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Vanguard Projects

A Study of Norwegian Power Producers Entry
to Sub- Saharan Africa

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Preface

This master thesis is written during the fall semester 2012 and constitutes the final work of the Master of Science education program at the Norwegian University of Science and Technology (NTNU). The thesis is an in-debt study in the course TIØ 4912, in the master specialization, Strategy and International Business Development, at the department of Industrial Economics and Technology Management. The purpose of this thesis is to analyse the use of vanguard projects in organizations market entry to culturally distant markets. The work has been both challenging and rewarding, and has provided opportunities to study theory taught in earlier courses as well as further examination of topics introduced in the introductory project spring 2012. The work has given much enriching insight into the specific case of organizations market entry strategy to countries in sub-Saharan Africa, as well as research in the field of strategy and international business.

I would like to thank my academic advisor, Professor Arild Aspelund, at the department of Industrial Economics and Technology Management, for guidance and support. Further, I would like to thank the representatives of the case study companies, which have provided me with valuable information to base my case study on.

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Abstract

This paper addresses organizations use of vanguard projects as a means for organizational learning and knowledge transfer when entering culturally distant markets. Existing research theories on organizational learning and knowledge management have been connected to theories of vanguard projects and illustrated in a research framework. This framework, together with an existing project capability-building (PCB) model, has constituted the theoretical cornerstone of this case study research. A large part of the information gathering has been through case study interviews of three Norwegian renewable energy companies who have had a recent market entry to sub-Saharan Africa (SSA). These interviews have given unique, first-hand information about their practices when entering these markets.

The PCB framework, from where vanguard projects constitute a subset, is a useful tool for comparing and analysing a firm's use of novel base moving projects to search, discover and test new market opportunities. Vanguard projects as applicable entry strategy to culturally distant markets in SSA were identified in the literature study and assessed using interviews as case studies. This link is not previously drawn in theory despite the seemingly good applicability of vanguard project theory for analysing such market entries. Vanguard projects were identified in all three case companies and the PCB framework was proven useful in pinpointing strengths and weaknesses with each company's entry to SSA.

Findings indicate that firms use vanguard projects to learn, create preliminary capabilities and gain the first hand experience needed to make informed judgements and decisions about further investments in culturally distant, emerging markets. These projects can be successful although they fail to deliver tangible results because learning and experience are as important measures of success as time, cost and quality. Knowledge transfer, sharing and creation practices must be in place for firms to capitalize on learning and experience from vanguard projects. First and foremost it must be done from one project to the next in a project-to-project learning phase and then from the projects to the organization. Only when project-to-organization learning has occurred will the company be able to fully exploit previously gained knowledge and experience, and provide the necessary top-down strategic support needed to facilitate a growing number of similar projects. Vanguard projects are costly explorations that rely on future exploitation of knowledge and gained experience in order to be considered fruitful endeavours.

Concrete examples from the case studies show how a shared organizational understanding of cultural and environmental contingencies helps towards achieving the organization-to-project support needed to fully exploit the opportunities in the new market. The discussion in this paper suggests that learning is the most imperative task of any organization's market entry to immature and culturally different emerging markets. Success in these markets is more often a by-product of learning than learning is a by-product of success. Entering Africa requires learning and experience and findings indicates the only viable way of getting that is by trial-and-error through vanguard projects.

Sammendrag

Denne masteroppgaven har studert bruken av "vanguard" prosjekter som verktøy for organisatorisk læring og kunnskapsoverføring ved selskapers direkteinvesteringer (FDI) til land med stor kulturell, administrativ, geografisk og økonomisk avstand. Eksisterende teorier fra organisatorisk læring og kunnskapsledelse har blitt koblet sammen med teorier om "vanguard" prosjekter, og blitt illustrert i et rammeverk. Dette rammeverket har, sammen med et tidligere utviklet "project capability-building" (PCB) rammeverk, utgjort det teoretiske fundamentet i denne oppgaven. En stor del av informasjonsinnsamlingen har vært gjennom case intervjuer med tre Norske fornybar energi- selskaper som alle nylig har gjennomført prosjekter i sørlige Afrika. Intervjuene har bidratt med unik, førstehånds informasjon tilknyttet deres praksis ved ekspansjon til disse markedene.

PCB rammeverket, hvor "vanguard" prosjekter er en undergruppe, er et svært nyttig rammeverk for sammenligning og analyse av selskapers bruk av prosjekter til utforskning og testing av nye markedsmuligheter. Litteraturstudien avslørte at bruken av "vanguard" prosjekter kunne være en nyttig inngangsstrategi for vestlige selskaper ved etablering til det sørlige Afrika. Dette ble videre undersøkt gjennom "case study" intervjuer. "Vanguard" prosjekter og tilknyttede teorier er tilsynelatende svært anvendbare for undersøkelser og analyse av selskapers inngangsstrategi til markeder i sørlige Afrika, en koblingen som ikke har blitt brukt i tidligere publikasjoner og vitenskapelige rapporter. Bruken av slike "vanguard" prosjekter ble identifisert i samtlige tre selskaper og PCB rammeverket viste seg å være svært nyttig ved analyse av styrker og svakheter i hvert enkelt tilfelle.

Resultatene indikerer at selskaper bruker "vanguard" prosjekter til å lære, utvikle innledende egenskaper og tilegne seg den førstehånds erfaringen som trengs for å gjøre informerte vurdering og ta gode beslutninger angående nye investeringer i "emerging markets". Rutiner for overføring, deling og utvikling av kunnskap må være tilstede for at selskaper skal være i stand til å utnytte læring og erfaringer fra vanguard prosjekter. Først og fremst mellom prosjekter gjennom en prosjekt-til-prosjekt læringsfase, deretter fra prosjektene til organisasjonen. Først når prosjekt-til-organisasjon læring har forekommet vil organisasjonen være i stand til å fullt ut utnytte den kunnskapen og de erfaringene den har tilegnet seg, og dermed være i stand til å levere den nødvendige strategiske støtten som trengs for å levere et økende antall tilsvarende prosjekter.

Konkrete eksempler fra intervjuene viser hvordan en felles organisatorisk forståelse av kulturelle og markedsspesifikke faktorer ved det nye markedet øker graden av organisasjon-til-prosjekt støtte som trengs for å utnytte de nye mulighetene fullt ut. Denne oppgaven argumenterer for at læring er den viktigste aktiviteten i en organisasjons ekspansjon til underutviklede, mindre stabile og kulturelt forskjellige "emerging markets". Suksess i disse markedene er oftere et biprodukt av god læring enn læring er et biprodukt av suksess. Direkteinvesteringer (FDI) til Afrika avhenger av læring og erfaringer og empiriske resultater viser at den eneste virkelige måten å tilegne seg dette på er gjennom direkte aktivitet og erfaringsbygging fra gjennomføring av "vanguard" prosjekter.

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List of Abbreviations

AC	Absorptive Capacity
DC	Dynamic Capabilities
EPC	Engineering, Procurement and Construction
HV	Hybrid Vehicle
IFC	International Finance Corporation
KC	Knowledge Creation
KM	Knowledge Management
KT	Knowledge Transfer
LHPC	Lunsemfwa Hydropower Company
OL	Organizational Learning
OM	Organizational Memory
PBL	Project Based Learning
PCB	Project Capability-Building Model
PM	Project Management
PV	Photo Voltaic
R & D	Research and Development
SA	South Africa
SSA	Sub-Saharan Africa
VP	Vanguard Project

1. Introduction

This paper investigates how firms use pioneer projects, or vanguard projects as means for organizational learning and knowledge transfer when entering foreign markets. A successful vanguard project can generate learning and create preliminary capabilities and experience needed to make informed judgements and decisions about further investments in emerging markets. The ability to learn from current operations and projects, and build capabilities based on these experiences, is vital for firms to evolve and improve (Williams, 2008).

A firm's chance for success in a new market is determined by its resource base (Barney, 1991), the attractiveness of the market (Porter, 1985), their value chain (Porter, 1985) and their value network (Stabell and Fjeldstad, 1998). Knowledge from experience is a strong common denominator in these frameworks. From Barney's (1991) resource base theory, knowledge and organizational capabilities have emerged as the most strategically significant resources of the firm (Grant, 1996). The turbulence of today's business environment has rendered knowledge management and organizational learning the dominant sources for developing sustainable competitive advantage (Argote and Ingram, 2000, Lyles and Salk, 1996, Berdrow and Lane, 2003). In a survey of 178 foreign firms operating in China, Luo (1999) found that knowledge of the local environment possessed by the questioned firms had significant impact on the financial returns and overall performance.

Although researchers tends to agree that the key resources of a firm are the knowledge and capabilities it possesses, there are several theories on how firms should develop/create, acquire/transfer, store and retrieve such knowledge and capabilities. According to Brady and Davies (2004), Frederiksen and Davies (2008) an increasing number of firms are using project structures to acquire and develop knowledge and experience from new technology, new products or new markets. These projects are often conducted by joint venture firms or through various forms of strategic alliances between two or many firms. When such arrangements involve companies and persons from different environments, the diversity of organizational and national culture make knowledge transfer a highly complex task (Easterby-Smith et al., 2008). *"Unless the experience gained from one project is transmitted to subsequent projects, learning may be dissipated and the same mistakes repeated"* (Middleton, 1967, p.81). Researchers are therefore finding growing evidence that the organizational learning processes itself can serve as a strong competitive advantage to a firm (Degeus, 1988).

A vanguard project refers to a *"first-of-its kind project, launched in a deliberate effort to move away from a firm's core business activity and venture into a new market or technology base"* (Frederiksen and Davies, 2008). They are often used as the initial stage of a long term internationalization plan, where the need to generate learning, information and the creation of new knowledge often are as important measures of success as traditional financial goals. This paper argues that vanguard projects are highly relevant for firms seeking to explore emerging markets. Emerging economy

context challenges some of the theories and knowledge created and acquired in developed economies, and the heterogeneity among different emerging economies makes generalization hard and the need for context specific knowledge and experience vital (Xu and Meyer, 2012, Wright et al., 2005). The variation in culture, language, institutions, government, and the individual set of problems associated with different emerging markets, implies that most entries into these markets can be considered as first-of-its-kind or vanguard projects. While normal projects mainly focus on efforts to improve efficiency, vanguard projects are set up with learning, transfer of knowledge and gaining of experience as important parameters to measure success.

Brady and Davies (2004) introduced a project capability-building model illustrating the gradual shift from exploration focus to exploitation focus in project-based learning. Bottom-up learning from experiences made in vanguard projects coexist with the top-down learning of developing routines and procedures to better capture the knowledge and experience gained from projects, and incorporate it to the organizational memory. A vanguard project can be recognised as an entrepreneurial venture to reduce uncertainty through the gathering of information and experience to enable more informed judgement and decisions regarding further expansion into a new market base (Frederiksen and Davies, 2008).

This paper is building on the framework developed by Brady and Davies (2004) and applying it on entrepreneurial/base moving ventures as suggested by Frederiksen and Davies (2008). The empirical investigation covers the learning process and knowledge transfer of Norwegian power producers exploring the large potential within the renewable energy sector in sub-Saharan Africa. Several Norwegian renewable energy companies have lately introduced their first project in Africa, and their experience and learning from these projects are important decisive factors regarding further expansion to the continent. Norwegian company Scatec Solar is currently developing a 75 MW, 1.5 billion NOK solar plant in South Africa. Organizational learning through this first ever project in Africa is according to CEO of Scatec, Alf Bjørseth (2012), a important strategic goal. Organizational capabilities created from this project will define how Scatec performs in successive projects in Africa. Companies like TrønderEnergi and Aqua Imara have also recently developed their first renewable energy projects in Africa, respectively in Uganda and Zambia. These projects were also set out to create a base for further expansion to Africa. It is hence believed that Scatec Solar, Agua Imara and TrønderEnergi are conducting vanguard projects as the first step in a larger internationalization plan to sub-Saharan Africa.

Sub-Saharan Africa was considered a highly relevant region due to its predicted growth and increase in foreign direct investment in the coming years (BCG, 2010, Invest AD, 2012, McKinsey, 2010a, Ernst & Young, 2011b). However, limited access to electric power represents a significant barrier for growth (WWF, 2012), and investments in renewable energy sources across the region are hence met with great political support (UNEP, 2012, Barth Eide, 2012) and financial support (Norad, 2012). The findings in this paper should therefore be relevant for both researchers and organizations.

1.1 Statement of the Problem

The objective of this case study research is to identify the use of vanguard projects as a tool for organizational learning and knowledge transfer in culturally distant markets. A distant market refers to psychological distance, which encapsulates cultural, administrative, geographic and economic distance, elaborated in appendix 2 (Ghemawat, 2011). Africa as context for the case study is relevant as there seems to be consensus among several of the world's excellent think tanks that Africa is a place with a bright and prodigious future (BCG, 2010, McKinsey, 2010a, Ernst & Young, 2011b, A.T. Kearney, 2012, Invest AD, 2012). Norway has a comparative advantage to other nations in renewable energy (Barth Eide, 2012) and the UN Secretary-General Ban Ki-moon (2012) was recently quoted "*Sustainable energy is the golden thread that connects economic growth, social equity, and a climate and environment that enables the world to thrive*". This statement represents the increased focus on renewable energy in the world, especially in Africa where more than 500 million people live without access to electricity (WorldBank, 2012). Access to sustainable energy is essential in achieving the UN Millennium Development Goals (Norad, 2012). It has therefore become a strong target in Norwegian foreign policy and aid policy to provide the necessary financing and support to Norwegian power producers expanding into emerging markets, making this research paper highly relevant for companies, as well as researchers.

A hypothesis was created in order to define the direction and goal of this exploratory case study. The hypothesis and the following research questions will guide the theoretical search, as well as the empirical data collection. The success of this case study research depends on the answers provided to the following hypothesis and research questions. This paper is based on the following hypothesis:

Organizations use vanguard projects to learn, create preliminary capabilities and gain the first hand experience needed to make informed judgements and decisions about further investments in culturally distant, emerging markets.

To elaborate on this hypothesis the following three questions are asked:

- 1) How is a vanguard project set up and how does it differ from normal projects?***
- 2) How can a vanguard project facilitate learning, capability building and experience expansion in culturally distant markets?***
- 3) How can organizations exploit the learning, knowledge and experience gained through conducting vanguard projects to support successive base moving projects?***

A structured case study approach is used to answer these questions, interviewing firms involved in energy projects in sub-Saharan Africa. The theoretical background consists of knowledge management theory, organizational learning theory, project learning/management theory and vanguard project/project capability-building theory.

1.2 Structure of the Paper

The dramatic increase in research on learning and knowledge (Easterby-Smith and Lyles, 2011a) has created a jungle of overlapping terms and definitions. In order to simplify and create consistence throughout this paper, a limitation has been made to cover organizational learning theory (process) and knowledge management theory (content), further elaborated in section 2.4. These two lines of research, together with general project management theory and recent theories on vanguard projects constitute the *theoretical framework*, covered in section 2.

Section 3 describes the *methodology*, research method and design. Pre-study reasoning behind, and post-study evaluation of, the choice of research method is presented. Section 4 describes the *case companies* and the context of this study. Section 5 is devoted to the empirical *findings*. In section 6 these findings are *discussed* and *implications* made. Section 7 *concludes* the paper and *references* are listed alphabetically in section 8 and *appendix* material placed in section 9.

