

# Explicating Knowledge-based Competitive Advantage

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## Abstract

**Purpose** – Explaining how knowledge assets provide firms with a competitive advantage and show how organizational capabilities have the potential to produce long-term superior performance.

**Paper Category** – Research Paper and Case Study

**Design/Methodology/Approach** – Systematic literature review and in-depth single case study.

**Findings** – Knowledge assets through different learning mechanisms and effective knowledge management processes are bundled, linked, incorporated, converted, organized, and integrated into organizational capabilities which when leveraged into products and services they translate into above-average performance and abnormal profitability.

**Research Limitations/Implications** – The paper lays a foundation for further theoretical and empirical inquiry into the nature of firm's knowledge assets, organizational capabilities, and the sources of competitive advantage.

**Practical Implications** – This research provides useful guidelines for further empirical inquiry and in-depth case studies to find more evidence regarding the impact of knowledge asset dynamics on value creation processes.

**Originality/Value** – By introducing a framework and empirical evidence that demonstrate the link between knowledge dynamics, the development of organizational capabilities, and sustainability of a firm's competitive advantage, the paper provides a significant clarification of how a firm's knowledge assets drive long-term profitability and performance.

**Keywords** – Knowledge assets, knowledge dynamics, learning processes, knowledge management processes, organizational capabilities, competitive advantage, value creation.

## Introduction

Firms can gain a competitive advantage by possessing and managing unique, difficult-to-imitate, and hard to substitute resources (Wernerfelt, 1984; Barney, 1991). Various scholars argue that especially knowledge-based resources can be seen as key drivers of competitive advantage (Spender and Grant, 1996; Teece, 1998). Spender and Grant (1996) argue that if a firm is seen as a set of resources, and knowledge is the central resource, then we need to find ways to explain how such assets can generate value.

According to the resource-based view of the firm, resources exist as bundles which impact performance with causal ambiguity (Lippman and Rumelt, 1982). It is therefore difficult to identify how individual resources contribute to success without taking into account their interdependencies with other assets (Lippman and Rumelt, 1982; Dierickx and Cool, 1989; King and Zeithaml, 2001).



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In addition to the above outlined dynamic interactions, Teece et al., (1997) argue that in order to create sustainable performance, firms have to build the ability to create new forms of competitive advantage by appropriately adapting, integrating, and reconfiguring organizational skills, resources, and competencies to match the requirements of an ever-changing environment.

The aim of this paper is to gain a clearer understanding of the theoretical foundations of knowledge assets as value drivers and in particular of their dynamic interactions in the value creation process. This research builds on the results of a systematic literature review as a recognized evidence-based tool for theory building (Tranfield et al., 2003) and an in-depth single case study research conducted in an IT company.

The systematic literature review follows a detailed process, with the aim being to minimize bias through exhaustive literature searches of published and unpublished studies, and to provide an audit trail of the reviewers' decisions, procedures, and conclusions. For the purpose of this research, the literature review was scoped on the basis of a carefully defined research question, which allows us to delimit the search by factors such as the disciplinary perspective, and keywords, as well as the quality of the research sources.

For the in-depth case study, our choice is motivated by the fact that, as claimed by Rouse and Daellenbach (1999), studies of competitive advantage using the resource-based view require a different approach rather than large sample, cross-sectional analyses using secondary sources. For the purpose of this study, in-depth fieldwork and ethnographic study methods have been deployed using semi-structured and unstructured interviews, and unobtrusive observation. Some relevant data was also gathered based on the company's documents and reports. The data collection processes took place in the customer services department and contact center units in two different sites and they involved employees from different hierarchical levels.

The remainder of this paper is organized in three parts. First, we discuss the theoretical foundations of knowledge-based superior performance. Next, we explain through the lenses of an in-depth case study how knowledge asset dynamics generate value. Finally, a conclusion will draw up some implications for both research and practice and a further research agenda.

## 2. Knowledge Asset Dynamics and Competitive Advantage

In the strategic management literature, knowledge assets are referred to as resources (Amit and Schoemaker, 1993; Barney, 1991; Grant, 1991; Helfat and Peteraf, 2003; Miller 2003; Teece, 1998; Moingeon et al., 1998). A resource is an asset or input into production that an organization owns, controls, or has access to on a semi-permanent basis (Helfat and Peteraf, 2003). The intangibility is considered as an important characteristic of knowledge assets (Michalisin et al., 1997).

Hall (1992, 1993) uses the term intangible resources and classifies them into *assets* (e.g., intellectual property rights and reputation) and *skills* (i.e., know-how of employees as well as suppliers and advisers and the collective aptitudes which add up to organizational culture). Dawson (2000) considers three groups of intangible assets,

human capital (i.e., the skills and know-how of people in the organization, working individually and in teams); structural capital (i.e., organizational infrastructures, and processes which do not depend on key staff); and, relationship capital (relationships with clients, suppliers and others, as well as organizational image and brands).

Intangible assets are also often used as synonymous to what many authors refer to as intellectual capital (Roos and Roos, 1997; Bontis and Fitz-enz, 2002). Marr and Schiuma (2001) define intellectual capital as the group of knowledge assets that are attributed to an organization and most significantly contribute to an improved competitive position of this organization by adding value to the defined key stakeholders. In sum, *knowledge assets are intangible in nature and include employees' skills and know-how, organizational culture, relationships with stakeholders, organizational image and reputation, technological infrastructure, and intellectual property.*

Knowledge is seen as a resource that supports capabilities, activities, and products, and that in turn arises from experience (Helfat and Raubitschek, 2000). Knowledge assets as 'stocks' (Dierickx and Cool, 1989), cannot *per se* be the source of competitive advantage or abnormal profitability (Acquaah, 2003), they can only shape organizational capabilities (Grant, 1991, 1996) and support the firm's activities and products (Helfat and Raubitschek, 2000). Many scholars emphasize the interconnectivity of knowledge assets and the role of knowledge management processes and organizational learning in enhancing their value over time (e.g., Aaker, 1989; McGaughey 2002; Nonaka et al., 2000; Smith et al., 1996; Wiig, 1997; Zack, 1999).

