Management,
Knowledge and Learning
International Conference 2011

KNOWLEDGE-BASED VALUE CREATION DYNAMICS IN THE IT SECTOR

Karim Moustaghfir
Al Akhawayn University in Ifrane, Morocco
K.Moustaghfir@aui.ma

Abstract:
In an economy characterized by rapid change, continuous innovation and high intensity and dynamism of competition, the analysis of strategy and competitive advantage has shifted from the more aggregate competitive forces to the idea that firms are essentially different and compete on the basis of their specific physical, human and organizational resources. The key to this new view of the firm as a collection of resources both human and material is understanding the relationships between resources, capabilities, competitive advantage, and profitability, in particular, an understanding of the mechanisms through which competitive advantage can be sustained over time. Even if knowledge assets have been widely recognized as the firm's main value drivers, little guidance is provided of how these unique attributes affect the firm's profitability and its overall performance. Through a case study research in the IT sector, this chapter provides empirical evidence as regards such interdependencies and analyzes the effects of knowledge asset dynamics on firm's performance and value creation mechanisms.

Keywords: Knowledge asset dynamics, organizational routines, firm performance, value creation, sense and respond capability

1. INTRODUCTION – KNOWLEDGE-BASED DYNAMICS: A THEORETICAL FRAMEWORK

Knowledge assets represent the intangible resources that a firm owns (Hall, 1992) mainly in the form of employees' skills and know-how and intellectual property rights. Such assets support the firm's capabilities, activities, and products. Knowledge assets are dynamic in nature (Roos & Roos, 1997), depend on and interact with each other over time (Barney, 2001; Kaplan & Norton, 2004). Organizational learning mechanisms enable this interconnectivity between knowledge assets, and renew and enhance constantly their value (Argyris & Schön, 1978; Lei et al., 1996; Pemberton & Stonehouse, 2000). Knowledge management processes such as knowledge identification, knowledge sharing, knowledge storing and application, support the organizational learning in generating new knowledge and in managing it effectively and efficiently (Nonaka et al., 2000; Teece, 2000; Wiig, 1997).

These interactions and interdependencies between knowledge assets, learning mechanisms and knowledge management processes are referred to as knowledge asset dynamics, through which firm's knowledge assets are bundled, linked, incorporated, converted, organized, and integrated into socio-technical processes or organizational routines (Nelson & Winter, 1982; Zollo & Winter, 2002; Zander & Kogut, 1995). These organizational routines are in turn enriched, nurtured, and leveraged to form the firm's organizational capabilities (Grant, 1991, 1996, 1997; Zollo & Winter, 2002; Teece et al., 1997). Such integration process is facilitated by the firm's absorptive capacity or its ability to assimilate the external knowledge derived from its competitive environment, to analyze the stocks and flows of knowledge (Dierickx & Cool, 1989), and influence the generation of new knowledge that is necessary to shape and build its capabilities (Cohen & Levinthal, 1990; Zahra & George, 2002).

Organizational capabilities are generally defined as higher-level routines or collection of socially complex routines (Winter, 2000, 2003) that involve the transformation of inputs into outputs (Grant, 1991, 1997). Organizational capabilities are either dynamic or operational (Helfat and Peteraf, 2003). Operational or zero-level capabilities involve the firm's production activities and ordinary operations (Winter, 2003; Zollo & Winter, 2002). However, dynamic or higher-order capabilities are more concerned with change and they shape constantly the firm's operational capabilities (Teece et al., 1997; Teece, 2004; Eisenhardt & Martin, 2000).

Organizational capabilities, either operational or dynamic, are socially constructed, they are consequently valuable, rare, inimitable, and non-substitutable (Barney, 1991). These characteristics make them heterogeneous and immobile between firms (Hoopes et al., 2003; Lippman & Rumelt, 1982; King & Zeithaml, 2001; Reed & DeFillippi, 1990), which make them in turn the effective source of firm's long-term supra-normal profitability and superior performance (Chandler, 1990; Rouse & Daellenbach, 2002). These competitive advantage factors are explained both by competitive factors (Porter, 1985), as well as by path dependent, causally ambiguous and socially complex attributes (Rumelt, 1984; Lippman & Rumelt, 1982; Dierickx & Cool, 1989).