2. Theoretical Framework

This section is meant to clarify theoretical confusion and create the theoretical framework needed to investigate and discuss the use of vanguard projects as a tool for organizational learning, knowledge transfer and capability building in organizations entry to culturally distant markets. Two fields of research have been selected as the main areas of interest in addition to *vanguard project theory*, namely, *organizational learning* (OL) and *knowledge management* (KM) theory. Subsections of each cover other relevant theoretical concepts such as knowledge transfer (KT), knowledge creation (KC), organizational memory (OM), dynamic capabilities (DC) and absorptive capacity (AC). Finally, projects are devoted a chapter covering project management (PM), project-based learning (PBL) and project capability-building (PCB) theory. All of the above concepts are presented limited to the subjective scope of this paper. The final section of this chapter links the different theoretical concepts together and introduces a “summarizing”, research framework (figure 16) relating them to each other.

2.1 Organizational Learning

Organizational learning is considered one of the fundamental sources of competitive advantage within the context of strategic management (Lyles and Salk, 1996, López et al., 2005, Berdrow and Lane, 2003). A study by López et al. (2005) found that “*OL contributes positively both to innovation and competitiveness and to economic/financial results*”. Researchers have studied OL since the early 1980’s, and a diversity of perspectives have been used to look at OL issues (Wang and Ahmed, 2003). This paper will comply with the definition by López et al. (2005): “*OL is the dynamic process of creation, acquisition, and integration of knowledge aimed at the development of resources and capabilities that contribute to better organizational performance*”. In an extensive review of empirical research on the field of performance outcome of OL and past experience, Bapuji and Crossan (2004) found that “*firms learn from their past experience, leading to performance improvement*” and Argote et al. (2011) stated that “*OL is a process through which organizations interpret their experience, which can enable them to improve their performance and adapt to their environment*”. OL establishes a link between the organization and the environment that encourages proactive rather than reactive behaviour (López et al., 2005). Knowledge gained through OL implies an improvement in response capacity through a broader understanding of the environment (Dodgson, 1993).

A learning organization is founded on the learning process of the individuals in the organization. It all stems from the individuals, but individual learning do not necessarily lead to OL. “*It is the task of the learning organization to integrate individual learning into organizational learning*”. (Wang and Ahmed, 2003) To elaborate on the definition of organizational learning from López et al. (2005), organizational learning happens “*if any of its units acquire knowledge that it recognizes as potentially useful to the organization*” (Huber, 1991). It is therefore not given, that the organization will change or becomes more efficient as a result of OL, although that is the objective behind it.

2.1.1 Subsections of Organizational Learning

In order to structure the extensive literature on OL, this paper will adapt the four subsections or phases of OL developed by Huber (1991). The same four sections (figure 1) were identified by López et al. (2005) in a more recent literature review.

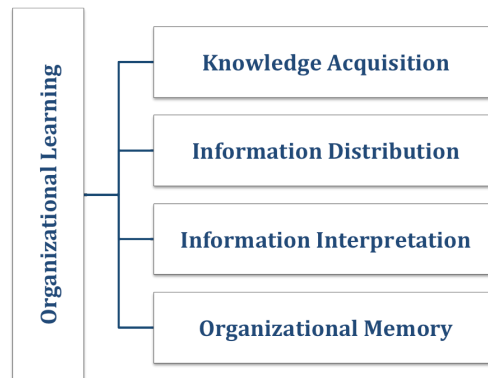


Figure 1: Subsections of Organizational Learning (Huber, 1991, p.90).

Knowledge acquisition, information distribution, information interpretation and organizational memory are all subsections of the organizational learning research. Most studies of organizational learning have been concerned with the acquisition of knowledge and, to a lesser extent, with the sharing or distribution of the acquired knowledge (López et al., 2005).

Knowledge Acquisition

Organizational learning starts with *knowledge acquisition* as the first step towards achieving new firm capabilities. Firms often have various formal activities that are intended to acquire information or knowledge. Customer surveys, research and development, market reports and competition analysis are all good examples. There is however more to knowledge acquisition than the formal processes. Huber (1991) lists the following five processes through which organizations acquire information or knowledge: (1) congenital learning, (2) experiential learning, (3) vicarious learning, (4) grafting, and (5) searching.

Congenital Learning

What an organization knows at its birth will determine what it searches for, what it experiences, and how it interprets what it encounters (Huber, 1991). The *congenital knowledge* is a combination of the knowledge inherited at its conception and the additional knowledge acquired by its creators prior to its birth. Researchers agree that congenital knowledge strongly affect future learning, and must not be neglected when the objective is to gain full understanding of a firms organizational learning processes.

Experimental Learning

After being established, organizations acquire some of their knowledge through direct experience (Huber, 1991). Experimental learning is highly relevant in the growing field of *project-based learning* (Williams, 2008, Beaume et al., 2009), *vanguard projects* (Frederiksen and Davies, 2008, Brady and Davies, 2004) and other literature on firm activities with *learning-by-doing* (Davies and Brady, 2000) as the strategic reasoning behind them. *Organizational experiments* are one source of experimental learning where firms test a new product, market or business model on a level so small that failing is among the accepted options. The trial may not lead to success in terms of moving the

firm into a new base, although it may generate useful knowledge for future projects or operations (Frederiksen and Davies, 2008). Some researchers argue that firms should find themselves in a continuous game of experimenting and changing structures, domains and goals in order to cope with the fast changing and unpredictable business environments (Huber, 1991). “The vast majority of research on organizational experience adapts a learning-curve perspective that predicts positive returns to experience” (Haleblian and Finkelstein, 1999, p.29). Most of these studies are however conducted on manufacturing organizations where gaining of experience is linked to decrease in unit cost. Interesting findings in Haleblian and Finkelstein (1999) indicate that experience can have a U-shaped impact on organizational performance. By investigating the impact of acquisition experience of a firm’s success in future acquisition, they developed a two-by-two matrix (figure 2) to illustrate their findings.

		Antecedent Condition	
		Similar Experience	Dissimilar Experience
Organizational Behaviour	Organizational Response: Generalization	Appropriate Generalization (positive)	Inappropriate Generalization (negative)
	Organizational Response: Discrimination	Inappropriate Discrimination (neutral)	Appropriate Discrimination (neutral)

Figure 2: Experience related outcomes (Haleblian and Finkelstein, 1999)

Figure 2 illustrates that the experience gained from one strategic event must be carefully used to build generalizations for future strategic events. As oppose to the learning- curve theory, Haleblian and Finkelstein (1999) found that experience may have a negative impact on performance. Experience has a negative effect (red square) on performance if generalizations are made from dissimilar events. However, generalizations built on similar experience are found to have a positive effect (green square) on performance. By discriminating events and avoid using previous gained experience firms reduce the risk of negatively impacting the performance, while also losing the chance to build on experience and gain a positive impact on performance. From the findings of Haleblian and Finkelstein (1999) it becomes evident that knowledge of how to use organizational experience is a key capability to the firm. For example, what degree of generalization or discrimination of previously gained experience is most beneficial?

Vicarious Learning

Vicarious learning occurs when organizations attempt to acquire second-hand experience or learn about the strategies, administrative practices, and especially technologies of other firms. This form of learning is mainly relevant when technologies are poorly understood and when goals are ambiguous. In today’s highly competitive and fast changing environment, mimicry is not considered very efficacious. (Huber, 1991)

Grafting

Organizations often increase their knowledge by acquiring and grafting new members who possess the specific knowledge needed (Huber, 1991). Grafting is often used when

complex knowledge is needed quickly and there is no time to build relevant knowledge and experience within the organization.

Searching

This type of organizational information acquisition is done by either scanning the external environment for change, conducting a focused search in a narrow segment of the organizations internal or external environment or by monitoring the organizational performance (Huber, 1991). The rationale behind *searching* in knowledge acquisition is to monitor performance according to certain standards, both external and internal, to make sure that action can be taken before the distance become so great and the change too costly (Huber, 1991).

These categories of knowledge acquisition by Huber (1991) are useful in getting a general idea of how and from where knowledge may enter an organization. But transferring knowledge is not a easy task as it also includes the ability to recognize the value of the acquired external knowledge, assimilate it, and also apply it in a way that improves the current operations of the firm (Wijk et al., 2011). More about knowledge transfer and especially absorptive capacity will follow in section 2.2.3.

Information Distribution

Considering that most organizations do not know what they know, or who knows what, it becomes clear that *information distribution* is equally important a subsection of organizational learning as the knowledge acquisition itself (Pentland, 1995). "*When information is widely distributed in an organization, so that more and more varied sources for it exists, retrieval efforts are more likely to succeed and individuals and units are more likely to be able to learn*" (Huber, 1991, p.100). It is important that organizational units with potentially synergistic information are aware of where such information could serve, so that the knowledge or information is routed to these destinations (Huber, 1991). Computer-based information systems are playing a large role in managing and distributing information and explicit knowledge (Pentland, 1995). How organizations and individuals use IT for information distribution and information storage is widely covered by researchers (Nevo and Wand, 2005, Stein and Zwass, 1995) and will not be further elaborated in this paper.

Information Interpretation

López et al. (2005) defines *information interpretation* as "*how individuals share and incorporate aspects of their knowledge, which are not common to all of them, achieving a shared understanding as well as co-ordination in decision-making*". A variety of interpretations from the same knowledge is assumed to be a sign of learning because "*such development changes the range of the organizations potential behaviors, and this is congruent with the definition of learning*" (Huber, 1991). A variety of interpretations among different individuals or departments in a organization can either enhance cooperation and thus increase the range of potential actions, or inhibit cooperation and leave the organization with less potential options for action (Huber, 1991). Learning has occurred when cognitive theories created by interpretation is put into action (Hedberg, 1981).

Daft and Weick (1984) developed a model (figure 3) to explain the different interpretation categories a firm can be defined after. It is based on the idea that firms

can vary in their *beliefs* about the environment and the *intrusiveness* of their approach. The organization can assume that the environment is *analyzable*; that answers for specific questions are out there and ready to be collected and interpreted. Or they can assume that the environment is *unanalyzable*; that a projection of the external environment must be created from previous actions and experience and interpretation must be build on this projection. The intrusiveness of the organization is decided by how the organization goes about seeking information in the environment. A *passive approach* is taken if the organization accepts whatever information the environment gives them. These organizations do not participate in trial and error. Organizations taking an *active approach* will dive into the environment and actively seek answers through trial and error. (Daft and Weick, 1984)

Assumption About the Environment	Unanalysable	<p>Undirected Viewing <i>Constrained interpretations. Non-routine, informal data. Hunch rumour, chance, opportunities</i></p>	<p>Enacting <i>Experimentation, testing, coercion, invent environment. Learn by doing</i></p>
	Analysable	<p>Conditioned Viewing <i>Interprets within traditional boundaries. Passive detection. Routine, formal data.</i></p>	<p>Discovering <i>Formal search. Questioning, surveys, data gathering. Active detection.</i></p>
		Passive	Active
		Organizational Intrusiveness	

Figure 3: Information Interpretation Model (Daft and Weick, 1984)

Figure 3 is used to categorize the type of information gathered by firms in order to create a few general interpretation guidelines. *Undirected Viewing organizations* are likely to have a large degree of equivocal¹ information and will hence need few formal rules for interpretation in the organization and rather rely on numerous cycles of discussion among management before a common interpretation is created. *Enacting organizations* are also likely to experience a high degree of equivocal information, but the equivocality is reduced due to the active actions taken to see what works, rather than passively interpreting the information. Enacting organizations also need less rules and cycles in order to create a shared interpretation. Information equivocality is generally lower in *condition viewing* and *discovering organizations* as the information is analyzable and a common agreement on its implication is easier to achieve. Condition viewing organizations are likely to have numerous rules for how the analyzable information should be interpreted. Fewer cycles are needed as the information is assumed to leave little room for equivocality. The discovering organization is also assumed to need many rules for interpretation, alongside a few cycles to help resolve the equivocality in interpreting the success of a taken initiative. Although the equivocality of the information is low for discovering organization, there might exist equivocality in whether the information from an initiative is regarded as positive or negative. (Daft and Weick, 1984)

¹ Equivocal information is information that is unclear and opens for numerous interpretations (Daft and

Organizations who conduct vanguard projects after the definition by Frederiksen and Davies (2008) will be categorized under enacting organizations. The vanguard project is set up to learn actively about an unanalyzable new market. Organizations are likely to get exposed to equivocal information when entering a new and culturally distant market. This equivocality is however likely to be reduced significantly by conducting a vanguard project prior to full market entry (Daft and Weick, 1984).

The ambiguous events and equivocal information surrounding an organization creates a need for a good interpretation process. Efficient interpretation helps provide meaning and direction for the participants in the organization. (Daft and Weick, 1984) *"Almost all outcomes in terms of organizational structure and design, whether caused by the environment, technology or size, depend on the interpretation of problems or opportunities by key decision makers"* (Daft and Weick, 1984, p.293). When information is interpreted it leads to action, or the absence of action. In either case it becomes part of the organizational memory.

Organizational Memory

"Although organizational learning occurs through individuals, it would be a mistake to conclude that OL is nothing but the cumulative result of their members learning. Members come and go, and leadership changes, but organizations memories preserve certain behaviours, mental maps, norms and values over time" (Hedberg, 1981). The individual activities of cognitive knowledge acquisition in organizations reflect an active construction of memory. As mentioned in the previous section, the interpretation of problems and solutions vary between individuals. The thread of coherence that characterizes organizational interpretation as oppose to individual interpretation is made possible by the sharing of interpretations within the organisation (Walsh and Ungson, 1991). Thus, through this process of sharing, the organizational interpretation system mentioned in the previous section in part transcends the individual level. This is why organizations may preserve knowledge of the past events even when key organizational members leave (Weick and Gilfillan, 1971). Organizational memory is a generic concept used to describe saving, representing, and sharing of corporate knowledge (Walsh and Ungson, 1991). By the definition of OM it provides information that reduces transaction cost, contributes to effective and efficient decision making, and is a basis for power within organizations (Croasdell, 2001). In short tacit organizational knowledge is embodied in well-defined routines, structures and the organizational culture and stored in the OM (Frederiksen and Davies, 2008). Organizations remember by exercising their routines and acting according to their culture.

Information about routines, interpretation processes, decisions made and problems solved forms the core of an organizations memory over time (Walsh and Ungson, 1991). Walsh and Ungson (1991) argue that it is *"theoretically possible for some, if not all, information relating to a decision stimulus and response to be part of an organizations memory"*. Such memory generally resides in different retainers in the organization and organizations members retrieve its content based on their work needs (Walsh and Ungson, 1991).

Figure 4 illustrates the structure of organizational memory and the different retention facilities developed by Walsh and Ungson (1991).

