in turn part of a larger integrated skill set supporting the creation and management of both the components of communication networks as well as complete networks.

As this iterative process occurs, people holding the competence become enabled to utilize a range of technologies related to the communication network, and to provide various specific products and services arising from them. The result is complex but varied competitive power to meet the networking needs of various customers. This progressive, iterative dynamic just described occurs through the interaction of competence components.

***Research question two: What are organizational competencies made of?***

Guided by the competence literature, manifest content analysis initially revealed seven major component categories of understandings and skills to exist within each of the five identified competencies; it also revealed numerous instances within each category. Understanding of the categories and instances was subsequently refined by the interviews with corporate professionals. Table 2 presents the components for three of the five organizational competencies.

For simplicity, Table 2 includes only one of the three competencies based upon the communication network (Competence One) since the other two contained similar components. For all three competencies, the instances, or members, within the seven component categories are shown as bulleted items. Only a sample of the most important instances within the categories is presented, since each competence had too many understandings and skills to present them all.

Identifying them as conceptual themes, the manifest analysis and interviews revealed the first five competence component categories to include complex understandings of different phenomena, disciplines, technologies, and types of products or services (Table 2, left column). Similarly, they revealed the last two categories to involve singular and integrated skills.

***Understandings of core phenomenon (Table 2; Row 1).*** A core phenomenon is the entity(ies) which people holding an organizational competence *understand* most thoroughly. Understandings of general technologies, discussed below, converge into the thorough understanding of this phenomenon, and it is out of this thorough understanding that emerge the other understandings and skills comprising the rest of a firm's organizational competence. These understandings are often enriched by corporate employees' knowledge of related disciplines. Analysis revealed four variations of core phenomena. They were:

1. Something the company holding the competence creates.
2. Something the company's customers create.
3. Something that exists naturally.
4. Something that people within the firm do (an activity).