The resource-based view scholars (Wernerfelt, 1984; Barney 1991; Peteraf, 1993) consider the firm as a bundle of knowledge assets that are dynamic in nature and depending on each other to create value. This interaction is enabled by organizational learning mechanisms and knowledge management processes. The purpose of knowledge management is then to maximize the enterprise's knowledge-related effectiveness of its knowledge assets and to renew and leverage them constantly (Wiig, 1997; Bontis and Fitz-enz, 2002). Knowledge is about learning and development (Korac-Kakabadse et al., 2002). Development facilitates learning processes and as such increases knowledge generation. Also, knowledge creation is the final result of the learning process and conversely, learning occurs when knowledge creation, sharing, and use take place (Loermans, 2002). While organizational learning generates new knowledge, the organization that is skilled in knowledge management efficiently and effectively manages the knowledge that has been created. Put differently, *knowledge assets are linked and continually interact with each other. This interconnectivity between knowledge assets is enabled by learning mechanisms that leverage them and enhance their value over time. Knowledge management processes support organizational learning in creating and renewing knowledge assets and in managing the generated knowledge.*

While knowledge assets are grounded in the experience and expertise of individuals, firms provide the physical, social, and resource allocation structure so that knowledge can be shaped into capabilities. The essence of the firm is then its ability to create, assemble, transfer, integrate, and exploit knowledge assets that underpin its capabilities (Tece, 1998, 2000). A company's capabilities are seen as a combination of all knowledge assets and cognitive processes that allow an organization to carry on its business processes (Miller, 2003; Montealegre, 2002; Pehrsson, 2000). These combinations of knowledge-

based resources also depend upon the basic characteristics of knowledge and its social construction in the firm (Galunic and Rodan, 1998; McGrath et al., 1995; McGuinness and Morgan 2000; Schroeder et al., 2002).

According to Rouse and Daellenbach (2002) knowledge assets, through different knowledge dynamics, are bundled, linked, incorporated, converted, organized, and integrated into socio-technical processes or organizational routines (Nelson and Winter, 1982) that form organizational capabilities. Amit and Schoemaker (1993) consider that capabilities can be abstractly thought of as ‘intermediate goods’ generated by the firm to provide enhanced productivity of its resources, as well as strategic flexibility and protection of its final product or service. Ansoff (1965) describes capabilities as a company’s ability to deal with different combinations of competitive environments and levels of ‘entrepreneurial turbulence. An organizational capability also refers to the ability of an organization to repeatedly perform a coordinated set of tasks which relates either directly or indirectly to a firm’s capacity for creating value through effecting the transformation of inputs into outputs (Grant, 1991; Helfat and Peteraf, 2003).

Organizational capabilities are classified as either *operational* or *dynamic* (Helfat and Peteraf, 2003). The concept of *dynamic capabilities* has recently emerged in the strategic management literature (Teece et al., 1997; Teece and Pisano, 1994; Eisenhardt and Martin, 2000; Zollo and Winter, 2002; Winter, 2003; Zott, 2003). Teece et al., (1997) define a firm’s dynamic capabilities as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments”. Similarly, Eisenhardt and Martin (2000), consider that dynamic capabilities are the firm’s processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die. On the other hand, Zollo and Winter (2002) define *operational capabilities* as organizational activities geared towards the operational functioning of the firm (both staff and line activities). Dynamic capabilities differ from operational capabilities, as they relate to the firm’s ability to create and sustain competitive advantage through its ability to manage change (Teece, 2005). *Organizational capabilities, both dynamic and operational, are high-level routines or collections of organizational routines. Dynamic capabilities are concerned with change and shape operational capabilities.*

Panoply of scholars recognize the potential of capabilities in creating and sustaining an organization’s competitive advantage (Aaker, 1989; Barney, 1986; Blyler and Coff, 2003; Brown and Eisenhardt, 1995; Henderson and Cockburn, 1994; Williams, 1992). Competitive advantage has been explained by both exogenous factors and internal resource endowments. McGrath et al. (1996) consider that there are two major paradigms for explaining sustained superior performance: i) traditional industrial organization economics that emphasize the barriers to competition, taking the position that industry effects will explain the greater part of persistent above-normal returns (Bain, 1956; Porter 1985) and, ii) the resource-based perspective, which considers that firms accumulate unique combinations of resources and abilities which allow them garner rents on the basis of their organizational capabilities (Barney, 1991; Wernerfelt, 1984; Peteraf, 1993). Even though these two perspectives are different, they are seen

as complementary to explain competitive advantage (Peteraf and Bergen, 2003). As Wernerfelt (1984) states, "...entry barrier without a resource position (i.e., resources which can lead to high profits) leaves the firm vulnerable to diversifying entrants, whereas a resource position barrier without an entry barrier leaves the firm unable to exploit the barrier".

Similarly, Peteraf and Barney (2003) point out that an organization has a competitive advantage if it is able to create economic value than the marginal (breakeven) competitor in its product market. Generally, the term 'sustained' refers to 'long-term profitability' and 'above-average performance in the long run' (Schoemaker, 1990; Porter, 1985).