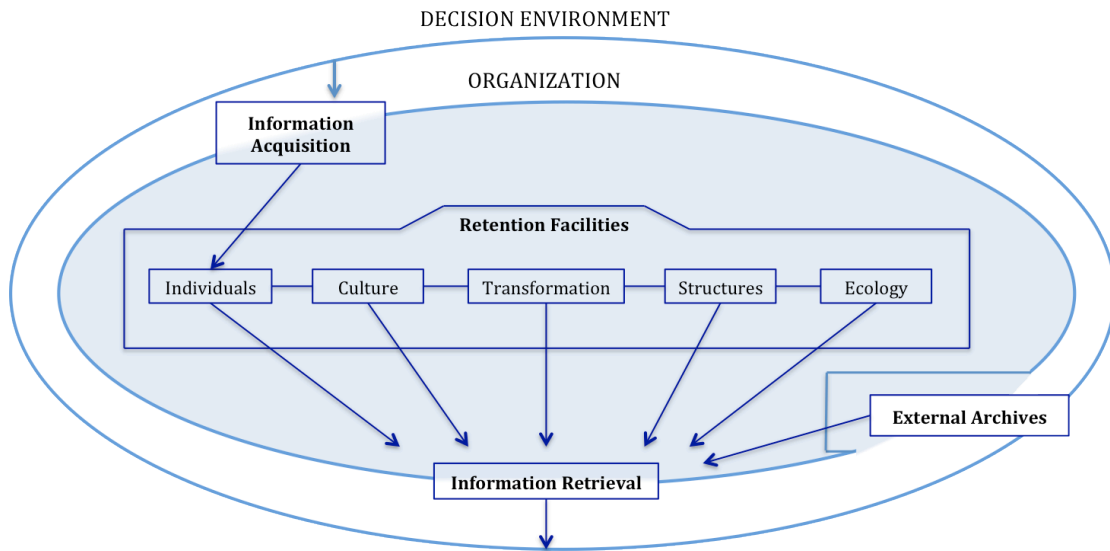


Figure 4: The Structure of Organizational Memory (Walsh and Ungson, 1991)

The structure of organizational memory (figure 4) consists of five storage bins or retention facilities that compose the structure of memory within organizations and one source outside of the organization (Walsh and Ungson, 1991). Individuals in the organization acquire information from the *decision environment*. When the information is acquired it becomes stored in the other retention facilities. The following subsections will elaborate on the elements of figure 4, but limit the explanations to fit the scope of this paper.

Information Acquisition

Information that may be acquired about a particular decision stimulus and organizational response include the six related questions, *who, what, when, where, and how*. Together they constitute the organizational memory. It is argued that the answer to these questions is not stored centrally, but can be found across different parts of an organization (retention facilities), and can hence be known discretely. (Walsh and Ungson, 1991)

Individuals

Individuals in an organization retain information based on their own direct experiences and observations. Briefly, they store their own version of the organizational memory in their own capacity to remember and articulate experience and in the cognitive orientation they employ to facilitate information processing. In addition, organizations and individuals keep records and files as a memory aid. (Walsh and Ungson, 1991) Organizations only acquire information through their individuals, and all the other retainers store information based on this acquisition.

Culture

Organizational culture is a learned way of perceiving, thinking, and feeling about problems that is transmitted to members in their organization (Schein, 1984). “*Culture (1) is always in the process of formation and change; (2) tends to cover all aspects of human functioning; (3) is learned around the major issues of external adaption and internal integration, and (4) is ultimately embodied as an interrelated, patterned set of*

basic assumptions that deal with ultimate issues, such as the nature of humanity, human relationships, time, space and the nature of reality and truth itself (Schein, 1984). Most parts of an organization can be replicated, but the culture is unique and impossible to replicate. It is built over time and embedded deeply within the organization. Culture embodies past experience that can be useful for dealing with the future (Walsh and Ungson, 1991). It involves language, shared frameworks, symbols, stories, and the grapevine (Walsh and Ungson, 1991). Due to the mentioned points it becomes clear that culture constitutes an important aspect of the organizational retention facility.

Transformations

Information is embedded in the many transformations that occur in organizations. Any logic that guides the transformation of an input (raw material, employees, projects) to an output is embodied in these transformations. Useful information about previous operations/processes are preserved in procedures, rules and formalized systems and contributes to the organizational memory. (Walsh and Ungson, 1991)

Structures

“Organizational structure must be considered in light of its implications for individual role behavior and its link with the environment” (Walsh and Ungson, 1991). The structure and distribution of roles provide a good repository in which organizational information can be stored. With structure comes rules, and these rules represent formal and informal codifications of “correct” behavior that is conditioned by consensual agreement among the participants. All of which contributes to the organizational memory. (Walsh and Ungson, 1991)

Ecology

“The actual physical structure or workplace ecology of an organization encodes and thus reveals a good deal of information about the organization. As a consequence, the workplace ecology helps shape and reinforce behavior prescriptions within an organization.” (Walsh and Ungson, 1991) The workplace ecology is shaped by the past, and shapes the future and is thus part of the organizational memory.

External Archives

External actors following organizations actions are numerous. Sources for organizational memory outside the organizations are therefore easily found. Former employees retain a great deal of information about an organization (Walsh and Ungson, 1991). Several others in an organizations environment work to uncover and record its action and performance. Competitors, government bodies, financial institutions and news media are using large resources on monitoring surrounding organizations. Altogether they constitute the external archives from where retention of previous organizational action can be found (Walsh and Ungson, 1991).

Information Retrieval

The previous sections explain where the organizational memory is stored in an organization. From these sources information about past events can be retrieved to help the organization build on previous learning. The important learning of “why” something happened can only be stored and retained by individuals, either through individual memory, collective memory by a group of individuals or through the culture created by the individuals with a shared interpretation of why a decision was made (Walsh and Ungson, 1991). Whereas information about the *effect* of a specific cause can be found along all the retention facilities in figure 4, the information about a specific *cause* can only be found in the individuals or in their enclosing culture (Walsh and Ungson, 1991).

This rather extensive explanation of organizational memory is important to understand how organizations learn, and why there is more to organizational learning than the combined learning by its individuals. People come and go in organizations, but the organizational identity is stored in its memory, and is hence maintained despite individual turnover (Hedberg, 1981, Schein, 1984).

Organizational memory rounds up this section on organizational learning. In short this section covered Huber's (1991) four OL processes: acquisition, distribution, interpretation and memory. From acquisition, several sources of information and knowledge were listed. The important distinction between appropriate generalization and inappropriate generalization when exploiting experience was explained and illustrated in figure 2. Distribution was briefly explained and the different interpretation patterns by Daft and Weick (1984) were illustrated in figure 2. The last sub section introduced the retention facilities by Walsh and Ungson (1991), where knowledge is stored and retrieved from within organizations. All together section 2.1 explains the processes involved in organizational learning. A more technical approach to the actual knowledge content is covered in section 2.2, knowledge management.

2.2 Knowledge Management

Organizational learning as a term has been around for decades, whereas *knowledge management* (KM) is relatively new. Especially with the emergence of information technology, researchers and consulting firms started creating the idea of KM as a key to competitive advantage. Early pioneers for this view were Nonaka and Takeuchi (1995) with their book about *knowledge creating companies*. KM in research has mainly been related to the use of IT to leverage knowledge as a resource for the firm. Where OL theories often focus on *process*, KM theories are more about *content*. It is however, widely recognized that the terms KM and OL have started converging into two sides of the same coin. *"KM is still led by technologists and employs the language of economics, whereas scholars with a human resource orientation dominate OL. But there is growing recognition that the two communities share similar underlying concepts and problems, even though they may still be using somewhat different language to express these issues."* (Easterby-Smith et al., 2000)

Although the practical use of OL and KM in organizations is more or less the same, there is a slight difference when it comes to research on the field. One way of conceptualizing the difference is to think of OL as the overall goal of good KM. *"By motivating the creation, dissemination and application of knowledge, KM initiatives pay off by helping the organization embed knowledge into organizational processes so that it can continuously improve its practices and behaviours and pursue the achievement of its goals (King et al., 2008)."* From such a perspective, organizational learning is considered one way in which the organization can sustainably improve its utilization of knowledge. Understanding KM concepts is therefore important in order to fully grasp the ideas of OL and vice versa.

2.2.1 Knowledge Definition

The emergence of knowledge management, and especially the IT driven research on knowledge transfer, has improved and clarified the terms used in both OL and KM. Data, information and knowledge are related concepts, but not synonymous. According to Davenport and Prusak (1998) it is important to differentiate between the three concepts; *“It’s critical for organizational success to know which of them you need, which you have, and what you can and can’t do with each”*.

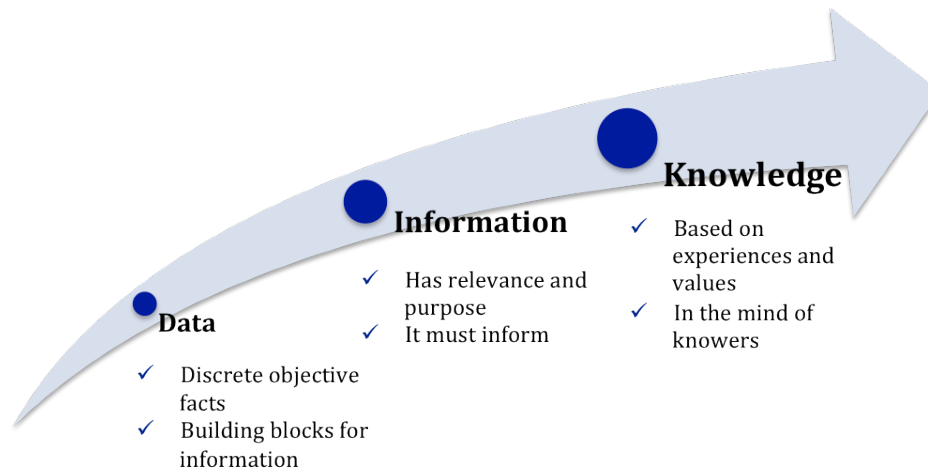


Figure 5: Data, Information, and Knowledge (Davenport and Prusak, 1998).

Data is the simplest form of intellectual capital and can be as simple as a digit or a letter. It will only impart meaning to the reader if it is put in a specific context. Data is often stored in databases and retrieved using special software. Information is data linked to a specific context. When data is given a context, it becomes information with a meaning. (Davenport and Prusak, 1998) Information becomes knowledge when it is combined with experience, context, interpretation and reflection (Davenport and Prusak, 1998). It is a high value form of information that is ready to be applied to decisions and actions (Davenport and Prusak, 1998). Unlike data and information, knowledge depend on individuals and focuses on activities not codification. The transformation from information to knowledge involves human interaction through one of the following activities (Davenport and Prusak, 1998):

- Comparing: different pieces of information
- Consequences: contemplating the implication of pieces of information
- Connections: relating information/knowledge to other pieces of information/knowledge
- Conversation: exchanging pieces of information/knowledge with other people

Knowledge can be difficult to grasp, especially in complex projects where different types of knowledge exist. Brady et al. (2002) found it useful to distinguish between technical-, process-, strategic-, and social knowledge practices. Technical knowledge involves the *know what* of projects, typically the engineering/technical skills. Process knowledge

involves knowledge about how to perform the different project activities - it is the *know how* of projects. Strategic knowledge is concerned with the overall execution of the project and its relation to the organization and to other projects - it is the *know why* of projects. The last category is social knowledge - it is the *know who* in projects and involves knowledge about who to turn to for advice or where tacit knowledge can be found. Social knowledge also includes participation in social networks, or knowledge pools. (Brady et al., 2002)

2.2.2 Organizational Knowledge Creation

Knowledge acquisition (KA) was covered in section 2.2.1 as part of the OL theory. *Congenital learning, experimental learning, vicarious learning, grafting* and *searching* were listed as different sources for knowledge acquisition. The shared denominator of these “categories” is the common focus on the individuals and the processes within the firm. *Knowledge creation* (KC) is in many ways the equivalent of KA, only building on more technical views that are typical of KM theory. It is, however, important to conceptualize theories from this line of research in order to fully understand if and how organizations learn from projects.

Knowledge creation theory stems from a widely cited and acknowledged book by Nonaka and Takeuchi (1995), “*The Knowledge-Creating Company*”. The book mentions four modes of *knowledge conversion* and a *knowledge spiral* as key elements in knowledge creation. Understanding important concepts like *tacit* and *explicit* knowledge, created by Michael Polanyi in 1996, are essential in order to make sense of modern knowledge theory. Michael Polanyi argued that human knowledge could be divided by these two concepts based on the following characteristics: Explicit knowledge is knowledge that can be codified and transmitted in formal systematic language, hence easily shared. Tacit knowledge, on the other hand, is more difficult to communicate. Tacit knowledge is personal and context specific, often embedded in routines, habits and the culture in which we operate.

Nonaka and Takeuchi (1995) argue that organizational knowledge is created through the interaction and transformation between tacit and explicit knowledge. According to them there are four different interactions (figure 6), (1) *Socialization*, (2) *Externalization*, (3) *Combination*, and (4) *Internalization*. Organizational knowledge is created when individual knowledge is converged in the organization.

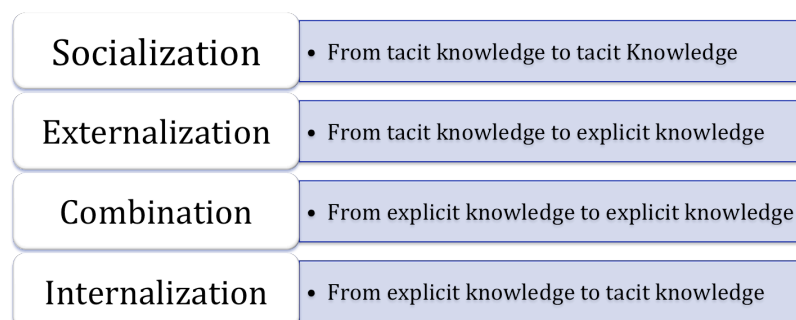


Figure 6: Knowledge creation through conversions (Nonaka and Takeuchi, 1995).

“These modes are the mechanisms by which individual knowledge gets articulated and “amplified” into and throughout the organization” (Nonaka and Takeuchi, 1995). The authors argue that the conversion of tacit knowledge to explicit knowledge is the most crucial organizational and inter-organizational method of knowledge creation.

Socialization is the process where tacit knowledge can be shared with another person through dialogue, observation, imitation or guidance. In addition to learning or transfer of knowledge from one person to another, socialization can also boost the creation of new knowledge through combined perspectives of groups working together.

Externalization is the process of removing the knowledge from the individual. Vague metaphorical dialogue and thoughts or non-conceptual observations are turned into explicit knowledge that becomes external to the subject. Examples are when tacit knowledge is formulized in computer databases, service manuals or visual assembly guides. After explicit knowledge has been created, it can be refined further.

Combination is the process of systemizing concepts into a knowledge system and combining different kinds of explicit knowledge. It is the conversion of explicit knowledge into some other explicit knowledge. Sorting, adding and combining different explicit knowledge are all part of this conversion.

Internalization is the final mode of knowledge processing. It is the counterpart of socialization and refers to the successful transfer of knowledge from a book or database to another person. Creating tacit knowledge from explicit knowledge sources is closely related to “learning by doing”. For explicit knowledge to become tacit it helps if it is codified in a common recognizable form such as documents, diagrams and manuals. (Nonaka and Takeuchi, 1995)

Knowledge is created and stored by the individuals in an organization, but sharing of knowledge can be done through socialization. For individual knowledge creation to become organizational knowledge creation, it is important that it is passed on to the rest of the organization more efficiently. This is done through the externalization process. Knowledge converged from tacit to explicit can efficiently be distributed widely in the organization and new knowledge can be created in the following conversions, combination and internalization. This *knowledge spiral* is illustrated in figure 7. (Nonaka and Takeuchi, 1995)

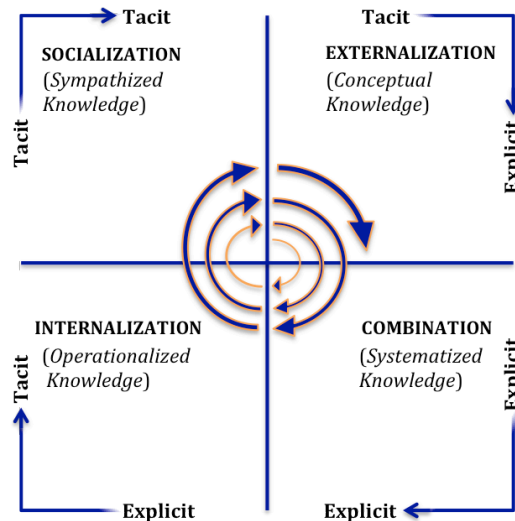


Figure 7: Knowledge Spiral. Adapted from Nonaka and Takeuchi (1995)

Knowledge, normally created on the individual level is transformed into other types of knowledge by the four modes of knowledge conversion and amplified throughout the organization in an ongoing knowledge-creating spiral (figure 7) (Nonaka and Takeuchi, 1995).