In this paper we will begin by explaining the choice of a single-case study approach as a research strategy to validate the assumptions underpinning the interdependencies between knowledge asset dynamics, organizational capabilities, and competitive advantage, and we will then discuss the different components of the case-study design. Next, we will give a description of the research setting. Finally, we will discuss the different findings to provide

and build the empirical evidence of how knowledge asset dynamics drive firm's performance and value creation processes.

2. CASE STUDY RESEARCH

To provide empirical evidence to the theoretical assumptions underlying how knowledge assets drive firm's sustainable competitive advantage, an in-depth single case study strategy has been adopted. The case study research is a strong methodological tool for theory building (Voss et al., 2002). As suggested by Yin (1994), the rationale for selecting a single-case rather than a multiple-case design is that the single case represents the critical test of a significant theory.

This choice is also 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. Since the only firms with unique resources and capabilities are assumed to have the potential for competitive advantages, the use of large-sample, cross-sectional analyses is unlikely to be able to disentangle the variety of effects associated with time, industry, environment, strategy, and the resource/capability of interest. As recommended by Rouse and Daellenbach (1999), the case study is selected as research subject using in-depth fieldwork or ethnographic study methods. Given the contention that sustainable advantages are organizational in origin, tacit, highly inimitable, socially complex, probably synergistic, embedded in process, and often driven by culture, there can be no other way to obtain the data of interest (Barnes, 2001).

2.1. The Company's Profile

For confidentiality reason, 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 centre environments, together with a full range of related services, from infrastructure consulting through integration and deployment.

Sense and Respond Approach at ALFA

In 1999 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 centre staff was 42 % (Marr & 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 stop doing what was not

creating value. 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 given. Customer success, however, became the new goal (Marr & 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 centre 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 & 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.

2.2. Research Design Components

Four components of the research design are described:

Research Questions

The study aims to answer the following research question: How knowledge assets drive a firm's sustainable competitive advantage and its overall performance?

More specifically, we aim to clarify the following sub-research questions: What is the nature of firm's knowledge assets? How do knowledge assets interact with each other? What is the role of learning mechanisms and knowledge management processes in renewing and nurturing firm's knowledge assets? How do knowledge dynamics inside the firm shape organizational routines? And, what is the role of firm's absorptive capacity in facilitating this integration process? How do organizational routines shape firm's organizational capabilities, both dynamic and operational? How do dynamic capabilities continually shape the operating routines? And, how can organizational capabilities, either dynamic or operational, be the source of sustainable competitive advantage and consequently impact the overall firm's performance?

Unit of Analysis

We choose a holistic case-study design (Yin, 1994), and as a unit of analysis the Customer Services department and Contact Centre environment, specifically in two sites: Stevenage and Crewe, where "Sense and Respond" approach was successfully implemented. The procedures that we have followed in this case study were designed to ensure the reliability of the findings.

Data Collection Strategy

An underlying principle in collection of data in case research is that of triangulation, the use and combination of different methods to study the same phenomena (Yin, 1994). 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.

Semi-structured interviews have been conducted with people from different hierarchical levels: top/middle management and front-line agents. A total of 33 people were interviewed: 1 Director of Customer Services, 2 Sense and Respond Managers, 11 Senior Managers (Team Managers, Operation Managers, Account Managers, Service Delivery Managers), 5 Mobile Engineers and Support Staff, and 14 Front-line Agents.

The focus of the questionnaire-based interviews has been on the items identified for each concept being studied, to ensure construct validity issues: Knowledge assets – assets and skills; Learning mechanisms – experience, trial-and-error, learning from mistakes, learning-by-doing, learning by interacting; Knowledge management processes – knowledge generation, knowledge codification, knowledge application, knowledge storing, knowledge sharing, and knowledge transfer; Absorptive capacity – the capacity to assimilate, exploit, and transform new external knowledge to build organizational capabilities; Dynamic capabilities – the firm's ability to integrate, build, and reconfigure its operational capabilities and routines; Operational capabilities – the organizational activities geared to the operational functioning of the firm, both staff and line activities; Sustainable competitive advantage – above-average profitability and superior performance in the long run.

The interviews focused also on the items related to the relationships between different constructs to ensure the internal and external validity of the study. Two semi-structured pilot interviews have been conducted with the 2 "Sense and Respond" Managers to ensure the relevance of the questions and the appropriateness of the language to be used.