As organizational capabilities are built internally through complex social and learning processes, this confers them the quality to be difficult to trade or imitate, scarce, valuable and non-substitutable (Barney, 1991), which in turn make them the source of competitive advantage, and thereby the basis to generate 'above average rents' (Amit and Schoemaker, 1993; Collis, 1994). The causally ambiguous characteristics of organizational capabilities have also been recognized as sources of higher performance (Lippman and Rumelt, 1982; Reed and DeFillippi, 1990; King and Zeithaml, 2001). Longevity of competitive advantage depends upon the inimitability of the capabilities which underlie that advantage (Grant, 1996). The broader the scope of knowledge integrated within a capability and the more sophisticated the integration mechanisms, the greater the causal ambiguity and the greater are the barriers to imitate these capabilities (Grant, 1997; Marsh and Stock, 2003). By focusing on dynamic capabilities, Teece et al., (1997) state that the firm's total panoply of dynamic capabilities are the major source of its competitive advantage as they are usually the source of Schumpeterian rents. Whereas Ricardian rents are quasi rents and are easily competed away, Schumpeterian rents have the possibility of being sustained indefinitely so long as the dynamic capability is maintained (Teece, 2005).

### **3. Empirical Evidence: The Case of Alfa Company**

#### **3.1. Company Background**

For confidentiality reasons, we will call this company Alfa. Alfa is a €15 billion organization and is the third largest IT services company in the world. Alfa is one of the leading IT services companies in Europe, Middle East and Africa. It has an annual turnover of €3.9 billion, employs 15,400 people and operates in over 30 countries. It designs, builds and operates IT systems and services for customers in the financial services, telecommunications, retail, utilities and government markets. Its core strength is the delivery of IT infrastructure management and outsourcing across desktop, networking and data center environments, together with a full range of related services, from infrastructure consulting through integration and deployment.

In the recent years, there was a growing realization at Alfa that the traditional approach to service was failing both clients and customers alike. Operating in the IT outsourcing sector, Alfa found it almost impossible to differentiate itself in a very aggressive marketplace. Functional focus resulted in a lack of cohesion and fragmentation. Many client accounts were operating at contractual obligation and no higher, while 15% were

at critical levels of dissatisfaction and were unlikely to be renewed. Furthermore, the turnover of front-line call center staff was 42% (Marr and Parry, 2004).

Alfa found that 40%-90% of incoming service requests were entirely preventable. This highlighted where Alfa was incurring unnecessary costs, and more importantly, where it was not meeting the needs of clients and customers. The message was stark for Alfa. It had to look at what was creating value for customers, what was not, and then abandon the unprofitable operations. This was an opportunity not only to re-design the organization but also to change the way Alfa worked with its customers and even change the service offerings. It was clear that customer satisfaction was a critical success factor, which made customer success the new goal (Marr and Neely, 2004).

As a result, Alfa has decided to implement a “Sense and Respond” customer-centric approach (Barlow et al., 2005). This approach places responsibility for customer demand at the center of the operation. This pivotal practice identifies the causes of cost within a business and then eliminates them. By applying this approach, service levels are greatly improved as are customer and employee satisfaction. At Alfa, “Sense and Respond” combines elements of ‘Systems Thinking’, ‘Lean Service’, and ‘Transformational Leadership’ to produce an approach that engages front-line staff and delivers excellent results for customers. It is interesting to note that no technologies are required, rather existing ones have been used to greater effect (Marr and Parry, 2004).

Eight hundred members of staff were initially trained in the “Sense and Respond” model. Recently, Alfa has taken its UK-developed model and deployed “Sense and Respond” into operations in South Africa, Australia, Finland, Netherlands, and Japan.

### **3.2. Value Creation Dynamics inside Alfa**

In Alfa people and their skills and know-how are the most important success drivers. People inside the company are open-minded and are willing to learn. During the recruitment process, Alfa looks for skilful people with the right IT skills, more communicative and team-oriented, and enthusiastic about their work. Alfa needs those skills to interact each day with its customers, try to understand their business drivers, produce market reports and speak to key senior managers. People tend to forget IT and concentrate on customers’ business drivers, they help customers meet their targets, make them successful, and work backwards to select the technology to use. In doing so, they try to understand the real requirements and build on them the right services. A key practice in Alfa is to promote staff commitment, engage the front-line agents, and give each member that feeling of being a part of the whole organization.

Alfa works on building strong relationships with customers. Staff that build relationships with customers are mainly sales managers, account managers and service delivery managers. Day to day relationships are the responsibility of operations staff. Internal relationships based on mutual trust between people are also considered by Alfa. While carrying on their daily work, employees have access to specific databases to fix problems and resolve calls. The use of these databases is more important in helpdesks that manage simultaneously different contracts. However, in specialized and dedicated helpdesks tacit knowledge prevails.

The relationships are very important especially with senior managers in client companies. Interacting at the senior level enables Alfa to understand the customer's business drivers. Alfa is not just an ordinary IT supplier; it tries rather to be involved in enabling change in customer's environment. Staff in Alfa spends two weeks in the client environment to understand the requirements and foster relationships. The relationships are also important among people, for example between agents and managers, and between agents with low technical background and engineers.

The organizational culture in Alfa is seen as an enabler for its business success. This culture is based fundamentally on removing the barriers that impede people to serve customers effectively. "Sense and Respond" helps people generate new ideas. "Sense and Respond" is all about helping people think and change the way they think, it is not just a management methodology. Culture is about change and capturing customer's wants and needs. Instead of selling IT services, people should understand the entire customer's business, understand its business drivers and develop the right relationships at the right levels. In Alfa people become passionate to be involved in contributing to business change. The culture is seen as a mixture and each desk is influenced by customer's culture and business drivers.

The atmosphere is different from the other call centers, and people have more ownership over what they do, and over their own development. People are happy to come in and to develop their careers, and become potentially team managers or move to the engineering department. The leadership style in Alfa is based on giving people more responsibility and trust. Managers are more receptive and take the agents' suggestions seriously. The working environment is also less 'robotic' now. Due to this leadership style, people are unwilling to change Alfa for another working environment. People are happier, and they find it more open and more structured.