2.2.3 Organizational Knowledge Transfer.

“Empirical data over the last 20 years show that a firm may significantly improve its knowledge and innovative capabilities by leveraging the skills of others through the transfer of knowledge both within and across firms” (Easterby-Smith et al., 2008, p.677). Valuable, relevant knowledge is often located outside the organizational boundaries and the ability of organizations and their units to acquire knowledge from external constituents has become a critical capability (Wijk et al., 2011). Knowledge transfer can be defined as *“the communication of knowledge from a source so that it is learned and applied by a recipient”*. Although the concept is simple, the execution in organizational settings is not. (Alavi and Denford, 2011) This is because organizations often lack the understanding of what they know and how to transfer knowledge internally and externally (Huber, 1991). Knowledge is transferred in three different ways: (1) exchange from one individual to another, (2) exchange between individuals and knowledge repositories (downloading of reports and other documents), and (3) exchange among existing knowledge repositories (Alavi and Denford, 2011). The transfer of knowledge is difficult in many ways, both with regards to the abilities of the *donor* and *recipient* of the knowledge, but also with regards to the nature of the knowledge and the dynamics between the donor and the recipient. Easterby-Smith et al. (2008) developed a useful framework (figure 8) for illustrating the different factors influencing inter-organizational knowledge transfer. Although some of these factors will be given some extra attention, it is not in the scope of this paper to study each of these factors in depth. Only the factors relevant to the research question will be elaborated.

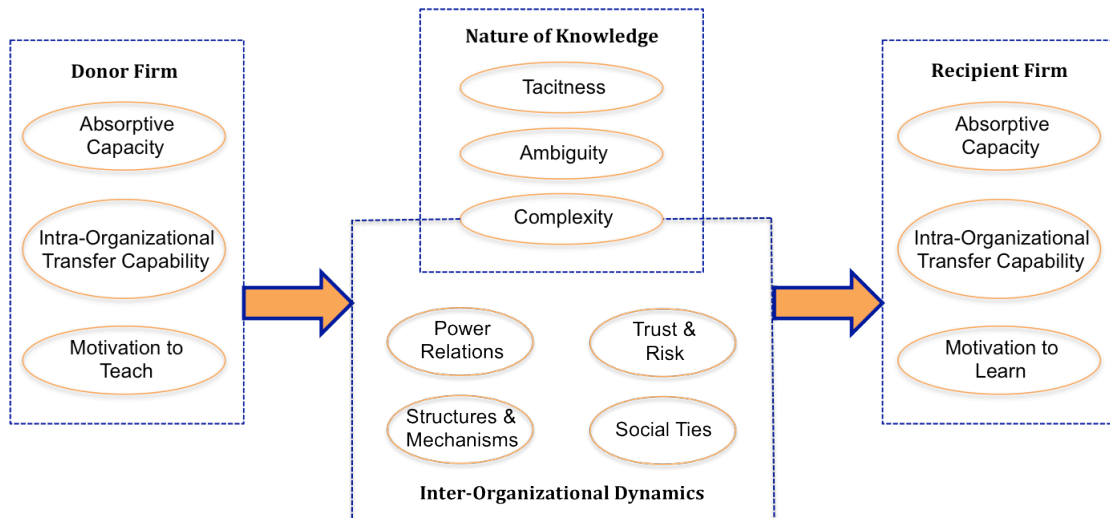


Figure 8: Factors Influencing Inter-Organizational Knowledge Transfer (Easterby-Smith et al., 2008).

Absorptive Capacity

A key element of knowledge transfer is *absorptive capacity*, which is “the ability to recognize the value of new information, assimilate it and apply it to commercial ends” (Cohen and Levinthal, 1990, p.128). An organization’s absorptive capacity will depend on the absorptive capacity of its individual members. It is not, however, simply the sum of the absorptive capacity of its employees and it is therefore useful to consider what aspects of absorptive capacity are distinctly organizational (Cohen and Levinthal, 1990). An organization’s absorptive capacity depends on more than the direct interface with the external environment, it also depends on the transfer of knowledge across and within sub-units that may be located far from the knowledge point of entry (Cohen and Levinthal, 1990). Studies of organizational absorptive capacity are therefore much a study of communication systems.

One important feature about absorptive capacity is the *path dependence*, prior knowledge permits the assimilation and exploitation of new knowledge (Cohen and Levinthal, 1990). “By having already developed some absorptive capacity in a particular area, a firm may more readily accumulate what additional knowledge it needs in the subsequent periods in order to exploit any critical external knowledge that may become available (Cohen and Levinthal, 1990, p.136). “Once the knowledge comes into an organization from some external source, the recipient needs to rely on its ability for intra-organizational knowledge transfer to diffuse the knowledge within the organization so that it can be assimilated and utilized (Easterby-Smith et al., 2008, p.679). For knowledge to be subjected to *intra-organizational knowledge transfer*, it often has to be transferred from some other organization through *inter-organizational knowledge transfer*. By definition, *inter-organizational knowledge transfer* involves at least two organizations, it is therefore important to note the *inter-organizational dynamics* when dealing with knowledge transfer. Easterby-Smith et al. (2008) identified four broad factors in that regards, *power relations*, *trust & risk*, *structures & mechanisms*, and *social ties*. These categories are all related to, and shaped by, national and organizational culture. Culture on all levels are important in inter-organizational dynamics and hence in knowledge transfer. The objective of this paper is to study organizational learning

and knowledge transfer in culturally distant markets, and the impact on cultural differences will therefore be elaborated in section 2.2.4.

Figure 8 also illustrates how the nature of the knowledge being transferred, such as the degree of tacitness, ambiguity, or complexity also impacts knowledge transfer at both inter- and intra- organizational level (Easterby-Smith et al., 2008). All in all, figure 8 provide a strong framework for mapping the determining factors of achieved success or failure in inter-organizational knowledge transfer.

2.2.4 Cultural Differences

In a global economy, success depends on accurately reading and responding to environmental complexity and competition (Taylor and Osland, 2011). Organizational learning and knowledge management is a prerequisite for surviving in the culturally diverse and global context (Hamel and Prahalad, 1994). Taylor and Osland (2011) identified the *intercultural communication* as the key limiting factor for firms in their global organizational learning and international knowledge transfer. “*Regardless of the type of knowledge to be transferred (tacit versus explicit; operational versus strategic) or the manner of transfer (archival versus verbal; experiential versus cognitive), the communication process will be affected by culture*” (Taylor and Osland, 2011, p.583). Individuals are usually seen as the basis of learning within organizations (Nonaka and Takeuchi, 1995); these individuals all have their own *mental models*. The mental models arbitrate what new information we acquire, retain, use and delete, but most important, they help us make sense of the world we see (Taylor and Osland, 2011). Section 2.2.2 explained how the individual learning and mental models are combined, amplified and changed into group mental models. Organizations also develop organizational mental models that are shared between all the individuals within the organization. This model is communicated through established standard operating procedures, organizational culture, assumptions, artifacts and behavioral rules that characterize the organization (Taylor and Osland, 2011). The organizational mental model only covers relevant organizational aspects, and is hence rather limited. The main mental model that controls human behavior is the national mental model, a result of cultural features that separates different nations (Hofstede, 2012). Hofstede (2012) defines culture at all levels “*the collective programming of the mind which distinguishes the members of one group or category of people from another*”. It is therefore important to be aware of the cultural background of person, or a group of persons in order to understand their mental models. Understanding the different mental models is the single most important task in intercultural communication (Taylor and Osland, 2011).

National Cultural Differences

Geert Hofstede (1980) developed a framework for investigating the difference in national culture. He found that national culture differ along four dimensions: *power distance*², *uncertainty avoidance*³, *individualism*⁴, and *masculinity*⁵ (Barkema and

² Power distance measures the degree to which people can accept unequal distribution of power inside organizations (Hofstede, 1980)

³ Uncertainty avoidance refers to the degree to which people tolerate uncertainty and vagueness in situations (Hofstede, 1980)

⁴ Individualism, as opposed to collectivism, represents the preference of a loosely (instead of tightly) knit social framework (Hofstede, 1980)

Vermeulen, 1997). A fifth dimension was added in 1991 based on the research by Michael Bond, *Long- Term Orientation* and in 2010 a sixth dimension was added, *indulgence vs restraint*, created by Michael Minkov (Hofstede, 2012). Hofstede (2012) has developed scores for different countries so that two countries can be compared to find the overall cultural difference. Most research on cultural differences is based on this mode and it is hence considered to be an appropriate framework when seeking to investigate cultural differences in a structured manner. Comparison of national cultural differences between Norway and the project countries of the case companies are illustrated in appendix 1.

van Wijk et al. (2008) and several other researchers have found cultural distance at any level (organizational or national) to have a negative impact on knowledge transfer and learning. Harryson et al. (2008) found that the Swedes managed to overcome cultural barriers and improve knowledge transfer in the shared Sweden-Italy-Germany development of Volvo C70 by watching soccer and socialize to get to know each other better. Taylor and Osland (2011) conclude their research on intercultural communication and knowledge transfer by emphasizing that more managerial and organizational emphasis and attention to training, contact, transaction cost, intergroup relations and mindfulness of cultural impact, could improve organizational learning in general. Understanding the impact of culture and mental models/maps and how to overcome the challenges is hence an important competitive advantage.

The CAGE⁶ Distance Framework

In order to understand fully the distance between two geographic areas, Ghemawat (2011) developed the CAGE distance framework to include *administrative distance*, *geographic distance* and *economic distance* to the already mentioned *cultural distance*. Appendix 2 shows his full framework, but in short Ghemawat (2011) tries to emphasize that distance between nations and hence the organizations within these nations are determined by all four factors, cultural distance, administrative distance, geographic distance and economic distance. *“Organizations need to appreciate degrees of difference or distance in order to distinguish what is near from what is far”* (Ghemawat, 2011, p.54). The CAGE distance framework is commonly used to analyze psychic distance and is therefore a good tool for organizations expanding into culturally distant markets.

Section 2.1 provided a theoretical view of learning and knowledge with a more technical focal point. Data, information and knowledge were properly defined and the transformation from one to the other explained. The terms tacit knowledge and explicit knowledge was introduced and the frequently cited knowledge creation theory by Nonaka and Takeuchi (1995) was explained. The knowledge spiral in figure 7 illustrated how knowledge is created, shared and amplified throughout the organization. Figure 8 by Easterby-Smith et al. (2008) provided an overview of factors influencing knowledge transfer and important elements from this figure was elaborated further. Absorptive capacity and awareness of cultural differences is among the critical elements in

⁵ Masculinity, as opposed to femininity, represents the degree to which people prefer values of success and competition to modesty and concerns for others (Hofstede, 1980)

⁶ CAGE: Cultural, Administrative and Political, Geographical and Economical (Ghemawat, 2011)

knowledge transfer. Section 2.3 introduce projects as an organizational tool and relates the use of projects to the theories of OL and KM.

2.3 Projects

Since the study of (March, 1991) researchers has studied the organizational learning resource allocation between *exploration* and *exploitation*. Exploitation includes such things as efficiency, production, refinement, selection, implementation and execution, i.e., the exploitation of old certainties and current competitive advantage. Exploration includes search, variation, risk taking, experimenting, flexibility, discovery and innovation, i.e., the exploration of new possibilities and the quest for future competitive advantage. Both exploration and exploitation is important, but they often “fight” over the same resources. (March, 1991) A study by Vermeulen and Barkema (2001) of 1349 Dutch acquisitions (representing exploration) and greenfields (representing exploitation) showed that for successive expansion into new markets a firm is more likely to succeed by adapting a exploration strategy through acquisition as oppose to exploitation through greenfield. An increasing number of firms are using projects as a mean to explore new opportunities or to adapt to a rapidly changing technology and market environment (Brady and Davies, 2004). However, concerns have been raised over the learning outcome (Middleton, 1967), and the difficulty that firms face when they attempt to capture the learning and experience gained from one project and transfer it to their wider organization (Keegan and Turner, 2001). Brady et al. (2002) found that the high level of customization, discontinuity, complexity, interdependence, and uncertainty associated with projects makes project a hostile environment for effective learning. As a response to this line of literature, several researchers (Williams, 2008, Prencipe and Tell, 2001, Brady and Davies, 2004, Frederiksen and Davies, 2008, Brady et al., 2002) have studied how organizations capture and store information, knowledge and experience from previous projects to be capitalized throughout the organization, or in successive projects.

There are an increasing number of studies devoted to how firms use projects to improve the performance of existing activities and move into new innovative lines of business (Frederiksen and Davies, 2008, Brady and Davies, 2004, Beaume et al., 2009, Williams, 2008). These researchers argue that projects are effective structures to achieve strategic and operational objectives and to adapt to a rapidly changing technological and market environment.

Projects are temporary, flexible organizations used to:

- achieve sustained competitive advantage through the exploitation of already established resources and capabilities
- explore new ways to develop competitiveness by venturing into a new market or technology base. This implies entrepreneurial management for projects that are pioneering and leading. (Frederiksen and Davies, 2008)

Davies and Hobday (2005) distinguish between two main types of projects. A *base project* is undertaken to meet current customer demands for an existing range of products and services. A *base-moving project* is a novel initiative that recombines

resources in order to search, discover and test new market opportunities and/or experiment with new technologies. The scope of this paper covers a subset of the latter type of projects, a type of projects that is named *vanguard projects* by Brady and Davies (2004).

2.3.1 Vanguard Projects

Brady and Davies (2004) developed the term *vanguard⁷ project* to describe the “*first project to be launched in a deliberate effort to move away from a firm’s core business activities and venture into a new market or technology base*” (Frederiksen and Davies, 2008, p.488). A vanguard project is the first project in what may turn out to be a series of similar base-moving projects. These projects are used as organizational entrepreneurial acts to search for and test a potential opportunity (Stevenson and Jarillo, 1990). However, “*a vanguard project may not lead to successful move into a new base, although it may generate useful knowledge for future vanguard projects*” (Frederiksen and Davies, 2008, p.488). Measuring the success of a vanguard project is difficult as it is determent by the increase of relevant knowledge or experience, as oppose to economic measures like profit, cost reduction or efficiency. “*A vanguard project is motivated by the need to generate learning, information and the creation of knowledge in an effort to develop or renew the capabilities of the firm*” (Frederiksen and Davies, 2008, p.488). Large firms often rely on this information and capabilities when scaling up a successful vanguard project to a permanent business unit or model responsible for delivering a large number of similar projects (Frederiksen and Davies, 2008).

Illustrative Mini Case

In 1994 Toyota initiated a development project for hybrid vehicles (HV) named Prius I (Morgan and Liker, 2006). By using a typical vanguard project, as defined by Brady and Davies (2004), they managed to learn about the new HV structure, and how to optimize it in accordance with the new constrains posted by the huge batteries space needed in such vehicles (Midler and Beaume, 2010). The Prius I was first marketed in mid-1997, purely for learning purposes, and later re-launched in 2003 as a second generation Prius with several modifications (Midler and Beaume, 2010). After running the line as a project based, vanguard type production since the startup it was decided to establish a specific engineering division for the Hybrid Vehicle engineering field in 2008 (Midler and Beaume, 2010). Since then, Prius has been a huge success around the world. The Prius I example illustrates how firms can use projects to test new opportunities and how the learning and experience gained can be translated into new organizational capabilities and new divisions of business.