**Figure 1. Organizational Competence Chart**

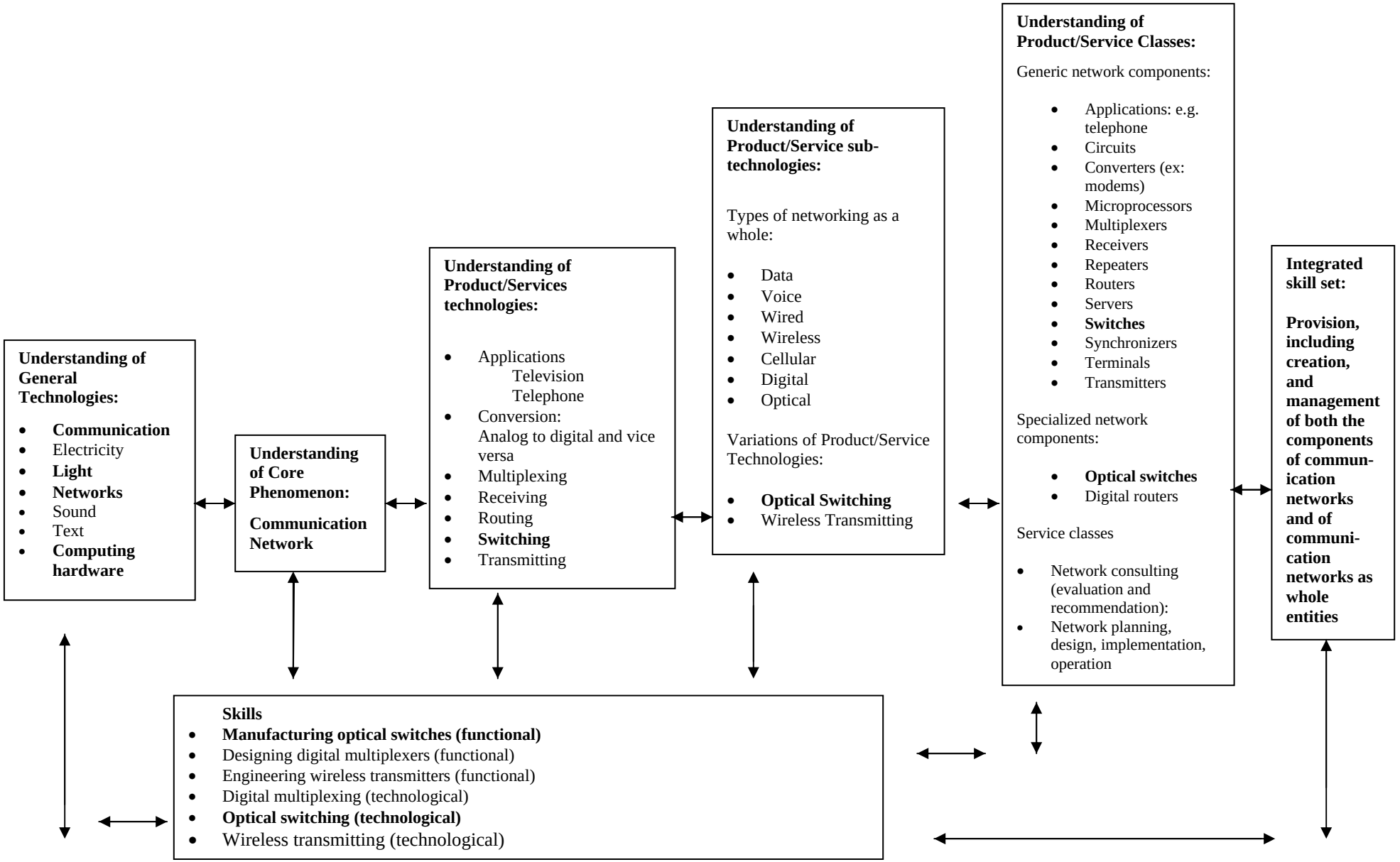

**Table 2. Organizational Competence Components**

| **Competence Component Categories** | | **Competence One** | **Competence Two** | **Competence Three** |
|---|---|---|---|---|
| Understandings | 1) Core Phenomenon | • Communication Network | • Document | • Silicon<br>• Design integrated circuits<br>• Manufacture integrated circuits |
| | 2) General Technologies | • Communication<br>• Electrical Systems<br>• Network<br>• Light | • Text<br>• Paper<br>• Color<br>• Electricity | • Electrical systems<br>• Materials |
| | 3) Product/Service Technologies | • Switching<br>• Multiplexing<br>• Routing<br>• Transmitting | • Imaging<br>• Marking | • Controlling data<br>• Storing data |
| | 4) Product/Service Sub-technologies | • Optical Networking<br>• Optical Switching<br>• Optical Transmission | • Color Digital Imaging<br>• Color Copying<br>• Digital Printing | • Personal computing<br>• Digital entertainment |
| | 5) Product/Service Classes | • Optical switches<br>• Optical Transmitters | • Color copiers<br>• Digital printers | • Micro-processors<br>• Routers |
| Skills | 6) Functional and Technological Skills | • Manufacturing optical switches<br>• Engineering optical transmitters<br>• Optical switching<br>• Optical transmitting | • Installing color copiers<br>• Repairing digital printers<br>• Color Imaging<br>• Digital marking | • Designing microprocessors<br>• Manufacturing routers<br>• Microprocessing<br>• Data routing |
| | 7) Integrated Skills | • Creation and management of communication networks | • Provision of document management equipment, software, and services | • Provision, including creation, of computers and their components. |

An example of the first variation occurs in Competence One (Table 2), since its core phenomenon is the communication network, which the host firm provides to customers. Related disciplines for it include computer science and mathematics. Competence Two (Table 2) is an example of the second variation, since its core phenomenon is documents, which the host firm's customers present to it to be managed. Related disciplines supporting it include linguistics and psychology. Competence Three is an example of the third variation, since one of its core phenomena is the element silicon. Related disciplines supporting it include materials science and

engineering. Competence Three is also an example of the fourth variation, since its other core phenomena are the design and manufacture of silicon-based integrated circuits.

***Understandings of general technologies (Table 2; Row 2).*** General technologies can be used across many areas of life, including a competence's core phenomenon. Combinations of general technologies present in a core phenomenon often form it, as occurs in Competence One, where the two general technologies of communication and network combine to create the core phenomenon of the communication network. This also happens in Competence Two, where the general technologies of text and paper are combined to create the core phenomenon of the document.

***Understandings of product/service technologies (Table 2; Row 3).*** Product/service technologies emerge directly from the core phenomenon. Sometimes they are activities that create it. An example occurs in Competence One, where the product/service technologies of switching and transmitting act together to form the communication network core phenomenon.