*All these drivers – people's skills, relationships within Alfa and with customers, technical awareness, business awareness, working atmosphere, organizational culture, and leadership style – differentiate Alfa from its competitors. These drivers go all together and there is no way to separate them. For example, the relationships are linked to people's skills as to people's motivation and commitment that are in turn linked to their working atmosphere and leadership style.*

In Alfa, people in contact with customers and their business environment share continually their knowledge with all the members of their business unit. There are no formal databases for the knowledge about customer relationships. However, there are databases about the problems that have been fixed which are shared throughout the helpdesks. Contrary to the traditional call centers where people are isolated and where interaction is not allowed, in Alfa knowledge sharing between people and in teams increases their learning every day. Internal relationships based on teamwork are a key success factor and people in Alfa are more motivated to work cohesively. The physical location and working environment is a key to enable knowledge sharing. The employees are placed next to each other to encourage knowledge transfer through face-to-face conversations. Knowledge sharing is quicker and more efficient. In each helpdesk a white board is usually used to highlight special events to all the members of the business unit.

While performing her/his work, each agent can get access to the customer's system, to go through it, visualize the problem and fix it, which increases significantly

gains in time and in efficiency. Each business unit produces analyses about demand trends and what is coming in. Front-line agents examine and analyze the data, make the improvements, identify the market trends and business opportunities and share this knowledge with one another and with their senior managers. All the surveys are carried out during the month in a formalized way. Meetings between agents and managers take place frequently and every morning each agent reports the main issues to managers. In Alfa there are no hierarchical barriers between agents and managers. People have more control over what they do. Traditionally agents had a break set up, much regimented. They have now more sense of ownership with the change of the working atmosphere.

Agents learn also from their mistakes. The mistakes are not taken seriously *vis-à-vis* the agents. When a mistake is made or a call is locked incorrectly, the issue is highlighted, put into a database of those problems resolved incorrectly, statistics are generated and shared with the other staff members, and training needs are identified. Knowledge exchange and sharing between people occurs while talking to each other and using the knowledge base. Agents are very encouraged to share constantly ideas, their experiences, the fixes, and put that knowledge in a mailbox and databases to facilitate sharing. Agents interact and learn from each other through reports, telephone calls, e-mails, meetings etc.

There is a strong coordination and cooperation between first line and second line agents to resolve the calls, and among managers at all levels. The role of agents has shifted from a technical role into a managerial responsibility concerned about identifying customer's needs and satisfying her/his needs. The performance of agents is measured based on the suggestions and the contributions they make not the number of calls they answer. The emphasis is now less on quantity and more on quality. Agents have more time to think, they have less pressure on them, and they have more tools to give them access to all the information they need to fix problems. Agents communicate correctly the right information to the right people, and upward communication has replaced top down communication. The central point for each agent is to be in contact not only with the customer, but also with all the support units. Agents are encouraged to share the best practices with the overall units. The units' managers organize monthly 'stream meetings' to discuss market trends, share the successes and failures and learn from such interactions. This results in system maps and control charts posted on the wall of each helpdesk and accessible to every staff member. These system maps are updated periodically on the basis of the new collected information.

In traditional call centers there is an internal competition and knowledge hoarding phenomena and agents keep the strategic information for themselves to outperform their colleagues. In Alfa, however, the organizational culture based on supporting customers, responding effectively to their needs, and the sense of ownership, i.e. to be all component parts of one system, tends to drive away *competitiveness* and *comparativeness* between helpdesks.

Empowerment is a key in Alfa. An important role of managers is to identify what people want to improve their work. In Alfa, agents are given the skills to be the symbol point of contact with customers to fix problems of all nature. People have appraisal tools and better access to databases and systems to enable them to do their work more quickly. Training courses to acquire new skills are planned periodically. At Alfa, training managers



are responsible for developing interactive training packages, and let each person choose how to perform her/his work. Accreditation programs have been launched for “Sense and Respond” in Alfa (i.e. S&R Institute). Now 19 trainers are operational. Training focuses mainly on communication skills, identifying customer needs, interpreting data etc. New recruits coming in should meet all people in the helpdesk during the first four weeks and receive the necessary training to feel more comfortable in their respective teams. Through this learning process, beginners convert easily their way of thinking to match up Alfa’s mind-set.

*In summary, Alfa’s knowledge assets are interdependent and interact with each other, and these interdependencies are enabled by organizational learning mechanisms, i.e. learning-by-interacting, learning-by-doing, training programs etc. with the support of different knowledge management practices, i.e. knowledge base, e-mails, face-to-face interactions, white boards, meetings etc.*

Periodically, two-week workshops are made up by front-line staff. This kind of workshops is called ‘intervention’. This focuses especially on thinking about the way they carry on their work and on improving their working processes and routines. After the introduction of “Sense and Respond” approach, people have seen their working procedures changing drastically. People share now their knowledge with customers, visit the customers’ business environment, collect data, detect needs, and act upon this information. People are more proactive instead of just being reactive to any customer’s demand. People use their skills and what they learn each day to improve their working routines, to fix problems quickly and with high speed to benefit customers. The interaction between people enhances processes, and this explains why communication between people in different business units is made as much transparent as possible.

In Client X’s helpdesk, for example, and as a part of their working routines, agents, when they close down and before going home, are asked to make comments electronically on any trend or event they have identified during the day. Agents are encouraged and acknowledged to report these trends and managers give the front-line people that capability to not just keep calls but to do some demand analysis and come away of their workplace and think about the emerging trends. These trends are then picked up every day by a duty manager. The duty manager reports periodically these trends to a specific level at Client X’s Company. In this perspective, the business model of Alfa is shifting more towards delivering business intelligence to the customer. This impacts positively the customer’s processes. As a result of this reporting process, the number of calls is coming down. The agents themselves have become aware of the need to perform this reporting activity to help customers and consequently improve the efficiency and effectiveness of their working processes and routines.