2.3.2 Project Capabilities

The view that organizational capabilities, routines, knowledge, skills and experience provide the internal dynamics behind firm growth has produced a large body of literature. Recent literature, Hamel and Prahalad (1994) and Teece et al. (1997), argues that successful firms develop the dynamic or core competencies necessary to adapt to or

⁷ According to Vocabulary (2012) a vanguard is an old variation of the French word *avant-garde* meaning front guard. A vanguard is traditionally the leading unit moving at the head of an army, but is lately also used for leading positions in any movement or field.

shape the external environment (Davies and Brady, 2000). “Because the value of a resource can change over time, competitive advantage comes not only from organizational resources, but also from the firm’s capability to continually create, integrate and reconfigure new resource” (Vera et al., 2011).

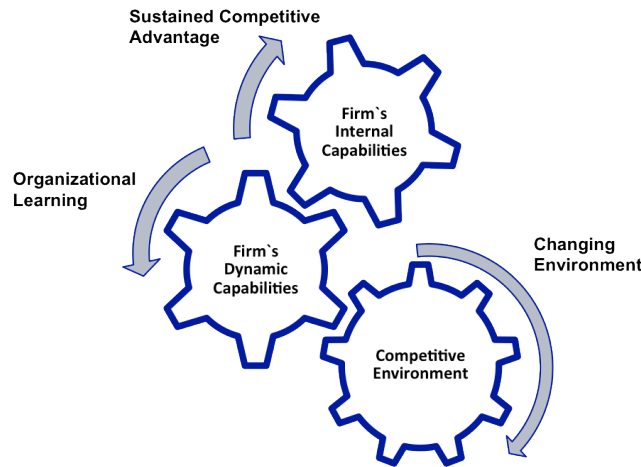


Figure 9: Illustrating Dynamic Capabilities in Changing Environment.

Figure 9 illustrates the ideas of Teece et al. (1997), showing how a firm's dynamic capabilities, such as learning and absorptive capacity, are necessary to translate changes in the competitive environment into new capabilities needed to maintain a sustainable competitive advantage. Chandler (1990) developed two categories of capabilities, *strategic* and *functional*, needed for firms to compete for market share. The strategic capabilities refer to a firm's ability to move into growing markets more quickly, and out of declining ones more rapidly and effectively, than its competitors. Functional capabilities are required to improve R&D, product design, production, distribution, finance and general management. Chandler (1990) explained that firms can gain from being the “first-mover” by getting cost advantages of scale and scope economies, and have a head start in developing functional capabilities. In order to transfer the capability model developed by Chandler (1990) to work for project organizations, Davies and Brady (2000) added an extra category of capabilities named *project capabilities*.

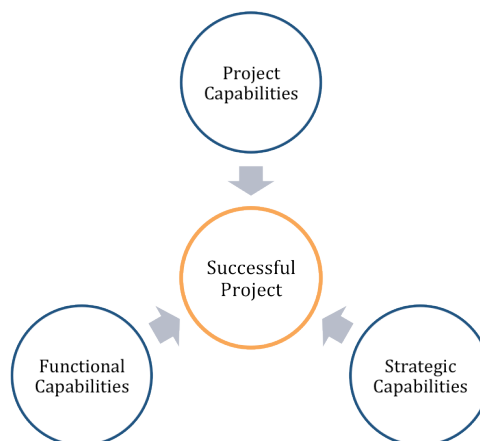


Figure 10: Functional, Strategic and Project Capabilities Needed to Create Successful Projects

Project capabilities are required in the preparation of the bid, and the execution of the project after winning the bid (Davies and Brady, 2000). They argue that there are opportunities for learning in projects because firms undertake similar categories of projects (e.g. implementation projects such as turnkey, outsourcing, Build-Operate-Transfer) that involve repeated cycles of activity. “Projects are referred to as similar when the same sets of capabilities and routines are required for their repeated execution” (Davies and Brady, 2000, p.940). Similar projects enable project firms to develop economies of repetition. “The organizational learning that takes place from below through the establishment of the first project in a new domain of business provides an important source of feedback loops into project, strategic and functional levels, resulting in the creation of new organizational structures and capabilities, and ultimately influencing the strategic focus and direction of the firm” (Davies and Brady, 2000, p.940). To conclude the findings of Davies and Brady (2000), companies can improve their competitive position by learning from the initial, vanguard project and developing the organizational capabilities to execute a greater number of similar projects.

2.3.3 Project Capability-Building Model

The learning that takes place through projects, a subset of organizational learning, is one of the main ways in which organizations interact with, and are changed by, their environment (Brady and Davies, 2004). In line with the research of March (1991) on exploitative and explorative resource allocation in organizational learning, and the idea of *economies of repetition* by Davies and Brady (2000), Brady and Davies (2004) developed a *Project Capability-Building Model (PCB)* illustrated in figure 11. It describes the organizational learning that occurs when a firm moves into a new technology and/or market bases.

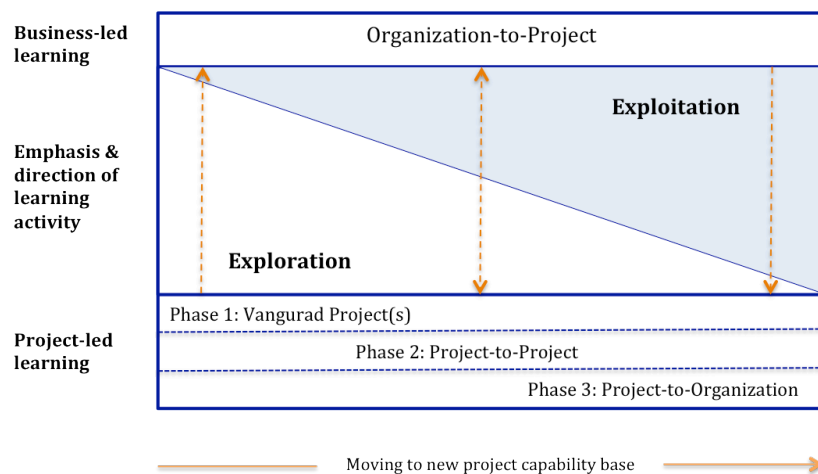


Figure 11: Project Capability- Building Model (Brady and Davies, 2004)

The model in figure 11 applies to projects that have the potential for becoming major new lines of repeatable business, such as turnkey, outsourcing, design-build-operate or public-private partnership projects (Brady and Davies, 2004). The PCB model gives a good illustration of the exploration-exploitation relationship (March, 1991), as well as the phases and possibility for project-to-organization learning needed to achieve economies of reputation (Davies and Brady, 2000). The contribution from Brady and Davies (2004) is the two co-evolving processes of learning, each emphasizing the

different direction and levels of project capability building within the firm. *“Project-led learning occurs when a firm first moves into a new technology or market base and develops new project capabilities through three different phases of project-based learning”*(Brady and Davies, 2004, p.1607). Project-led learning is bottom-up learning, occurring from the interface between the project and its customers or in the interaction with new technology, cultures or markets. *“Business-led learning refers to the knowledge that a firm uses when it takes strategic decisions to focus on new project business activities”* (Brady and Davies, 2004, p.1607). Business-led learning emphasizes the top-down strategic changes that occur when a firm creates new organizational structures. Business-led learning is important in developing the resources and routines required to exploit the new base of project capability.

Project-led Learning

The **first phase** of project-led learning is the phase where *vanguard projects* are leading the way. A new project is established at the forefront of an organization to explore strategic opportunities to move into new technology or market bases (Brady and Davies, 2004). This face represents a “out of the box” mentality of innovation and learning. *“Deviation from established project procedures represent a powerful source of learning”* (Keegan and Turner, 2001, p.90). In the **second phase**, *“project-to-project learning is predominant as attempts are made to capture and transfer the experience and insight of participants in the vanguard project to subsequent project teams who can benefit from them”*(Brady and Davies, 2004, p.1607). Phase two introduces an increasing degree of exploitation and transfer of knowledge from the vanguard project to the following project. Organizational learning tools and knowledge management is important in this phase to help communicate lessons learned (i.e. learning what). After a sufficient number of projects have been conducted, there is an opportunity in **phase three** for project-to-organization learning. Attempts are made to spread the accumulated information and knowledge gained from successive projects throughout the department, business unit or division responsible for delivering projects. (Brady and Davies, 2004) As newly gained knowledge and experience are incorporated in the routines and procedures of the firm, it becomes embedded in the organizational memory and useful in managing new vanguard projects (i.e. learning how).

Business-led Learning

As opposed to the bottom-up project-led learning, business-led learning involves the top-down organizational capabilities and routines created at a strategic level to better exploit the new technology or market base. Good routines for capitalizing on new knowledge and experience gained from projects can give the firm a *first mover* advantage in new technology or market bases. *“At the business level, the emphasis of organizational learning and strategy implementation was to move rapidly to a position of exploitation, by creating global service organizations with capabilities to leverage corporate wide resources and to perform repeatable routinized project activities”* (Brady and Davies, 2004, p.1617).

The PCB model in figure 11 provides a good illustration of the gradual shift from exploration focus to exploitation focus in project-based learning. The model also illustrates the coexisting nature of bottom up learning from experiences made in

vanguard projects to the top down learning of developing routines and procedures to capture the knowledge and experience and incorporate it in the organizational memory.

2.3.4 Planning Tools for Vanguard Projects

Project management is a large field among scholars, reflecting the wide usage of projects in operations covering all areas of business. There are numerous project management tools for dealing with projects where the uncertainty in the solution space is known, and where efficiency (time and money) are dominant determinants of success (Frederiksen and Davies, 2008). *Gantt chart* is a good example where planning, prioritizing and sequencing are handled according to managing costs, time and quality objectives. In projects where unforeseen uncertainties are common and success are measured in learning and degree of innovation, these traditional project management tools perform poorly (Frederiksen and Davies, 2008). Vanguard projects have to cope with the introduction of new variables and emergent events during project execution. Frederiksen and Davies (2008) emphasize that organizations must be aware of these realities when conducting vanguard projects, and that the tool used for managing them matches the objective of the project, i.e. to learn and explore rather than the achievement of efficiency or pre-determined goals.

Learning Landscape

Prencipe and Tell (2001) found that many firms are creating organizational learning mechanisms as deliberate attempts to capture the experience gained through projects. These findings were backed by Brady et al. (2002) in their study of 43 firms in the UK, Europe, North America and Japan. They found that many learning mechanisms have been developed and adopted, ranging from formal post project appraisals to informal face-to-face exchanges of project-related news. Prencipe and Tell (2001) developed the term *learning landscape* to cover the learning abilities of project-based firms. The learning landscape defines how well firms are able to “*capitalize on knowledge that is acquired during the execution of one project and their ability to transfer it to other projects or parts of the organization*” (Prencipe and Tell, 2001, p.1373). The concept of the learning landscape takes into account the multidimensional character of a firms approach to managing learning and knowledge (Prencipe and Tell, 2001). The table in appendix 3 lists the learning mechanisms and practices, and the associated knowledge process of the questioned firms in the study by Brady et al. (2002). Figure 12, developed by Prencipe and Tell (2001) is an attempt to organize the rather overwhelming variety of learning mechanisms and practices found in empirical research on project learning. Prencipe and Tell (2001) have adapted the categorization from Zollo and Winter (2002) and separates between *experience accumulation*, *knowledge articulation* and *knowledge codification*.

Experience Accumulation

This category is closely linked to parts of the *knowledge acquisition* from the framework by Huber (1991) in figure 1. Like Huber’s (1991) process, *experimental learning*, experience accumulation adapts the learning curve perspective that predicts a positive return to experience. Experience accumulation involves the learning-by-doing and the building of routines based on this learning. It’s the processes of creating *economics of specialization* (Prencipe and Tell, 2001).

Knowledge Articulation

As a second important device of the cognitive dimension of organizational learning, knowledge articulation involve learning by reflecting, learning by thinking, learning by discussing and learning by confronting (Prencipe and Tell, 2001). By dialogue and discussion knowledge can be articulated and combined to new knowledge. Knowledge articulation involves *distribution* and *interpretation* from Huber`s (1991) organizational learning theory (chapter 2.1.1) and *organizational knowledge creation* (Nonaka and Takeuchi, 1995) from chapter 2.2.2. The articulation process improves the understanding of action-performance relationships and enables the creation of agreed upon representations, hence creating *economics of co-ordination* (Prencipe and Tell, 2001).

Knowledge Codification

Codification is the extension of articulation. “Even more so than articulation, the ability to codify knowledge allows for the creation of externalized knowledge, brought forward in linguistic and symbolic representation” (Prencipe and Tell, 2001, p.1379). When knowledge is properly codified even stronger links between action and outcomes will become evident. Codification of knowledge is closely linked to the *knowledge conversions* and the *knowledge spiral* by Nonaka and Takeuchi (1995), presented in section 2.2.2. It involves the transformation of tacit knowledge to explicit knowledge and primarily serves the purpose of facilitating routine replication, further elaborated in section 2.3.5.

In addition to these classifications, Prencipe and Tell (2001) separate the learning mechanisms and processes into *individual*, *Group/Project* and *organizational* levels. Together they form the matrix in figure 12, useful for mapping different learning processes and identifying different learning landscapes (figure 13).

		Learning Processes		
		<i>Experience Accumulation</i>	<i>Knowledge Articulation</i>	<i>Knowledge Codification</i>
Level of Analysis	Individual	<ul style="list-style-type: none"> • On-the-job training • Job rotation • Specialisation • Re-use of experts 	<ul style="list-style-type: none"> • Figurative thinking • “Thinking aloud” • Scribbling notes 	<ul style="list-style-type: none"> • Diary • Reporting system • Individual system design
	Group/Project	<ul style="list-style-type: none"> • Developed groupthink • Person-to-person communication • Informal encounters • Imitation 	<ul style="list-style-type: none"> • Brainstorming sessions • Formal project reviews • De-briefing meetings • Ad-hoc meetings • Lessons learnt and/or post mortem meetings • Intra-project correspondence 	<ul style="list-style-type: none"> • Project plan/audit • Milestones/deadlines • Meeting minutes • Case Writing • Project history files • Intra-project lessons learnt database
	Organizational	<ul style="list-style-type: none"> • Informal organizational routines, rules and selection processes • Departmentalisation and specialisation • Communities of practice 	<ul style="list-style-type: none"> • Project manager camps • Knowledge retreats • Professional networks • Knowledge facilitators and mangers • Inter-project correspondence • Inter-project meetings 	<ul style="list-style-type: none"> • Drawings • Process maps • Project management process • Lessons learnt database

Figure 12: Inter-Project Learning Mechanisms (Prencipe and Tell, 2001)

Using the overview of inter-project learning mechanisms in figure 12, Prencipe and Tell (2001) illustrated their findings of three different learning landscapes in project

organizations: (1) The explorer, L-shaped landscape (Figure 13A), (2) the navigator, T-shaped landscape (Figure 12B), and (3) the exploiter, staircase-shaped landscape (Figure 13C) (Prencipe and Tell, 2001).