After the interviews, the gathered data was synthesized and a follow-up meeting has been organized with the interviewees to verify the relevance of the collected data. All the interviews were taped and some pictures of the working environment have been taken to illustrate some of the meaningful aspects during the observation phase.

Data Analysis

We relied on the theoretical assumptions underpinning the relationship between knowledge asset dynamics and firm's competitive advantage as a strategy to synthesize the findings from the case study. For this purpose, a pattern-matching logic has been adopted to compare the empirical data with the assumptions underlying the theoretical analysis (Yin, 1994). During the case study design, we supposed that if the patterns related to the theoretical assumptions coincide, this could strengthen their validity.

3. CASE STUDY FINDINGS

In this section we will first discuss what are the main knowledge assets that we have identified in Alfa before explaining how these value drivers are enhanced and nurtured over time through learning mechanisms and the use of knowledge management practices. Then, we

will show how these knowledge dynamics inside Alfa shape its organizational capabilities and how "Sense and Respond" as a dynamic capability helps the whole organization improve its operational capabilities, which in turn are leveraged into new service and product offerings. Finally, we will discuss how "Sense and Respond" capability has provided Alfa with a sustainable competitive advantage which translates into performance consequences and industry recognition and awards.

3.1. Knowledge Assets

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, who like what they do. 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. As a "Sense and Respond" manager says: "people focus on what customer requires rather than over engineering systems to give him everything when he doesn't need everything". 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. As a "Sense and Respond" manager mentions: "building relationships with customers at the right level is a key to our success". Interacting at the senior level enables Alfa to understand the customer's business drivers. Alfa is not just an IT supplier for its customers, 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 its 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. As a "Sense and Respond" manager says: "culture is about thinking, when you change the way people think, you change the way they perform their work".

"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. A senior manager describes "Sense and Respond" approach using a comprehensible analogy: "it ["Sense and Respond"] is like a car driving down a road. Every day the car driver notices a blow-out. He keeps fixing that punctured tire every day of the week, which has no value. To

add value he needs to analyze why does it keeps blowing out at the same point every single day".

Culture is about change and capturing customer's wants and needs. Instead of selling IT services, people should understand the whole 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. As one senior manager mentions: "we have a mixture of cultures between Alfa and the companies we deal with. The culture is open, people have a lot of things to say, a lot of things to give out". The atmosphere is different from the other call centres, and people have more ownership over what they do, and over their own development, what they need, and what training they need. People are happy to come in, happy to do their work, and to develop their careers themselves, get more important roles to move to other desks, 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 as well on encouraging them to manage their tasks. 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. When we have asked an agent about the possibility to leave Alfa for another company, his reply was: "I couldn't, no. I don't think that anyone who has worked in this atmosphere could". Another agent says: "I left the company and I went to another company for a week, and it was a different culture. I chose to come back".

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.

3.2. Knowledge Dynamics Inside ALFA

In Alfa, people in contact with customers and their business environment share continually their knowledge with the other 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 centres 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 his/her 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. As a senior manager mentions: "my focus is on helping my staff to develop their knowledge so they don't have to go through me for everything that might happen. I coach them to speak directly to office service delivery unit". People have more control over what they do. Traditionally agents had a break setup, very regimented. They have now more sense of ownership with the change of the working atmosphere. A senior manager says: "it was like a school atmosphere, and now they have got more responsibility over what they do". 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. A senior manager says: "you see e-mails going around, people asking their neighbours for how to fix a problem. We encourage also people to write technical documents about the problems they fixed and share them with others".

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 focused on identifying customer's needs and satisfying them. The performance of agents is measured based on the suggestions and the contributions they make not the number of calls they answer. A senior manager reports: "agents are more relaxed and feel comfortable to talk freely. They don't have just to pick up calls or at least to look busy". 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 centres 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. As a senior manager mentions: "we need to make sure that we are all operating well, making improvements, enhancing the service we provide to the customer, adding value all the time, understanding what customers expect, and make sure their expectations are met".