At helpdesks work is distributed based on needs. If the majority of work is coming to the first line level, managers ensure that the appropriate skills needed are available and make sure that people are given the necessary training they need. As a result, staff turnover has decreased dramatically. One senior manager reports that for 8 months there is no agent that has left the helpdesk, as they are all now involved directly in shaping the whole business.

The knowledge captured from customers help make assessment around the peculiarities of the system, to see what works well and what are the generics, and

make the necessary changes inside the business unit to be successful. For example, the possibility of accessing customer's system and databases directly has brought a different mentality to each helpdesk. For calls handling, if there is now a problem, the agent can access directly the system, detect and visualize the problem and decide what is the next action to undertake. It takes less time to fix a problem and more issues can be resolved in a short period of time. For also calls *hand-offs*, before the agents had to get each call in progress, and send it blindly to a support unit believing that it is the right unit to fix it, and if not, the call was sent again blindly to another support unit. This may generate in some cases 6 to 8 hand-offs in different support units until the call reaches the direct service that can handle it. The identification of these too many hand-offs has led to significant improvements. This has been resolved through building a knowledge base that helps people to direct each call type to a specific unit. With this change, it is the agent that takes the call in the first place, and it is the same agent that calls the client back. The customer before was used to talk two or three times to two or three different people. The customer now has one contact person, an end-to-end contact mechanism. As a result, communication between agents and mobile engineers has become more efficient by eliminating inappropriate calls and decreasing the time to fix a problem from 2-3 hours to 10-15 minutes maximum. Helpdesks have witnessed a massive transformation.

The work is shifting from support staff and engineering department to the front-line staff to resolve the problems quickly and more efficiently. This happens especially through empowering people with technology training, and keeping engineers close as much as possible to front-line staff. As a result, customer satisfaction has increased significantly. The efficient way whereby information passes now facilitates also the improvement of different processes and routines. More coordination is provided between front-line teams and support teams. People communicate differently using different means, i.e. telephone, e-mails, reports, white boards, meetings, and the role of managers is seen much more as facilitators of these various information flows. The sense of ownership and the empowerment given to individuals facilitate the process of coordination and the improvement of working practices as well. As traditional management built on hierarchies has blurred, people can bring in innovation by themselves. People do not need managers to make decisions for everything, and managers themselves encourage people more and more to come with new ideas for service improvement. The key change has been the well-defined structures and working practices, which consequently give people a clear vision of what their roles are. In the case of a failing demand, people look at the intervention process to detect where the system failed. This information is shared among people and also with the customers, and within the same month improvements are made, which in turn indicate that the processes start to be formed, and the resolution time starts to be reduced. While carrying on different market investigations, people in Alfa are getting closer to their customers. People seek continually to identify their customers' perception, detect if what they have done is accurate, and if not, change the way they perform their work to improve service offerings.

*In sum, knowledge dynamics in Alfa, i.e. the interdependencies between knowledge assets, organizational learning mechanisms and knowledge management processes and practices, shape continually its working routines and procedures, which form in turn the basis of Alfa's organizational capabilities. This integration of knowledge into routines is*

*facilitated especially by strong coordination mechanisms and by the employees' ability to understand customers' needs, and assimilate and absorb the new market trends that are affecting their business environment.*

Different from mass production thinking based on rigid processes and structures, "Sense and Respond" enables people to do the right thing right, to adapt continually to change, and to make more useful decisions to serve customers' interests. People in Alfa try continually to understand the customers' needs and wants to shape different product and service offerings. Account managers, service delivery managers, sales people, solutions groups, and solutions designers, all work together, analyze market trends, and plan the strategy and the roadmap for the helpdesks to ensure that they deliver the right service.

"Sense and Respond" capability enables Alfa to understand and deliver tailored services and offerings. People in Alfa identify the demand on a monthly basis, organize visits to the customers' headquarters basically every three months. The customer knowledge is acquired also through internet websites, publications, magazines etc. With the input from the front-line staff and the demand that is coming in, managers categorize these trends and adopt a system to reflect together with staff on which are the priorities. With the support of the technical staff the actions to take are then identified.

"Sense and Respond" meetings are organized periodically between managers and the customers' representatives to identify new solutions, improve services, and make recommendations to enhance customers' processes. The customer knowledge is shared between call center agents, managers, mobile engineers, and infrastructure services in 'cross capability meetings'. Also, a *Business Transformation Group* has been created to build strong relationships with helpdesk managers to see how new knowledge can be used to shape the whole business processes and offerings. These interactions between different units are generally organized every month. This results in identifying new business opportunities and in shaping any service offering according to customers' needs and requirements. The inter-reporting practices between Alfa and its customers have led to a close partnership between Alfa and its customers thanks to "Sense and Respond" capability.

"Sense and Respond" capability helps Alfa reconfigure its operating routines and its service and product offerings in four ways: enhancing and optimizing value demand; identifying new opportunities and innovating through new service and product offerings; removing failure demand; and rethinking the way working processes are performed.

*In conclusion, the different issues discussed above confer to "Sense and Respond" the characteristic of a dynamic capability, as it is a learned pattern of collective activity developed through learning mechanisms, it is concerned with change, and shapes continually Alfa's operational capabilities and offerings in pursuit of improved effectiveness.*

"Sense and Respond" allows Alfa to diversify its products and services, enhance its global offerings, and improve its end-to-end service, helpdesk capability, engineering capability, and IT services. "Sense and Respond" capability is a source of competitive advantage in Alfa. Almost all people in Alfa are convinced that "Sense and Respond" is a differentiator for their company, as it is a key in winning new contracts and new businesses, and establishing good relationships with customers. "Sense and Respond"

enables people to understand not just the customer but also the customer's customers. With "Sense and Respond", people in Alfa give customers that empathetic feeling of knowing what is going on in their business environment.