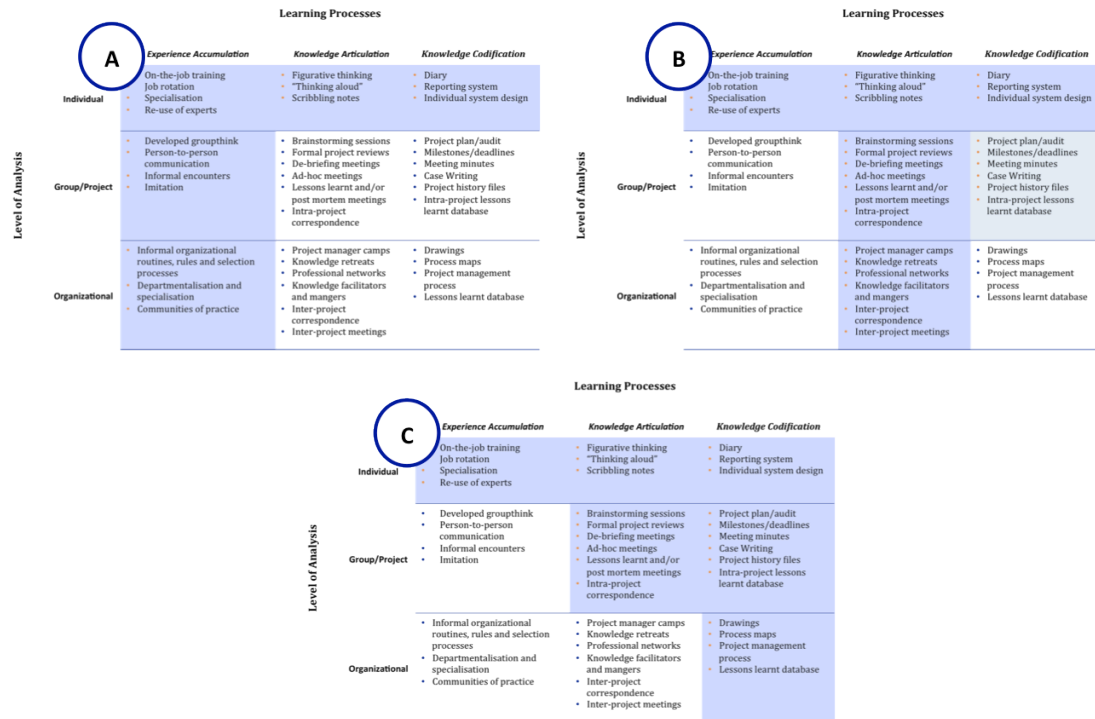


Figure 13: Illustrating⁸ the L-shaped- (A), T-shaped- (B), and Staircase-Shaped (C) Learning Landscapes (Prencipe and Tell, 2001)

The L-shaped landscape (figure 13A) comprises firms that rely to a great extent on people-embedded knowledge (Brady et al., 2002). The emphasis is on creating and sharing implicit and experience based knowledge through joint participation in work activities. The face-to-face communication and interactions across social networks are important for these firms and they are often characterized by a strong and receptive culture. These firms were also identified by their lack of formal project-to-project learning mechanisms and therefore rely heavily on personal and informal contacts for knowledge transfer purposes. The T-shaped landscape (figure 13B) characterizes firms with a broadly socio-technical approach, although with a great emphasis on articulation processes at all organizational levels (Brady et al., 2002). These firms navigate through a few evolving routes to improve their project-to-project learning (Prencipe and Tell, 2001). In typical T-shaped organizations, Prencipe and Tell (2001) found that routine knowledge transfer meetings offered a context for reflecting on past actions and for identifying what could be carried over to the next phase or project. The exploiter, or staircase-shaped learning landscape (figure 13C) includes organizations where advanced development of ICT-based tools to support inter-project learning has been developed (Brady et al., 2002). These firms deliberately try to codify and store knowledge developed during the execution of a project and document it so it can be disseminated and re-used by other projects (Brady et al., 2002). There is a large focus on codification in these organizations as they are trying to develop project- replication capabilities that are able to conduct a larger amount of similar projects more efficiently

⁸ Figure 13 is a minimized replica of figure 12 for ease of reference.

(Prencipe and Tell, 2001). The staircase- shaped organizations are trying to achieve economies of replication by exploiting their project capabilities.

The *inter-project learning mechanism framework* (Prencipe and Tell, 2001) for mapping the learning landscape of organizations is only one among many other attempts at mapping the learning practices of project organizations. These frameworks have all different limitations, including the framework presented in this paper. However, despite these limitations it provides a good means to understanding some of the different features in organizational learning practices of firms.

2.3.5 Replication

“Replication is the process of creating, in new geographical locales, productive units that operate in a manner highly similar to existing units elsewhere – a type of effort typically undertaken in an attempt to realize economic benefits in the new sites that are comparable to those already achieved in existing sites” (Winter, 2010, p.95). The value of replication lies in the ability to do this faster than rivals can either imitate or innovate (Ruuska and Brady, 2011). Replication theory is linked to the theory of vanguard projects as the initial stage of further expansion to a different technology or market base. Replication represents the exploitative phase of the PCB model (Brady and Davies, 2004) in figure 11, and is a strategy whereby organizations deliberately try to reproduce the success they have enjoyed in some limited setting, or in a vanguard project (Ruuska and Brady, 2011). *“Replication is fundamentally about knowledge transfer (Baden-Fuller and Winter, 2005, p.3), but knowledge transfer is not a straightforward task. “Knowledge is sticky” (Szulanski, 1996) due to all the disturbing factors influencing knowledge transfer (Easterby-Smith et al., 2008), elaborated in section 2.2.3. One way of overcoming some of these difficulties is to create templates, or working examples from previous projects (Ruuska and Brady, 2011). While templates and working examples can be copied as closely as possible, perfect replication can never be expected because of the stickiness of knowledge (Ruuska and Brady, 2011). “Effective transfer or organizational knowledge is typically accomplished by either moving people, or by creating networks among people in the relevant organizations” (Ruuska and Brady, 2011, p.425). Replication theory provides some useful insight to the specific case of exploitation from the PCB model by Brady and Davies (2004). This paper will however stick to the theoretical framework and terms created by Brady and Davies (2004).*

Section 2.3 has introduced projects as an organizational tool for conducting various business operations. It was explained how projects can serve as learning vehicles for firms venturing into a new culturally distant market. Such projects, called vanguard projects (Brady and Davies, 2004), represent the exploration phase or base moving face of a firms move to a new technology or market base. Project capabilities was introduced and the project capability- building model by Brady and Davies (2004), illustrated in figure 11, was explained. The PCB model explained the processes involved when firms move to a new market base, distinguishing between top-down, business- led learning and bottom-up, project-led learning. The balance between exploration and exploitation in such a base- moving project was also emphasized. Learning landscape (Prencipe and Tell, 2001) was introduced in figure 12 to provide an overview of typical project learning mechanisms and three different landscapes was illustrated in figure 13. The

last section provided a brief explanation of replication theory. Replication theory is relevant for turning the vanguard project into a repeated line of similar projects. The next section is devoted to the creation of one unified framework for guiding the empirical search for answers to the case study questions.

2.4 Linking the Theoretical Frameworks

The first theoretical confusion in literature is the concepts of *organizational learning* (OL) and *the learning organization* (LE). This paper has used OL, as this term often relates to the study of the learning processes of and within organizations (Easterby-Smith and Lyles, 2011a), hence in accordance to the scope of this paper. The term LE normally relates to an entity, an ideal type of organization, which has the capacity to learn effectively and therefore to prosper (Easterby-Smith and Lyles, 2011a). The latter is more about *best practice*, whereas the former is more theoretical.

The second theoretical confusion in literature is the distinction between *learning* and *knowledge*. Given extra thought it is however rather obvious that knowledge relates to the organizational knowledge content and that learning is about the process whereby it acquires this content. These terms will however often overlap and some litterateur will fit under both terms. Overlapping is especially vivid in theory on possession of knowledge, fitting well on the view of knowledge as content, but also under the category of *knowing*, the process of learning from experience (Easterby-Smith and Lyles, 2011a).

Easterby-Smith and Lyles (2011a) argues that theory on learning and knowledge in organizations can be divided after two characteristics, (1) *theory* against *practice* and (2) *process* against *content*. The distinction between theory and practice is difficult to identify and has not been strictly followed in this paper. It's however easier to separate between process and content, which is why this paper use the term OL when focusing on process and the term KM when focusing on content.

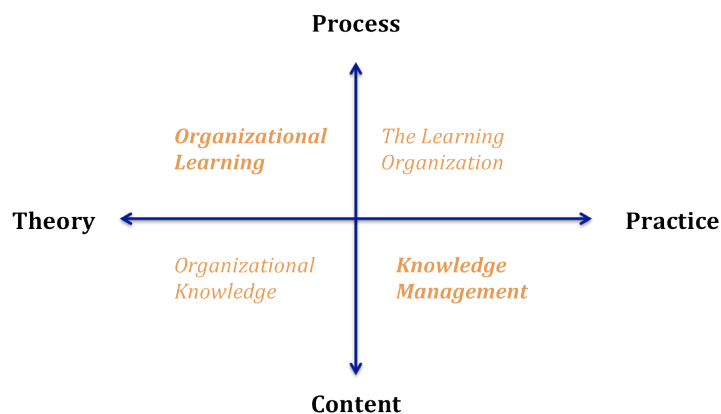


Figure 14: Mapping of Key Topics (Easterby-Smith and Lyles, 2011a).

Figure 14 illustrates the conceptual differences between organizational learning (theory, process), the learning organization (practice, process), organizational knowledge (theory, content) and knowledge management (practice, content). Coexisting with these terms are the term *dynamic capabilities* (DC) from chapter 2.3.2. This concept was created to offer a more dynamic perspective to Barneys (1991) resource-based view (Vera et al., 2011). Together with *absorptive capacity* (AC) from chapter 2.2.3, DC is

frequently used in both OL theory and KM theory. Building on the framework created by Vera et al. (2011), figure 15 illustrates the discrete details of OL, KM and DC as well as the connected and shared details, also including AC.

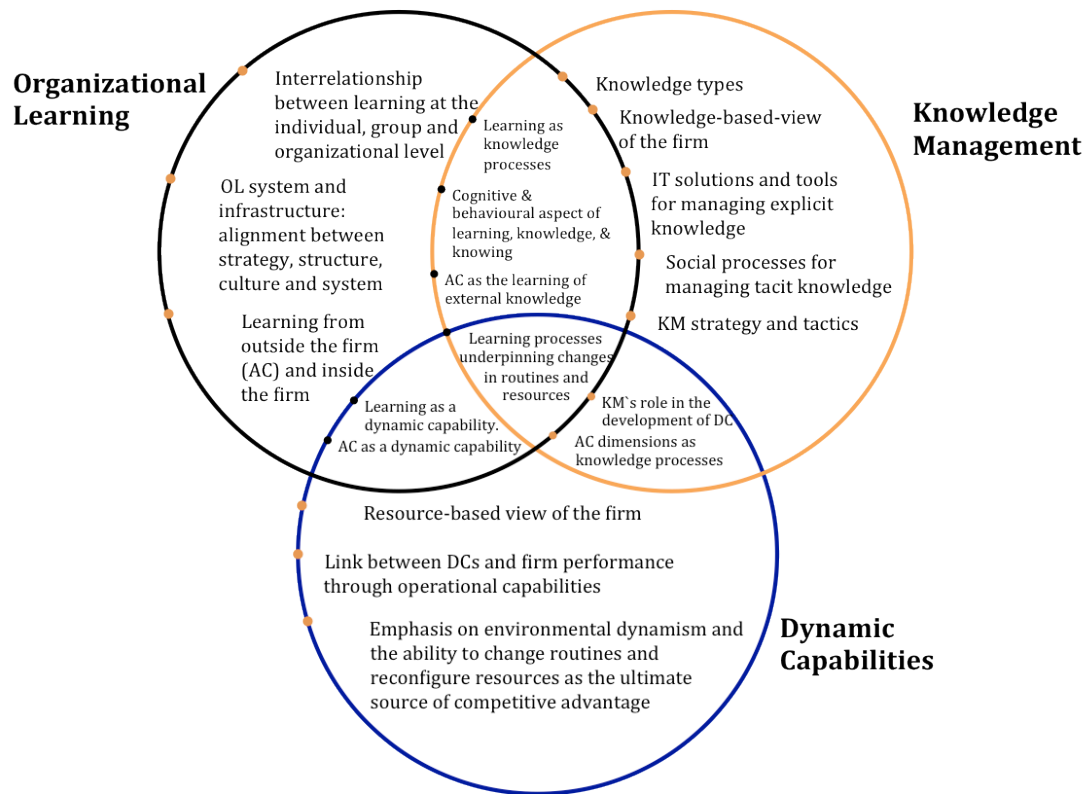


Figure 15: Boundaries of the Organizational Learning, Knowledge Management, Dynamic Capabilities and Absorptive Capacity. Adapted from (Vera et al., 2011, p.162).

Figure 15 illustrates the interconnection between OL, KM, DC and AC theory, but more importantly it illustrates that each theoretical field has a discrete contribution to the field as a whole. *“There are significant opportunities for each of the communities to learn from the experience and developments of the others”* (Vera et al., 2011, p.174). This paper is therefore analyzing each of the theoretical communities in order to provide a thoroughly answer to the research questions.

2.4.1 Research Framework

Figure 16 illustrates the different terms from chapter 2 as they are put together in a *Vanguard Project OL and KM Framework*, developed to map where the different processes take place. The orange circle illustrates an organization. The small blue and orange circle is the vanguard project/base- moving project initiated towards the foreign market illustrated as the blue rectangle (*foreign market*). The foreign market has several unknown specifics, marked in categories inside the rectangle. The Vanguard Project is initiated to uncover these market specifics and move the knowledge back to the organization via organizational learning processes and knowledge transfer. When the knowledge is transferred back to the organization it becomes a knowledge management task to evolve the new knowledge and capabilities, which should then be stored in the organizational memory and exploited in following projects. The absorptive capacity (black rectangle) of both the vanguard project team and the organization as a whole

represents the “ability of the organization to recognize the value of new external information, assimilate it, and apply it to commercial ends” (Cohen and Levinthal, 1990).

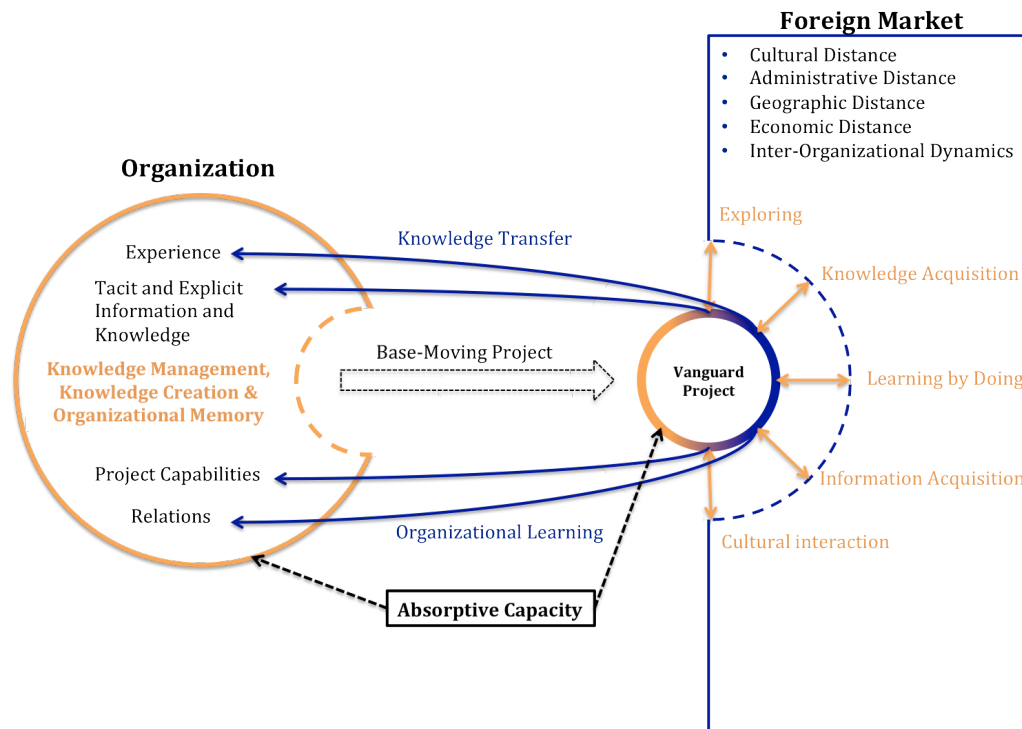


Figure 16: Vanguard Project OL and KM framework.