Empowerment is a key at Alfa. An important role of managers is to identify what people want to improve their work. As a senior manager reports: "it is necessary to empower front-line agents to make the difference. Give them the tools to catch the information. The manager's role is to give agents the capability to come away from their workplace and look at what type of calls is coming in and make recommendations around them". In Alfa, agents are given the skills to be the main point of contact with customers to fix problems of all nature. People have appraisal tools and better access to databases and systems to help them do their work more quickly. Training courses to acquire new skills are planned periodically. A senior manager mentions that: "one thing that puts us ahead is the training that we give to our staff". At Alfa, training managers are responsible for developing interactive training packages with different ways to do maybe the same thing, 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 into Alfa's mindset.

In summary, Alfa's knowledge assets, i.e. people's skills, cultural values, relationships, leadership style, business and technical awareness etc. 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.

3.3. Improving Organizational Routines

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 rather than 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 her/his working routines, each agent, when she/he closes down and before going home, is asked to make comments electronically on any trend or event she/he has 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 each 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 calls number is coming down. The agents themselves have become aware of the fact that they need to do 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 senior manager mentions: "[my role] is to give the agents the ability to think about what they do and the ability to enhance their working processes, empower them, give them that satisfaction and motivation to do their job". 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 involved now directly in shaping the whole business.

The knowledge captured from customers help make assessment around the peculiarities of the system, to see what is best and what are the generics, and make the necessary changes inside the business unit to be successful. As a senior manager reports: "change has occurred in the way things are done. Processes have become more efficient. This has saved time for the front-line agents". Another senior manager adds: "if you go to see the helpdesks now, you will notice that even if the principles are the same, their processes are slightly different". 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 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: everything is handled now by the same agent. The customer before was used to talk two or three times to two or three different people. The customer has now 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 to the left, 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 flows 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, one-to-one, and the role of managers is seen much more as a facilitator 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 up 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 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. "it ["Sense and Respond"] provides a total shift in my way of thinking: getting into the customer's business and absorbing it. Putting the customer's needs first, every time. Getting rid of the waste and concentrating on delivering what matters" an agent says.

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.

3.4. Sense and Respond as Dynamic Capability

Different from mass production thinking based on rigid processes and structures, "Sense and Respond" enables people to do the right thing, 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 design 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. "Because we constantly find something is broken, we make recommendations on how the next product generation doesn't have that defect anymore" the Director of Customer Services says. The customer knowledge is shared between call centre agents, managers, mobile engineers, and infrastructure services in 'cross capability meetings'. Also, a Business Transformation Group is focused on building 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 offering according to customers' needs and requirements. These new offerings are basically more service rather than product oriented: "we are doing more in service environment. If we build a solution around an application that fails let's say every Monday, we feed that information back into the upstream to help them solve that issue in the next release of the application" the Director of Customer Services mentions.

A team manager reports an example, where "Sense and Respond" capability has shaped their operating routines and created value: "the agents have detected that at the company of Client Y printers of a particular model are failing regularly every 12 months. There were no warranties around them. These failures were very costly for Client Y and impeded its daily operations in different stations. The role of agents was to repair failures when they occurred. Agents found out through the analysis of data that the printers were very cheap and need to be replaced. The recommendation to Client Y was made up to take the printers out and change them. This recommendation came from agents up through managers. When back to Client Y, they took this recommendation seriously which helped the company to improve its operations and drop down the number of calls per month".

Another team manager reports a similar experience with Client Z: "Client Z has changed its business dramatically during the last two years. As part of their service improvement, they have used printed labels rather than stamps to stick them on envelopes. However, these labels were not compatible with the printers. The labels got very hot and they damaged the printers, and each time printers had to be fixed and cleaned, and sometimes completely removed. The agents in Alfa have worked with them on looking at the number of these failures. The collected data related to the label problem was analyzed together with people from Client Z, and as a result Alfa helped them design a new label compatible with the printers they have. This has resulted in saving money for Client Z and decreasing its repair costs related to engineers' visits".

The inter-reporting practices between Alfa and its customers have the objective to highlight trends, give the customers the opportunity to identify where problems are, and help them drive down their problems. This has 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 "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.