"Sense and Respond" is difficult to implement even across internal units and it took a lot of time and energy to replicate it within Alfa itself in other countries as its implementation depends also on people's willingness to change their attitudes. "Sense and Respond" is not a new method or a management methodology; it is a philosophy of how to perform better. This major differentiator has also attracted the interest of other customers that are choosing Alfa as their main IT supplier. Some customers are also interested in implementing "Sense and Respond" approach to enhance the efficiency and effectiveness of their processes.

With the implementation of "Sense and Respond", Alfa has removed as much as 60% of the incoming demand from desk services, improved agents' productivity by 45%, and reduced end-to-end cycle time by 70%, and increased employee satisfaction by 40%. "Sense and Respond" helped Alfa to increase its overall profitability and achieve the following results: customer satisfaction increased by 28%; employee satisfaction increased by 40%; staff attrition decreased from 42% to 8%; operating costs reduced by 20%; contract renewal and service upgrades amounting to £200 million.

The roles within the call centers are constantly changing in response to the proactive actions undertaken by people. This creates a dynamic culture, and feedback from agents revealed that they are highly motivated and proud to be a part of an innovative and creative organization like Alfa. For Alfa, the "Sense and Respond" has become a way of life and a dynamic capability. It has transformed the whole customer service organization. Alfa has redesigned its activities not only based on market intelligence but also in relation to customer knowledge and end-to-end service delivery. "Sense and Respond" has become a major differentiator which positions Alfa as industry leader. Alfa has applied "Sense and Respond" in a wider context. In addition to the call center environment, this philosophy has now been applied to mobile engineering, human resource on-line services, payroll, supply chain, remote IT management and pre-contract analysis. Customers who have embraced "Sense and Respond" are also reaping the benefits of working with Alfa. For a European airline company, Alfa helpdesk intelligence has managed to reduce queues at ticket offices, check-ins and boarding gates.

In addition, a large government client saw customer satisfaction ratings increased from 5.2 to 8.2, a 57% increase. Furthermore, a training consultancy providing education and skills to adults reported an increase in customer satisfaction from 'acceptable' to 'highly-satisfied' in just four months. This particular customer experienced the following improvements: first-contact fix increased by 64%; end-to-end service cycle time reduced by 60%; end-to-end service costs decreased by 30%; Value Creation to Waste Demand ratio moved from 10:90 to 60:40.

In the case of a leading Alfa customer that decided to share its IT infrastructure outsourcing between many suppliers, it initially awarded Alfa its helpdesk contract. Using "Sense and Respond", the helpdesk staff observed 30% of the incoming demand was a direct result of third parties failing to meet customer needs. When action was taken on the data, incoming calls were reduced by 24% in one month. Alfa later went to win the client's entire IT business.

## Conclusion

To validate the theoretical assumptions underpinning the relationships between knowledge assets, organizational capabilities and competitive advantage, a fieldwork research has been conducted based on an in-depth case study at Alfa. The findings provide meaningful insights regarding such theoretical assumptions. The empirical evidence furthers our understanding of how knowledge assets, if they are managed effectively and efficiently, impact firm performance and lead to competitive advantage. Especially, the case study highlights the role of organizational capabilities in providing long-term superior performance and above-average and long-term profitability. It has been argued that knowledge assets are seen as a set of intangible resources, which interact with each other through learning mechanisms. Knowledge management processes enable the generation of new knowledge, and the development of organizational capabilities or the way it performs its operational processes and activities. These organizational capabilities condition the efficiency and the effectiveness of business processes, and consequently the value of firm's products and services. Dynamic capabilities shape and systematically reconfigure operational capabilities through assimilating new knowledge, and linking, organizing and integrating the generated knowledge into new and/or improved organizational routines.

We believe that the insights discussed in this paper represent a clearer understanding of how effective knowledge asset dynamics affect the overall business performance and improve the value-generating activity of a company. However, more empirical inquiry and in-depth case studies are needed to define the modalities and procedures that help organizations identify their knowledge assets and implement appropriate mechanisms that ensure the effectiveness of their organizational capabilities and in turn the value of their products and services.

## References

- Aaker, D.A. (1989), "Managing Assets and Skills: The Key to a Sustainable Competitive Advantage", *California Management Review*, Vol. 31, No. 2, pp. 91.
- Acquaah, M. (2003), "Corporate Management, Industry Competition and the Sustainability of Firm Abnormal Profitability", *Journal of Management & Governance*, Vol. 7, No. 1, pp. 57.
- Amit, R. and Schoemaker, P.J.H. (1993), "Strategic Assets and Organizational Rent", *Strategic Management Journal*, Vol. 14, No. 1, pp. 33.
- Ansoff, H.I. (1965), *Corporate Strategy*, McGraw-Hill, New York, NY.
- Bain, J.S. (1956), *Barriers to New Competition*, Harvard University Press, Cambridge, MA.
- Barlow, S., Parry, S. and Faulkner, M. (2005), *Sense and Respond: The Journey to Customer Purpose*. Basingstoke, UK: Palgrave Mcmillan.
- Barney, J.B. (1986), "Organizational Culture: Can It be a Source of Sustained Competitive Advantage?", *Academy of Management Review*, Vol. 11, No. 3, pp. 656.
- Barney, J.B. (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, Vol. 17, No. 1, pp. 99.
- Blyler, M. and Coff, R.W. (2003), "Dynamic Capabilities, Social Capital, and Rent Appropriation: Ties That Split Pies", *Strategic Management Journal*, Vol. 24, No. 7, pp. 677.
- Bontis, N. and Fitz-Enz, J. (2002), "Intellectual Capital ROI: A Causal Map of Human Capital Antecedents and Consequents", *Journal of Intellectual Capital*, Vol. 3, No. 3, pp. 223.