The illustration shows how vanguard projects involve several different levels of learning and transfer of knowledge. The first level includes the exploration, knowledge and information acquisition, cultural interaction and accumulation of learning-by-doing experiences. These are gained in the interaction between the vanguard project and the foreign market (orange arrows). At this level the knowledge is personal and context specific and hence of a tacit nature. Socialization from chapter 2.2.2, where tacit knowledge is shared and combined with other tacit knowledge through personal interaction and sharing, is the primary knowledge creation process at this level. At the next level the tacit and context specific knowledge gained in the vanguard project must be sent back to the organization through organizational learning processes and knowledge transfer (blue arrows). Such transfer involves the codification of tacit knowledge to explicit knowledge (externalization) to facilitate more efficient transfer and storage of knowledge. The last level takes place inside the organization. It is a knowledge management, creation and storage task to combine the explicit knowledge so that new knowledge and project capabilities can be formulated. The new knowledge, relations and capabilities must be stored in the organizational memory so that successive projects can be fertilized.

Figure 14 and 15 gave a brief overview of the theoretical link between the different concepts in organizational learning and knowledge management literature. Figure 16 is an attempt to relate these theoretical concepts to the learning and knowledge processes involved in vanguard projects. However, previous attempts by researchers to map the learning and knowledge processes involved in projects and project based organizations have led to an overwhelming variety of learning mechanisms and practices (Brady et al.,

2002, Prencipe and Tell, 2001). Figure 16 is not meant to be yet another contribution, but rather an illustration of how this paper relates theory of learning and knowledge transfer to organizations use of vanguard projects for learning purposes.

The next section explains the methodology of this case study, with emphasis on the case study design. The methodology section explains how empirical data is gathered through documents and interviews, and how the theoretical background from section 2, together with the framework in figure 16, is guiding this search for empirical evidence.

3. Methodology

The work conducted in this thesis paper can be described as a case study examining the use of vanguard projects as a tool for organizational learning and knowledge transfer in culturally distant markets. Case study research is one of several ways of doing social science research. Yin (2009) describes case study research as a linear process of plan, design, prepare, collect, analyze and share. It is a method for studying contemporary phenomenon within a real life context, using multiple sources of evidence. The aim is to provide an analysis of the context and process that illuminates the theoretical issue being studied (Cassell and Symon, 2004). This chapter will describe the research process, following the linear approach explained in Yin (2009) and hence provide a structured presentation of my case study methodology.

3.1 Plan

The purpose of this thesis paper is to explore the use of vanguard projects among firms entering new, culturally distant markets. By definition a vanguard project is the first of its kind project, launched in a deliberate effort to move away from a firm's core business activity and venture into a new market base. Organizational learning and knowledge transfer motivate these projects, and its objectives and measures of success are hence different to that of normal projects. This paper investigates how vanguard projects differ from normal project, how they can facilitate knowledge transfer and learning and how this new knowledge and learning can create new capabilities to the firm. The complex environment of emerging economies, and maybe Africa in particular increase the need for first hand context specific knowledge and experience. Considering the problematic perception gap (Ernst & Young, 2012) between the reality of risks in Africa, and perceived risk among western companies it becomes even more evident for firms to actively seek first hand experience from these markets. Vanguard projects can be the most efficient way of gaining such experience and building the knowledge needed to make a qualified strategic decision regarding further expansion to a new market base.

The research questions posed in this paper take the form of exploratory research as suggested by Yin (2009). A case study method is often used when the research question involves how, why or what (when exploratory) arguments and examines "*contemporary events in a real life context, where the relevant behaviors cannot be manipulated and a full variety of evidence must be sourced*" (Yin, 2009). Thus, case study research methodology was found to be the most suited approach in this research on the use of Vanguard projects as a strategic move to a new market base.

3.2 Design

"Research design is the logic that links the data to be collected (and the conclusion to be drawn) to the initial question of study, Articulating "theory" about what is being studied and what is to be learned helps operationalize case study designs and make them more explicit" (Yin, 2009, p.24)

This study can be described as using a multiple- case study design (Yin, 2009), where each case study object is the subject of an individual case study, but the study as a whole connects several individual case studies and links them together. In order to create insight to a fairly new area of research it could have been favorable to conduct several interviews with the same objects in order to give them controlled opinion feedback to aim the objects towards a gradual formation of a considered opinion (Okoli and Pawlowski, 2004). Due to limited interview time with each case objet, only one interview was conducted per case. However, “*by having multiple cases a replication approach can be utilized, in which the convergent evidence is sought regarding the facts and conclusions for each case*” (Yin, 2009). The new elements learnt from each case have provided both congruencies and differences regarding the findings from other cases. Different views from similar type firms regarding the use of vanguard projects has been found, a practice referred to as an *embedded design* in which subunits of analysis is incorporated (Yin, 2009). Congruence from interviews through replication together with a structured theoretical framework created a “collective intelligence” used to address my research questions.

The role of theory - Literature search

For case studies, theory development as part of the design phase is essential, whether the ensuing case study’s purpose is to develop or test theory (Yin, 2009). The five components of a successful case study design are (1) a study’s questions, (2) its propositions or hypothesis, (3) its unit(s) of analysis, (4) the logic linking of data to the propositions/hypothesis, and (5) the criteria for interpreting the findings (Yin, 2009). A thorough understanding of the theory was required to be able to successfully cover all of these design components. The complete research design embodies a theory of what is being studied (Yin, 2009). However, the theory should by no means be considered with the formality of grand theory in social science, nor is it expected that a masterful theoretical framework covering all areas of the topic studied be presented (Yin, 2009). The simple goal of the literature search in this paper was to discover the links and interconnection between the different areas of research on organizational learning and knowledge management, and investigate the use of vanguard projects in light of these findings.

The theory search was conducted using electronic databases, primarily Google Scholar, but also Scopus. The initial search was for literature reviews and summarizing articles to get an overview of the existing theory, from these articles new articles was derived going deeper into the area of interest. To secure the quality of the articles, the search was limited to only cover articles from top rated journals including, but not limited to Journal of Management Studies, International Journal of Project Management and Journal of International Business Studies. Respected reviews and publications from MIT Sloan, Harvard and Cambridge are also frequently cited. The quality control of articles in publications like these is so strict that the reliability is secured without further investigation (Moen, 2011).

Deductive approach

This case study is build after the deductive theory which state that “*the researcher, on the basis of what is known about a particular domain, and of theoretical considerations in*

relation to that domain, deduces hypothesis or propositions that must then be subjected to empirical scrutiny” (Bryman, 2008). Figure 17 illustrates the process of deduction used in this thesis.

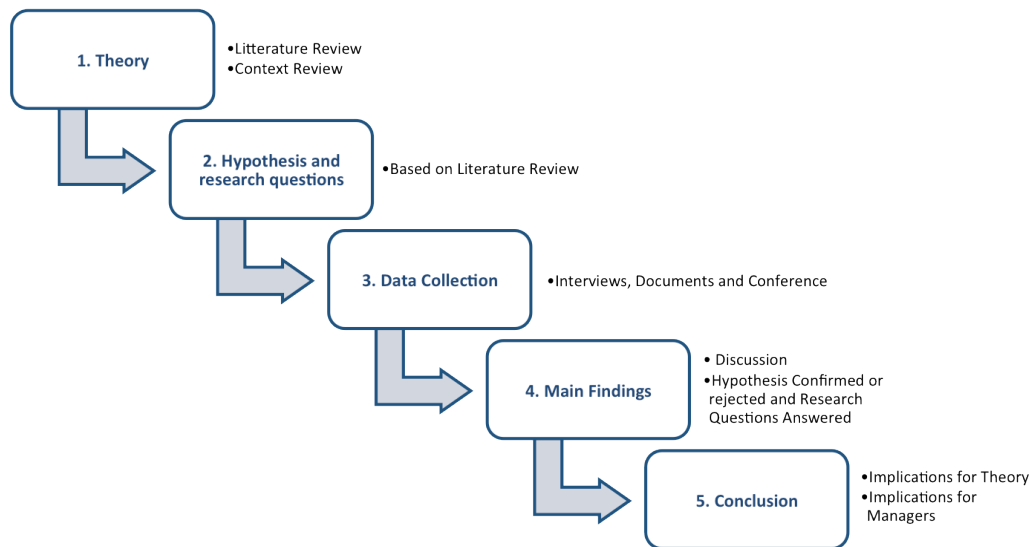


Figure 17: The process of Deduction Used in this Paper

A case study can use the deductive approach to formulate and test a hypothesis or propositions and the confirmation or rejection of this hypothesis or these propositions will therefore provide a clear measure for success. This paper has taken an exploratory approach and built the deductive approach after one general hypothesis. From this general hypothesis a theoretical framework was developed alongside three research questions. The hypothesis and research questions was created preceded to the case study in order to clearly state what is to be explored, the purpose of the exploration, and the criteria by which the exploration will be judged successful (Yin, 2009).

3.3 Data Collection

Case study evidence may come from six sources: documents, archival records, interviews, direct observation, participant-observation, and physical artifacts (Yin, 2009). To maximize the benefits from these sources, the data collection in this paper has been arranged to get triangulated data from multiple sources of evidence, findings from these sources has been cross referenced to create a chain of evidence, and hence maximize the credibility and reliability of the paper (Yin, 2009, Bryman, 2008).

The primary sources of evidence in this paper are *interviews, documents* and *conference*:

3.3.1 Interviews

Bryman (2008) stated that there are two major types of interviews, unstructured interviews and semi- structured interviews. In this research the interviews has taken the form of semi- structured interviews to make sure that the intended areas were covered. Yin (2009) is using the term focused interview for this type of open ended interviews that take place over a limited amount of time, less than one hour, and follow a type of interview guide or case protocol. Before identifying potential interview objects

a list of priorities were made. These priorities reflect the research goal of exploring the use of vanguard projects as a learning vehicle for venturing into a new culturally distant market. In searching for suitable case companies several criteria were made:

- 1) Company must be established in Norway
- 2) Company has recently moved part of their business to a culturally distant market.
- 3) Company has preferably established/tried to establish operations in sub-Saharan Africa.

From a conference held by Norwegian-African Business Association (NABA), *Norwegian-African Business Summit*, I was introduced to three Norwegian renewable energy companies with a recent entry to SSA. These companies matched all three criteria, and thus became targets for my case company search. As important as having the right case companies were getting in contact with the right people. Fortunately the following highly qualified and case relevant employees of the selected companies agreed to contribute to this paper:

Agua Imara – Lunsemfwa Hydropower Company (Zambia)	
Name:	Nils Arne Nessiøy
Job title:	Vice President Africa
Location:	Agua Imara Head Office – Lilleakerveien 8, Oslo, Norway
About:	Joined Agua Imara in 2009 from the position of Managing Director Jelco AS (part of Jacobsen Electro Group) where he developed numerous power projects in Africa. Before that he held several senior positions through out his 15 years at Scansem Internationa ANS, a pan African cement producer. In Agua Imara he is responsible for all new project developments in Africa.
Scatec Solar – Kalkbult PV-Power Plant (South Africa)	
Name:	Christian Lie Hansen
Job title:	Project Development Manager
Location:	Scatec Solar Head Office – Sommerogaten 13-15, Oslo, Norway
About:	Joined Scatec Solar in march 2010 and was given project development responsibility for South Africa. He came from a position as Account Manager at New York based Haver Analytics. In Scatec Solar he started skimming the opportunities in South Africa, developed the opportunities into project proposals and is now in charge of the South African project portfolio with a backlog of 190 MW.
TrønderEnergi – Bugoye Hydropower Plant (Uganda)	
Name:	Inge Stølen
Job title:	Senior Director International Business Development - Africa
Location:	TrønderEnergi Head Office – Klæbuveien 118, Trondheim, Norway
About:	Joined TrønderEnergi in October 2009 from a position as Senior Director Business Development in Lydia AS and before that as Director Business Development in Powel ASA. He currently holds the operational responsibility for Bugoye in Uganda, and is also responsible for project development in two new projects in Uganda and Tanzania.

In preparing for the interviews an interview guide was created based in the topics considered relevant to the main hypothesis and research questions. The interviews has an open-ended structure with a few general questions to narrow the scope of the interview to cover only relevant information (Yin, 2009). Previous bad experience from telephone interviews made it vital to get personal meetings and interviews with all three participants. All three interviews were therefore conducted at each participant's office. The interview length was about one hour. All interviews were recorded in order to provide a more accurate rendition and be able to be more flexible during the interview. The permission to record was given by each interviewee to make sure they were comfortable about it. The main focus during the interviews was to ask the right questions and notes were mainly taken later while listening to the recorded tape. Summaries of each interview were made and later used in the findings and discussion section.

3.3.2 Documents

A variety of document sources have been used:

- Journal reviews
- Scientific publications
- News articles and press realizes
- Reports from interest organizations
- Lecture material
- Home pages
- Business magazines

3.3.3 Conference

As part of the data gathering process and search for case companies I attended Naba's Norwegian African Business Summit both in 2011 and in 2012. This year's conference devoted a significant amount of attention to Norwegian renewable energy companies and their current operations, and future opportunities in Africa. In addition to the general conference program I arranged one on one talks with the ambassador of Zambia, who introduced me to Agua Imara and their operations in the country. One on one talks with Carole M. Rosenlund, Project manager at *International Centre for Hydropower* (ICH) and several other highly relevant individuals helped locating Scatec Solar and TrønderEnergi as other interesting companies.



Figure 18: Norwegian-African Business Summit. Left: Paal André Stokkelien, Upper Right: His Royal Highness Otumfuo Osei Tutu II of Ghana, Lower Right: Scatec Solar Presentation

3.3.4 Data Analysis

The empirical data from interviews, documents and conferences have been cross-examined and deviations further investigated. The interviews were recorded and written summaries were made. From the summaries a table was created where theoretical areas of interest were listed and empirical examples and quotes linked to the different theoretical concepts.

3.4 Evaluating the Research Methodology

Case study is a complex research method that usually includes many variables of interest. In order to secure and measure the trustworthiness and credibility, and hence the quality of the case study, Yin (2009) presents three tests or criteria's. These criteria's are *construct validity*, *external validity*, and *reliability* and they should all be fulfilled to secure the quality of the case study.

Construct Validity

"Identifying correct operational measures for the concept being studied"

(Yin, 2009).