3.5. Sense and Respond Capability, Sustainable Competitive Advantage, and Performance Consequences

"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 sustainable competitive advantage in Alfa. It is a common sense capability. It has its foundations in the organization's culture and values. 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. A senior manager says: "competitors are not able to easily copy "Sense and Respond". They are built on mass production. It takes a long time to reach the cultural change. They don't know how to do it. They need to overcome the barriers and move the thinking away from mass production to a new way based on systems thinking, transformational leadership, and lean thinking". Another senior manager adds: "to change the culture, managers need to sit with people and explain to them this new way of working. The cultural change is not achieved by telling people what to do from top-down. People need to learn the system to operate it". To answer the question of what stops Alfa's competitors from copying "Sense and Respond" a senior manager reports: "it ["Sense and Respond"] is not some sort of massive world event. It is logic. It is not anything anyone can do. It requires a different leadership style".

"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 mindsets and attitudes. A senior manager reports that "in theory anybody can do it ["Sense and Respond"]. In practice whether you get the necessary commitment or not is too difficult to predict".

"Sense and Respond" is not a new method or a management methodology, it is a philosophy of how to perform better. "It is the culture of how to work. It is a new way of thinking. People adopt it because they like it and they see how it affects positively their daily work" a senior manager mentions. "It would take our competitors a lot of time to catch up and to follow. They need to reach the common sense of their employees and the key feelings from their staff" another senior manager adds.

This major differentiator has attracted also 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.

Performance Consequences

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 %, reduced end-to-end cycle time by 70 %, and increased employee satisfaction by 40 %. A team manager says: "as time is going on, you see the benefits of it. You have more time to get people involved and trained to do it. It is more interesting for me to work now. You can see what is like before and what is like after to assess the results. You get more satisfaction to see what

comes out of it. I enjoy it". A front-line agent adds: "it has changed my views considerably. It is difficult to turn back to the traditional and frustrating way of doing things".

"Sense and Respond" helped Alfa to increase its overall profitability and achieve the following results: customer satisfaction increased by 28 %; 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 centres 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 and positions Alfa as industry leader.

Alfa has applied "Sense and Respond" in a wider context. In addition to the call centre 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 that 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. Client A's CIO states that: "over the last two years calls have been reduced by 40 % and the time required to fix them has dropped down by 70 %".

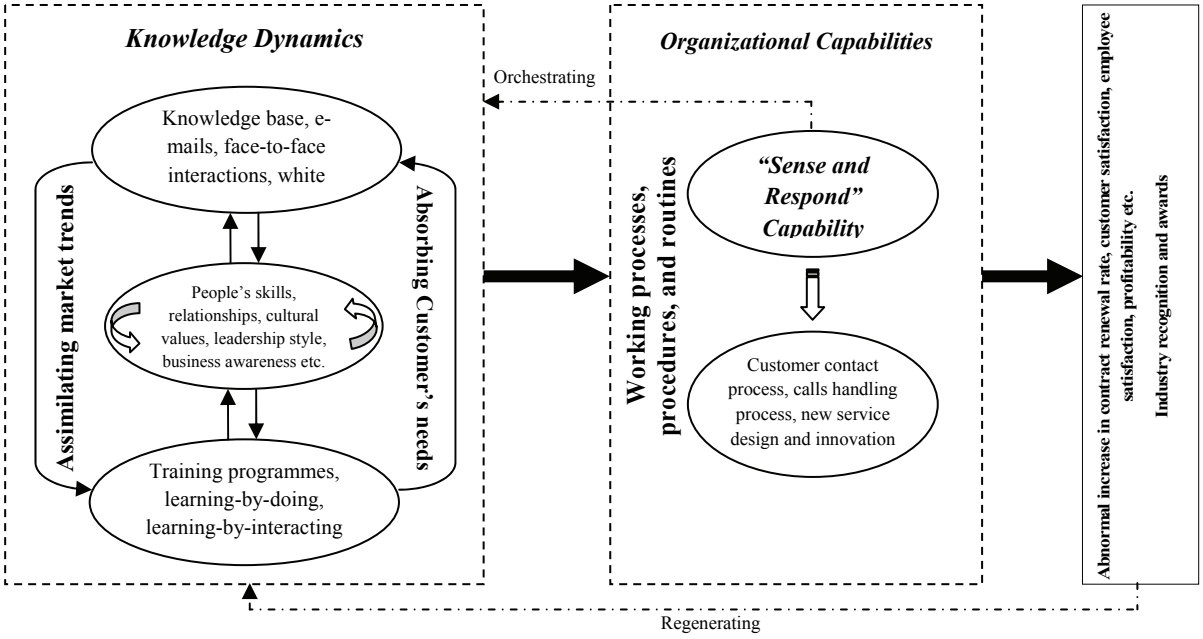
In addition, a large government client saw customer satisfaction ratings increased from 5.2 to 8.2, a 63 % increase. Furthermore, a training consultancy providing education and skills to adults reported an increase in customer satisfaction from 'acceptable' to 'highly-satisfied' in the space of just 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.