- Brown, S.L. and Eisenhardt, K.M. (1995), "Product Development: Past Research, Present Findings, and Future Directions", *Academy of Management Review*, Vol. 20, No. 2, pp. 343.
- Collis, D.J. (1994), "Research Note: How Valuable Are Organizational Capabilities?", *Strategic Management Journal*, Vol. 15, pp. 143.
- Dawson, R. (2000), "Knowledge Capabilities as the Focus of Organizational Development and Strategy", *Journal of Knowledge Management*, Vol. 4, No. 4, pp. 320.
- Dierickx, I. and Cool, K. (1989), "Asset Stock Accumulation and Sustainability of Competitive Advantage", *Management Science*, Vol. 35, No. 12, pp. 1504.
- Eisenhardt, K.M. and Martin, J.A. (2000), "Dynamic Capabilities: What Are They?", *Strategic Management Journal*, Vol. 21, No. 10/11, pp. 1105.
- Galunic, C.D. and Rodan, S. (1998), "Resource Recombinations in the Firm: Knowledge Structures and the Potential for Schumpeterian Innovation", *Strategic Management Journal*, Vol. 19, No. 12, pp. 1193.
- Grant, R.M. (1991), "The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation", *California Management Review*, Vol. 33, No. 3, pp. 114.
- Grant, R.M. (1996), "Prospering in Dynamically Competitive Environments: Organizational Capability as Knowledge Integration", *Organization Science*, Vol. 7, No. 4, pp. 375.
- Grant, R.M. (1997), "The Knowledge-Based View of the Firm: Implications for Management Practice", *Long Range Planning*, Vol. 30, No. 3, pp. 450.
- Hall, R. (1992), "The Strategic Analysis of Intangible Resources", *Strategic Management Journal*, Vol. 13, No. 2, pp. 135.
- Hall, R. (1993), "A Framework Linking Intangible Resources and Capabilities to Sustainable Competitive Advantage", *Strategic Management Journal*, Vol. 14, No. 8, pp. 607.
- Helfat, C.E. and Peteraf, M.A. (2003), "The Dynamic Resource-Based View: Capability Lifecycles", *Strategic Management Journal*, Vol. 24, No. 10, pp. 997.
- Helfat, C.E. and Raubitschek, R.S. (2000), "Product Sequencing: Co-Evolution of Knowledge, Capabilities and Products", *Strategic Management Journal*, Vol. 21, No. 10/11, pp. 961.
- Henderson, R. and Cockburn, I. (1994), "Measuring Competence? Exploring Firm Effects in Pharmaceutical Research", *Strategic Management Journal*, Vol. 15, pp. 63.
- King, A.W. and Zeithaml, C.P. (2001), "Competencies and Firm Performance: Examining the Causal Ambiguity Paradox", *Strategic Management Journal*, Vol. 22, No. 1, pp. 75.
- Korac-Kakabadse, N., Kouzmin, A. and Kakabadse, A. (2002), "Knowledge Management: Strategic Change Capacity or the Attempted Routinization of Professionals?", *Strategic Change*, Vol. 11, No. 2, pp. 59.
- Lippman, S.A. and Rumelt, R.P. (1982), "Uncertain Imitability: an Analysis of Interfirm Differences in Efficiency under Competition", *Bell Journal of Economics*, Vol. 13, No. 2, pp. 418.
- Loermans, J. (2002), "Synergizing the Learning Organization and Knowledge Management", *Journal of Knowledge Management*, Vol. 6, No. 3, pp. 285.
- Marr, B. and Schiuma, G. (2001), "Measuring and Managing Intellectual Capital and Knowledge Assets in New Economy Organizations", in Bourne, M. (Editor), *Performance Measurement Handbook*, GEE Publishing Ltd., London.
- Marr, B., and Neely, A. (2004), *Managing and Measuring for Value: The Case of Call Center Performance*. Cranfield, UK: Cranfield School of Management.
- Marr, B., and Parry, S. (2004), "Sense and Respond Performance Management at Fujitsu: Lessons, Pitfalls, and Achievements", *PMA 2004 Conference Proceedings*, Edinburgh, Scotland.
- Marsh, S.J. and Stock, G.N. (2003), "Building Dynamic Capabilities in New Product Development through Intertemporal Integration", *Journal of Product Innovation Management*, Vol. 20, No. 2, pp. 136.
- McGaughey, S.L. (2002), "Strategic Interventions in Intellectual Asset Flows", *Academy of Management Review*, Vol. 27, No. 2, pp. 248.