A second variation occurs when the product/service technologies are the activities that can be done to the core phenomenon. Competence Two is an example. In this, product/service technologies are actions such as imaging and marking that can be performed upon the document core phenomenon.

A third variation happens when product/service technologies are the activities that arise from understanding of a core phenomenon that exists naturally. Competence Three is an example. In this case, the functions of computing (e.g., controlling data or storing it in memory) are made possible by a thorough understanding of the natural element of silicon.

A fourth variation develops when product/service technologies arise from skills necessary to do the core phenomenon. This occurs in Competence Three. Here, the functions of computing, such as controlling data, are made possible by the activities of designing and manufacturing integrated circuits (See Competence Three Core Phenomenon).

***Understandings of product/service sub-technologies (Table 2; Row 4).*** Product/Service sub-technologies emerge from product/service technologies, usually in combination with general technologies. Several variations exist.

First, product/service sub-technologies can arise from the application of one general technology to one product/service technology. This occurs in Competence One with optical transmission, which is performed when the general technology of light is applied to the product/service technology of generic transmission.

Second, they can emerge through the application of one general technology to multiple product/service technologies. This also occurs in Competence One, where the general technology of light is applied to all the functions within a network, such as switching and multiplexing, to create optical networking. In Competence Two, this happens in the application of the general technology of color to the product/service technologies of imaging and marking to create color copying.

Third, product/service sub-technologies can arise through the application of multiple general technologies to one product/service technology. This occurs in Competence Two, where the general technologies of color and electricity are applied to the product/service technology of imaging to create color digital imaging.

Fourth, they can arise through the application of multiple general technologies to multiple product/service technologies. One example occurs in Competence Three. In this, the general technologies of electrical systems and materials are applied to the product/service technologies of controlling and storing data to support personal computing.

***Understandings of product/service classes (Table 2; Row 5).*** Product/service classes are types of products and services made possible by product/service technologies and sub-technologies, often in combination with an understanding of a general technology. An example occurs in Competence One. Here the product technology of switching, the sub-technology of optical switching, and the general technology of light enable the production of optical switches.

***Skills (Table 2; Row 6).*** An organizational competence's skills—the ability to do something—can exist in functional or technological forms. Functional skills are made possible by understandings of classes of products and services (Table 2, Row 5). Examples of functional skills include manufacturing optical switches (Competence One) and designing microprocessors (Competence Three).

Technological skills, in contrast, are made possible by understandings of technologies, either general ones or those having to do with specific products or services. Differing from the technological understandings shown in Rows 2-4 of Table 2, these skills are the capability of people to *use* the technology itself. For instance, in one of the firms, the people contributing to Competence Two have an understanding of the product/service technology of imaging (Row 3), but they also can apply this to the next step and actually create color images (Row 6).

***Integrated skills (Table 2; Row 7).*** This is the ability to do an activity caused by the functional *and* technological skills discussed above. This integrated skill consists of the individual skills and the relationships between them. An example is the ability to provide communication networks as whole entities (Competence One). These networks arise from the integration of functional skills in engineering and manufacturing of optical network components; however, they also emerge from the integration of technological skills in optical switching and transmission.

### *Competence Definition*

This study posed two research questions asking how organizational competencies work and what they are made of. Addressing them revealed that an organizational competence can be defined as a set of progressive, iterative understandings and skills held by corporate employees that collectively operate at the organizational level.

Employees' understandings include ones of phenomena and their related disciplines; supporting general and product or service specific technologies; and classes of products and services arising from the understood technologies. The skills within a competence can be specific ones, as well as integrated ones encompassing multiple functional or technological skills. Functional skills emerge from understandings of types of products or services, while technological skills arise from understandings of technologies. Utilized together, the different understandings enable the competence's specific and integrated skills, and the skills in turn reinforce the corporate understandings of phenomena, disciplines, general or product/service specific technologies, as well as types of services and products.

## Discussion

The results of this study reveal the applicability of the multiple competence perspectives found in the literature. The results confirm that organizational competencies include corporate knowledge constituted as varied understandings. Some are of particular items (core phenomena) as well as of relevant topics (related disciplines).

The findings reveal that organizational competencies also include extensive understandings of different underlying technologies, both general and specific, supporting products and services. Therefore, rather than being directly a component of the organizational competence, technologies are the objects of a set of understandings included in a competence. Similarly, individual products and services are not encompassed directly within the competence. Instead, understandings of the capability underlying a type of product or service are included. Familiarity with these capabilities usually arises from understandings of various technologies.