In 2004, Client X's helpdesk has been awarded 'the most improve supplier of the year' by Client X Company. At the 2003 National Business Awards, "Sense and Respond" was awarded Best Customer Service Strategy. At the 2002 National Business Awards, Alfa was finalist in the Customer Focus Strategy. In 2001, Alfa was awarded the European Call Centre of the Year, award for the best people development program.

The following figure reports the findings from this case study.

Picture 1: Value creation model in Alfa



4. 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 that we captured from our semi-structured interviews and observations inside Alfa, provide meaningful insights regarding such theoretical assumptions. Indeed, skilful people – the main knowledge asset in Alfa – interact with one another, gain business awareness, strengthen their relationships with their clients, learn from each other and from performing their tasks, and share their knowledge regarding customer needs through different knowledge management processes and technologies. These knowledge dynamics help people enhance their working procedures and routines, and consequently develop a "Sense and Respond" capability which in turn shapes the operating routines of their daily work. This integration of employees' knowledge into organizational capabilities is enabled by strong coordination mechanisms and by the employees' ability to assimilate and understand new market trends emerging from their competitive environment. With these enhanced and valuable capabilities, Alfa is able to innovate and offer new products and services to its clients and customers, which allows it to create more value, to sustain its competitive advantage, and to achieve superior performance over time.

We believe 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.

REFERENCE LIST

1. Argyris, C., & Schön, D. A. (1978). *Organizational learning: A theory of action perspective*. Boston: Addison-Wesley.
2. Bain, J. S. (1956). *Barriers to new competition.* Cambridge, MA: Harvard University Press.
3. Barlow, S., Parry, S., & Faulkner, M. (2005). *Sense and respond: The journey to customer purpose.* Basingstoke, UK: Palgrave Mcmillan.
4. Barnes, D. (2001). Research methods for the empirical investigation of the process of formation of operations strategy. *International Journal of Operations & Production Management*, *21*(8), 1076–1095.
5. Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99.
6. Caves, R. E., & Porter, M. E. (1977). From competitive entry barriers to mobility barriers: Conjectural decisions and contrived deterrence to new competition. *Quarterly Journal of Economics*, *91*(2), 241.
7. Chandler, A. D. (1990). *Scale and scope: The dynamics of industrial capitalism.* Cambridge, MA: Belknap.
8. Cohen, W. M., & Levinthal, D. A. (1990, March). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, *35*(1), 128.
9. D'Aveni, R.A. (1995, August). Coping with hypercompetition: Utilizing the new 7S's framework. *Academy of Management Executive*, *9*(3), 45.
10. Dierickx, I., & Cool, K. (1989, December). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, *35*(12), 1504.
11. Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, *21*(10-11), 1105.
12. Foss, N. (1997a). Resources and strategy: A brief overview of themes and contributions. In N. Foss (Ed.), *Resources, firms, and strategies: A reader in the resource-based perspective* (pp. 3–18). Oxford: Oxford University Press.
13. Foss, N. (1997b). Resources and strategy: Problems, open issues, and ways ahead. In N. Foss (Ed.), *Resources, firms, and strategies: A reader in the resource-based perspective* (pp. 3–18). Oxford: Oxford University Press.
14. Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*, *33*(3), 114.
15. Grant, R. M. (1996). Prospering in dynamically competitive environments: Organizational capability as knowledge integration. *Organization Science*, *7*(4), 375.
16. Grant, R. M. (1997, June). The knowledge-based view of the firm: Implications for management practice. *Long Range Planning*, *30*(3), 450.
17. Hall, R. (1992, February). The strategic analysis of intangible resources. *Strategic Management Journal*, *13*(2), 135.
18. Helfat, C. E., & Peteraf, M. A. (2003, October). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, *24*(10), 997.