- McGrath, R.G., MacMillan, I.C. and Venkataraman, S. (1995), "Defining and Developing Competence: A Strategic Process Paradigm", *Strategic Management Journal*, Vol. 16, No. 4, pp. 251.
- McGrath, R.G., Tsui, M.H., Venkataraman, S. and MacMillan, I.C. (1996), "Innovation, Competitive Advantage and Rent: a Model and Test", *Management Science*, Vol. 42, No. 3, pp. 389-403.
- McGuinness, T. and Morgan, R.E. (2000), "Strategy, Dynamic Capabilities and Complex Science: Management Rhetoric Vs. Reality", *Strategic Change*, Vol. 9, No. 4, pp. 209.
- Michalisin, M.D., Smith, R.D. and Kline, D.M. (1997), "In Search of Strategic Assets", *International Journal of Organizational Analysis*, Vol. 5, No. 4, pp. 360.
- Miller, D. (2003), "An Asymmetry-Based View of Advantage: Towards an Attainable Sustainability", *Strategic Management Journal*, Vol. 24, No. 10, pp. 961.
- Moingeon, B., Ramanantsoa, B., Metais, E. and Orton, J.D. (1998), "Another Look at Strategy-Structure Relationships: The Resource-Based View", *European Management Journal*, Vol. 16, No. 3, pp. 297.
- Montealegre, R. (2002), "A Process Model of Capability Development: Lessons From the Electronic Commerce Strategy at Bolsa De Valores De Guayaquil", *Organization Science*, Vol. 13, No. 5, pp. 514.
- Nelson, R. and Winter, S. (1982), *Evolutionary Theory of Economic Change*, Harvard Business Press, US.
- Nonaka, I., Toyama, R. and Konno, N. (2000), "SECI, Ba and Leadership: A Unified Model of Dynamic Knowledge Creation", *Long Range Planning*, Vol. 33, No. 1, pp. 5.
- Pehrsson, A. (2000), "Strategy Competence: a Key Profitability Driver", *Strategic Change*, Vol. 9, No. 2, pp. 89.
- Peteraf, M.A. (1993), "The Cornerstones of Competitive Advantage: A Resource-Based View", *Strategic Management Journal*, Vol. 14, No. 3, pp. 179.
- Peteraf, M.A. and Barney, J.B. (2003), "Unraveling the Resource-Based Tangle", *Managerial and Decision Economics*, Vol. 24, No. 4, pp. 309.
- Peteraf, M.A. and Bergen, M.E. (2003), "Scanning Dynamic Competitive Landscapes: A Market-Based and Resource-Based Framework", *Strategic Management Journal*, Vol. 24, No. 10, pp. 1027.
- Porter, M.E. (1985), *Competitive Strategy*, Free Press, New York, NY.
- Reed, R. and DeFillippi, R.J. (1990), "Causal Ambiguity, Barriers to Imitation, and Sustainable Competitive Advantage", *Academy of Management Review*, Vol. 15, No. 1, pp. 88.
- Roos, G. and Roos, J. (1997), "Measuring Your Company's Intellectual Performance", *Long Range Planning*, Vol. 30, No. 3, pp. 413.
- Rouse, M. J., and Daellenbach, U. S. (1999), "Rethinking Research Methods for the Resource-based Perspective: Isolating Sources of Sustainable Competitive Advantage", *Strategic Management Journal*, Vol. 20, No. 5, pp. 487.
- Rouse, M.J. and Daellenbach, U.S. (2002), "More Thinking on Research Methods for the Resource-Based Perspective", *Strategic Management Journal*, Vol. 23, No. 10, pp. 963.
- Schoemaker, P.J.H. (1990), "Strategy, Complexity and Economic Rent", *Management Science*, Vol. 36, No. 10, pp. 1178.
- Schroeder, R.G., Bates, K.A. and Junttila, M.A. (2002), "A Resource-Based View of Manufacturing Strategy and the Relationship to Manufacturing Performance", *Strategic Management Journal*, Vol. 23, No. 2, pp. 105.
- Smith, K.A., Vasudevan, S.P. and Tanniru, M.R. (1996), "Organizational Learning and Resource-Based Theory: an Integrative Model", *Journal of Organizational Change Management*, Vol. 9, No. 6, pp. 41.
- Spender, J.C. and Grant, R.M. (1996), "Knowledge and the Firm: Overview", *Strategic Management Journal*, Vol. 17, pp. 5.
- Teece, D.J. (1998), "Capturing Value from Knowledge Assets: The New Economy, Markets for Know-How, and Intangible Assets", *California Management Review*, Vol. 40, No. 3, pp. 55.

- Teece, D.J. (2000), "Strategies for Managing Knowledge Assets: The Role of Firm Structure and Industrial Context", *Long Range Planning*, Vol. 33, No. 1, pp. 34.
- Teece, D.J. (2005), "Explicating Dynamic Capabilities: Asset Selection, Cospecialisation, and Entrepreneurship in Strategic Management Theory", *Working Paper*.
- Teece, D.J. and Pisano, G. (1994), "The Dynamic Capabilities of Firms: an Introduction", *Industrial and Corporate Change*, Vol. 3, No. 3, pp. 537-556.
- Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic Capabilities and Strategic Management", *Strategic Management Journal*, Vol. 18, No. 7, pp. 509.
- Tranfield, D., Denyer, D. and Smart, P. (2003), "Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review", *British Journal of Management*, Vol. 14, No. 3, pp. 207.
- Wernerfelt, B. (1984), "A Resource-Based View of the Firm", *Strategic Management Journal*, Vol. 5, No. 2, pp. 171.
- Wiig, K.M. (1997), "Integrating Intellectual Capital and Knowledge Management", *Long Range Planning*, Vol. 30, No. 3, pp. 399.
- Williams, J.R. (1992), "How Sustainable Is Your Competitive Advantage?", *California Management Review*, Vol. 34, No. 3, pp. 29.
- Winter, S.G. (2003), "Understanding Dynamic Capabilities", *Strategic Management Journal*, Vol. 24, No. 10, pp. 991.
- Zack, M.H. (1999), "Managing Codified Knowledge", *Sloan Management Review*, Vol. 40, No. 4, pp. 45.
- Zollo, M. and Winter, S.G. (2002), "Deliberate Learning and the Evolution of Dynamic Capabilities", *Organization Science*, Vol. 13, No. 3, pp. 339.
- Zott, C. (2003), "Dynamic Capabilities and the Emergence of Intraindustry Differential Firm Performance: Insights from a Simulation Study", *Strategic Management Journal*, Vol. 24, No. 2, pp. 97.