The findings confirm that organizational competencies include knowledge application in the form of specific functional capabilities (e.g. manufacturing) and technological capabilities (e.g. switching). Here both are labeled skills. Moreover, in strong agreement with the literature, this study's results indicate that organizational competencies include integrated skills that combine specific functional and technological skills into larger skill sets, such as the creation and management of extraordinarily complex products or services made possible by understanding of the core phenomena.

Organizational competencies were revealed to work through the progressive, iterative interaction of their component understandings (knowledge) and skills (action). By revealing the composition and internal dynamic of relatively homogeneous competencies—ones based upon the communication networks, documents, and integrated circuits—the results contribute to the conceptual clarification called for by Von Krogh & Roos (1995). In doing so, they form a basis for a more thorough understanding the construct and building competence-related theory.

## Directions for Further Research

This study suggests several questions below centered on improving our understanding of the competence dynamic, competence components and the context is which competences operate.

### *Competence Dynamic*

In future theoretical development, one possible research direction for exploration, a deeper examination of the competence dynamic (Figure 1), points to numerous further research questions to be explored. An obvious one asks: To what extent does the dynamic revealed here apply to other organizational competencies? For instance, in one of the firms studied, our results revealed strong connections between understandings of documents, color, marking, and, ultimately, color copying and color copiers. This provided the basis for installing color copiers and, more broadly, providing document management services, which in turn strengthened the firm's expertise in documents and marking. In firms very different from the ones studied here, to what extent does this kind of iterative progression occur?

***Competence Components***

Similarly, for competence components, what are some competencies involving very different core phenomena than those of documents and networks discovered here? For example, rather than being related to communication or documents, such core phenomena could be the engine for a competence held by a car manufacturer, a package for one held by a shipping company, or a building for the competence of a construction firm. Moreover, how would the underlying general and product-service technologies of such competencies compare to the ones revealed in this study? Would they arise from activities done to create the core phenomenon, as occurred here with communication networks, or would they arise from activities done to it, as occurred with documents? As researchers examine a greater variety of organizational competencies using the definition proposed here, a theoretically-based, generalizable understanding of them can develop.

***Competence Context***

In agreement with the literature on dynamic capabilities, interviews of corporate professionals consistently indicated that corporate organizational competencies interact with other corporate intellectual phenomena to support organizational success over time (Danneels 2002; Eisenhardt & Martin 2000; Fowler et al. 2000; Nelson & Winter 1982; Teece et al. 1997; Winter 2000, 2003). These include an organization's deeper, more enduring abilities that enable competencies. They also include an organization's relatively transient customer-specific expertise that competencies in turn support. Within the interviewees' firms, enduring dynamic capabilities involving strategic vision, quality management, organizational learning, and new product development enabled specific organizational competencies to develop. The competencies were then used with more transient corporate knowledge involving various particular customer groups, raising fascinating questions.

This study examined the internal structure of only the organizational competence. More broadly, though, how do these phenomena influence each other? One could assume that most of the time, during what amounts to "normal life" in a corporation, it is the knowledge from organizational competencies and even more transient customer-specific knowledge that is developed and used to support organizational competitiveness. But every so often the competencies will need to be changed and to do so the more enduring capabilities that enable organizational competencies will need to be explicitly used. How does this process occur? Is it gradual, or is it precipitated by a competitive crisis faced by the corporation?

Moreover, further research is needed on how competencies interact with organizational phenomena not directly related to knowledge. For example, do competencies evolve as an organization's financial resources change? Do they become broader and deeper as the firm's assets increase, or, instead, do existing organizational competencies stabilize so that new ones can emerge?

**Conclusion**

This study did not test scientific hypotheses to reveal organizational competencies' interaction with other phenomena, such as corporate finances; nor did it reveal the composition of these competencies in a representative sample of corporate settings. It did indicate, however, the potential competitive power of organization's competencies through competency complexity and potential variety. These capabilities contain extensive organizational understandings and skills, which can vary greatly depending upon the core phenomena upon which the competence rests.

The competencies' component understandings constitute a substantial type of corporate know-how, while their skills represent application of this knowledge. Furthermore, the understandings and skills within the competence dynamically interact with one another. As this occurs, an organizational competence enables the creation of extraordinarily valuable products and services, powerfully supporting corporate competitiveness.

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