19. Hoopes, D. G., Madsen, T. L., & Walker, G. (2003, October). Guest editors' introduction to the special issue: Why is there a resource-based view? Toward a theory of competitive heterogeneity. *Strategic Management Journal*, *24*(10), 889.
20. Kaplan, R. S., & Norton, D. P. (2004). Measuring the strategic readiness of intangible assets. *Harvard Business Review*, *82*(2), 52.
21. King, A. W., & Zeithaml, C. P. (2001, January). Competencies and firm performance: Examining the causal ambiguity paradox. *Strategic Management Journal*, *22*(1), 75.
22. Lei, D., Hitt, M. A., & Bettis, R. (1996). Dynamic core competences through meta-learning and strategic context. *Journal of Management*, *22*(4), 549.
23. Lippman, S. A., & Rumelt, R. P. (1982). Uncertain imitability: An analysis of interfirm differences in efficiency under competition. *Bell Journal of Economics*, *13*(2), 418.
24. Marr, B., & Neely, A. (2004). *Managing and measuring for value: The case of call centre performance.* Cranfield, UK: Cranfield School of Management.
25. Marr, B., & Parry, S. (2004). Sense and respond performance management at Fujitsu: Lessons, pitfalls, and achievements. In *PMA 2004 Conference Proceedings*, Edinbugh, Scotland.
26. Nelson, R., & Winter, S. (1982). *Evolutionary theory of economic change.* Boston: Harvard Business Press.
27. Nonaka, I., Toyama, R., & Nagata, A. (2000, March). A firm as a knowledge-creating entity: A new perspective on the theory of the firm. *Industrial and Corporate Change*, *9*(1), 1.
28. Pemberton, J. D., & Stonehouse, G. H. (2000). Organizational learning and knowledge assets: An essential partnership/ *The Learning Organization*, *7*(4), 184.
29. Porter, M. E. (1985). *Competitive strategy.* New York: Free Press.
30. Reed, R., & DeFillippi, R. J. (1990). Causal ambiguity, barriers to imitation, and sustainable competitive advantage. *Academy of Management Review*, *15*(1), 88.
31. Roos, G., & Roos, J. (1997, June). Measuring your company's intellectual performance. *Long Range Planning*, *30*(3), 413.
32. Rouse, M. J., & Daellenbach, U. S. (1999, May). Rethinking research methods for the resource-based perspective: Isolating sources of sustainable competitive advantage. *Strategic Management Journal*, *20*(5), 487.
33. Rouse, M. J., & Daellenbach, U. S. (2002, October). More thinking on research methods for the resource-based perspective. *Strategic Management Journal*, *23*(10), 963.
34. Rumelt, R. P. (1984). Towards a strategic theory of the firm. In B. Lamb (Ed.), *Competitive strategic management* (pp. 557). Englewood Cliffs, NJ: Prentice-Hall.
35. Teece, D. J. (2000, February). Strategies for managing knowledge assets: The role of firm structure and industrial context. *Long Range Planning*, *33*(1), 34.
36. Teece, D. J. (2004). Explicating dynamic capabilities: Asset selection, cospecialisation, and entrepreneurship in strategic management theory [Working paper].
37. Teece, D. J., Pisano, G., & Shuen, A. (1997, August). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509.

38. Voss, C., Tsikriktsis, N., & Frojlich, M. (2002). Case research in operations management. *International Journal of Operations & Production Management*, *22*(2), 195–219.
39. Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*(2), 171.
40. Wiig, K. M. (1997, June). Integrating intellectual capital and knowledge management. *Long Range Planning*, *30*(3), 399.
41. Winter, S. G. (2000). The satisficing principle in capability learning. *Strategic Management Journal*, *21*(10–11), 981.
42. Winter, S. G. (2003, October). Understanding dynamic capabilities. *Strategic Management Journal*, *24*(10), 991.
43. Yin, R. K. (1994). *Case study research: Design and methods*. London: Sage Publications.
44. Zahra, S. A., & George, G. (2002, April). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, *27*(2), 185.
45. Zander, U., & Kogut, B. (1995). Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test. *Organization Science*, *6*(1), 76.
46. Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, *13*(3), 339.