Construct validity is particularly important in data collection as it relates to how the quality of the sources is measured. The construct validity in this paper is believed to be good because of the wide variety and multiple sources of evidence used (Yin, 2009). The idea behind this study, and the need for a study like this was presented at Norwegian African Business Summit where I attended first in September 2011, then later in October 2012. Opportunities for western firms in Africa were introduced and a special emphasis was directed to renewable energy opportunities. However, concerns about entry strategy was raised by several organizations, hence the motivation for this paper. Literature, articles and reports confirmed the relevance and since then multiple different sources have been used to improve the measuring of concepts in this paper.

Managers from different firms were interviewed, hence providing different views on the same topic as oppose to only studying one firm. Important findings from interviews was repeated to the interview object to secure the validity of these statements and hence the interview in general. Each interview object is directly responsible for their respective firms activities in SSA and their trustworthiness is considered to be very high.

External Validity

“Defining the domain to which a study’s findings can be generalized” (Yin, 2009).

This paper is using multiple case firms which according to Yin (2009) increase the external validity. The use of multiple firms from the same industry provided good comparison opportunities but may also have limited the external validity. It is however believed that the findings, despite stemming from a single industry are relevant for other industries involved in market entry to SSA.

Reliability

“Demonstrating that the operations of a study – such as the data collection procedures – can be repeated, with the same results” (Yin, 2009).

A large amount of information has been processed in order to write this case study, but only a small amount has been used in the final paper. In order to improve reliability all this information could have been gathered in a case study database as suggested by Yin (2009). However, due to time constraints an information database was not created and only a selection of the information is thus presented. A variety of different sources were used to present the best objectivity possible. The identity of all the people interviewed and the firms they represent is presented. The case study can therefore be repeated to find the same results. This improves the reliability of this master thesis paper.

Case Study Design

Choosing the right research method is an important decision as each method has different ways of collecting and analyzing empirical evidence, following its own logic and hence making certain method better suited to answer a specific research question than others (Yin, 2009). The research question chosen for this paper required no control of behavioural events and focused in contemporary events, hence making *survey*, *archival analysis* and *case study* (green arrows) the three preferred research method according to figure 19 by (Yin, 2009).

METHOD	Form of Research Question	Requires Control of Behavioural Events?	Focuses on Contemporary Events?
Experiment	how, why?	yes	yes
→ Survey	who, what, where, how many, how much?	no	yes
→ Archival Analysis	who, what, where, how many, how much?	no	Yes/no
History	how, why?	no	no
→ Case Study	how, why?	no	yes

Figure 19: Relevant Situations for Different Research Methods, from Yin (2009)

All the different methods can be used for explanatory, descriptive and exploratory research and my choice between survey, archival analysis and case study was based on other criteria like type of research question, limitations in time and resources and availability of sources. Based on all of these, case study was found to be the best suited research design for this paper.

3.5 What could have been done differently

As with any multiple-case designs more firms could have been studied to achieve a quantitatively stronger analysis and findings. Due to time and resource constraints only three firms were studied, all from the same industry. In hindsight the three case companies could have been selected from three different industries to improve the external validity. The decision to select three companies from the same industry was based on a desire to analyze and compare the different uses of vanguard projects with all else being equal. The study could also have included companies, using vanguard projects to enter SSA, but with a negative experience. All three case companies have positive experiences from entering SSA, and problems were only regarded as a trifle. Companies with a vanguard like approach to market entry in SSA, but with a negative experience could have brought new arguments to the discussion.

In depth interviews could also have been conducted, where the relationship between the interviewer and interviewee last for a longer period of time with several interactions (Yin, 2009), making it possible to understand some of the experiences and routines even better. In retrospective it is also clear that a larger sample of case firms together with quantitative data would improve the conclusion and provide greater support for the findings. However, given the time limitation a fair amount of data was gathered and highly competent people were interviewed, making this qualitative case study credible to the purpose of investigating the use of vanguard projects in organizations entry to culturally distant markets. It is however recommended that further research is conducted by including more quantifiable data and analysis in order to validate the results.

4. Description of Case

This section will explain the choice of context and the selection of case companies within the chosen context. Sub-Saharan Africa (SSA) was chosen as the case context and Agua Imapara, Scatec Solar and TrønderEnergi were selected as case companies. The context and the chosen case companies were all selected in order to provide the most accurate analysis towards answering the research question.

4.1 Context – Sub-Saharan Africa

Sub-Saharan Africa is currently getting enormous attention from institutions, companies and private investors. With an impressive GDP growth (5.1% in 2011), increased democracy, absence of war, better corruption levels, higher education level, young population and improved infrastructure, SSA is ready for an economic take-off (Roland, 2012). Among the ten fastest growing economies in the world, six are located in SSA (Roland, 2011). A report from Abu Dhabi Investment Company, Invest AD (2012), states that institutional investors see Africa as holding the greatest overall investment potential of all frontier markets globally. Additionally it is interesting to see that it is the growing middle class and not commodities and natural resources that are catching the bigger attention from investors (Invest AD, 2012).

“Africa attracts less than 5% of global FDI projects. We believe that this does not fully reflect the attractiveness of a region that has one of the fastest economic growth rates, enjoys the highest returns on investment in the world and is making strong progress towards political reform, macroeconomic stability and social development (Ernst & Young, 2011b, p.3)

There seems to be consensus among several of the world’s excellent think tanks that Africa is a place with a bright and prodigious future (BCG, 2010, McKinsey, 2010a, McKinsey, 2010b, Ernst & Young, 2011b, A.T. Kearney, 2012). Probably the strongest indication that there is a positive movement in the continent comes from the perceptual U-turn made by The Economist, illustrated by the cover page of the May 2000 edition and December 2011 edition, presented in figure 20.



Figure 20: The Economist May 2000 and The Economist December 2011

“We are convinced that any multinational organization with a serious long- term growth plan should be factoring Africa into its strategies. Now is the time to invest in understanding markets. Identifying partner, developing opportunities, configuring industries, building brands, and establish local credibility (Ernst & Young, 2011a, p.9).

As investments to SSA increase, the economic situation in the region is expected to increase simultaneously, lifting a vast amount of people from poverty into the consuming middle class. However, limited access to electric power represents a significant barrier to this economic growth and poverty reduction (WWF, 2012).

4.2.1 Renewable Energy

The total power generating capacity of SSA is only 30 GW, approximately the same as the current total production capacity of Norway with its 5 million people as oppose to 700 million in Sub- Saharan Africa (WWF, 2012). *“The expected increase in energy demand, underpinned by the poverty reduction agenda and combined with vast untapped renewable energy potential, has spurred ambitions by African leaders to increasingly attract and facilitate renewable energy investments in the continent”* (WWF, 2012, p.5). The abundant sources for renewable energy in SSA take the form of solar energy throughout the whole region, as well as rich hydropower, wind, biomass and geothermal resources. *“Access to modern affordable energy services in developing countries is essential for the achievement of the internationally agreed development goals, including the Millennium Development Goals, and sustainable development, which would help to reduce poverty and to improve the conditions and standard of living for the majority of the world’s population”* (UN General Assembly, 2012). Norway has a strong renewable energy sector, largely due to its natural resources. A combination of political willingness (Barth Eide, 2012), good investment opportunities (Norad, 2012) and an advanced hydropower-, and solar- sector (WWF, 2012), gives Norwegian companies a competitive advantage in exploiting the new market opportunities within the renewable energy sector in SSA.

Renewable energy projects in SSA are highly relevant. The cultural distance between Norway and SSA is large, and the expansion of Norwegian firms involved in renewable energy projects in SSA is still on a early stage. All of which make Norwegian renewable energy projects in SSA the ideal case study base for investigating the use of vanguard project as learning vehicles prior to further expansion into new culturally distant markets. All the selected firms in this case study have attempted to capture the knowledge and experience gained from their vanguard project in SSA and transfer lessons learnt back into their organizations for re-use in subsequent projects.

4.3 Agua Imara, TrønderEnergi and Scatec Solar

This case study is built on empirical data from three different case companies: Scatec Solar, TrønderEnergi and Agua Imara. These are all Norwegian renewable energy companies with a recent entry to the sub-Saharan energy market. Documents and

interviews from all three companies constitute the empirical data. The next sub section will give a brief introduction to the selected case companies.

4.3.1 Scatec Solar – Kalkbult PV-Solar Plant

Established in 2007, Scatec Solar is owned by Norwegian Scatec Group (62.5%) and Japanese Itochu (37.5%). “Scatec Solar is one of the world’s leading independent project developers and Engineering Procurement and Construction (EPC) providers for utility-scale solar photovoltaic (PV) power plants” (Scatec Solar, 2012). Scatec Solar currently holds a portfolio of 180 MW of installed systems in Europe, USA and India.

Scatec Solar	
Country	South Africa
Proj. Name	Kalkbult
Proj. Type	PV-Solar
Year	2012
MW:	
Kalkbult	75 MW
In the pipeline	115 MW
Project Cost	200 m EUR
Structure	Build, Own, Operate

Figure 21: Key Figures for Kalkbult PV-Solar Plant.

Scatec Solar was in 2012 selected as a preferred bidder for a 75 MW turn-key PV project by the *South African Renewable Energy Independent Power Producers Program* (ipprenewables, 2012). This PV-power plant will be amongst the largest to date in Africa and construction was commenced in July 2012. The plant is expected to be in commercially operation by mid-2013. In the second round, Scatec Solar was named the preferred provider for another two solar PV projects, 75 MW and 40 MW, respectively. Scatec Solar has therefore secured a backlog of 190 MW in South Africa the next few years. The Kalkbult Solar Plant will be built, owned and operated (BOO) by a South African subsidiary of Scatec Solar. The total cost of 200m EUR is financed through Norwegian investment fund Norfund, together with local actors Standard Bank and Old Mutual. South African power company Eskom has signed a 20 years Power Purchase Agreement (PPA), providing needed security to the project.

Scatec Solar is also involved in projects in Central and Western Africa. Together with IFC, a member of the World Bank Group, and The Global Infrastructure Development Fund, Scatec Solar will investigate the opportunities to develop, design, finance, construct and operate large PV-Solar plants with a minimum capacity of 10 MW. The goal is to develop a portfolio of such projects, starting in Benin, Burkina Faso, Cameroon, Niger and Togo (Scatec Solar, 2012).

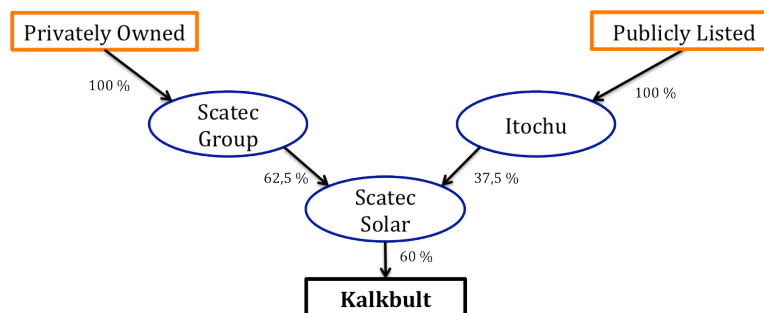


Figure 22: Ownership Structure Scatec Solar

4.3.2 TrønderEnergi – Bugoye Hydropower Plant

The Bugoye Hydropower project in Uganda was initially a project developed by SN Power, a commercial investor and developer of hydropower projects. SN Power is owned by the Norwegian state through Statkraft and Norfund. The Bugoye Hydropower Project was awarded to SN Power in 2004, but sold before construction to Norwegian Power Producer TrønderEnergi in 2007. TrønderEnergi (72,5%) joined forces with the Norwegian investment fund Norfund (27,5%), and together they formed the company TrønderPower. TrønderPower finalized the project in 2009 and currently owns and operates the plant. (TrønderEnergi, 2012)

TrønderEnergi	
Country	Uganda
Proj. Name	Bugoye
Proj. Type	Hydropower
Year	2009
MW	
Current	13 MW
Potential	50 MW
Investment	56 m USD
Structure	Build, Own, Operate

Key Figures for Bugoye Hydropower Plant

TrønderEnergi is owned by 24 Norwegian municipalities and operates several hydropower plants, wind farms and the power grid in parts of the country. The Bugoye project in Uganda is their first ever project outside of Norway. Bugoye has an installed capacity of 13 MW and is fully operational. (TrønderEnergi, 2012) Rapid learning and adaption was needed, as this was the first international project for TrønderEnergi and also their first step into Africa. TrønderEnergi has recently started harvesting the knowledge and experience from the Bugoye project, and is now looking at exploiting their knowledge in a similar project in Uganda. The planned Kikagati Hydropower project, located on the border between Uganda and Tanzania, has an expected production capacity of 16 MW. TrønderEnergi is also interested in a 34 MW hydropower project located a few kilometres down stream of the Kikagati project. (TrønderEnergi, 2011)

TrønderPower was responsible for the development of the Bugoye project, but strictly orchestrated by TrønderEnergi. TrønderPower was built gradually from a few construction engineers to a complete organization of local as well as expatriate staff from TrønderEnergi. Knowledge about local conditions was gained from consultants in the local, partly Norwegian owned company Newplan. Newplan advised TrønderEnergi on local matters and provided a buffer to cultural differences as well as being a catalyst for better Norwegian- Ugandan cooperation.

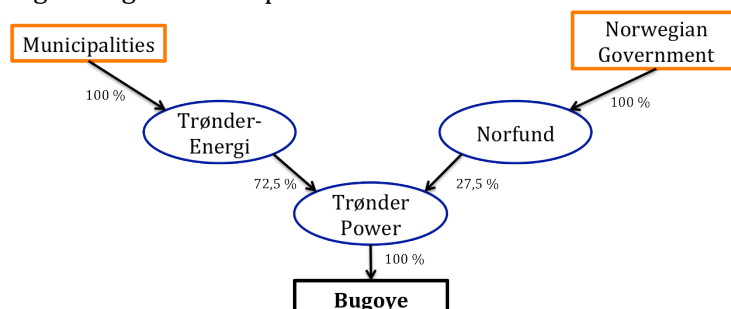


Figure 23: Ownership Structure Bugoye Hydropower Plant.

4.3.3 Agua Imara – Lunsemfwa Hydropower Company

Agua Imara was founded by SN Power and Norfund in 2009 as the SN Power Group’s vehicle for expansion into Africa and Central America. Agua Imara is currently owned by: SN Power (51%), BKK (26,3%), TrønderEnergi (12.66%) and Norfund (10%) (Agua Imara, 2012b). Figure 24 illustrates the complete ownership structure. Agua Imara is involved with a 50,1% stake in the 63 MW Hydropower Plant Burica in Panama and with a 50,1% stake in the 58 MW Hydropower Plant Bajo Frio also in Panama (Agua Imara, 2012b). Their first project in Africa was initiated in May 2011 when Agua Imara acquired 51% of the shares in Zambian Lunsemfwa Hydropower Company Ltd (LHPC). The company owns two hydropower plants at a total combined generation of 52,5 MW. Planned upgrades and new development in the area can increase the combined generation to 300-400 MW the coming years (Agua Imara, 2012a).

Agua Imara	
Country	Zambia
Proj. Name	Lunsemfwa
Proj. Type	Hydropower
Year	2009
MW	
Current	52,5 MW
Potential	300-400 MW
Investment	
Structure	Acquisition

Key Figures for Lunsemfwa Hydropower Company

Agua Imara is expected to exploit the knowledge gained in Zambia when they in 2012 are opening a regional office together with Norfund in Maputo, Mozambique. This office is strategically placed in Mozambique, as Agua Imara is currently involved in several feasibility studies for projects in the country.

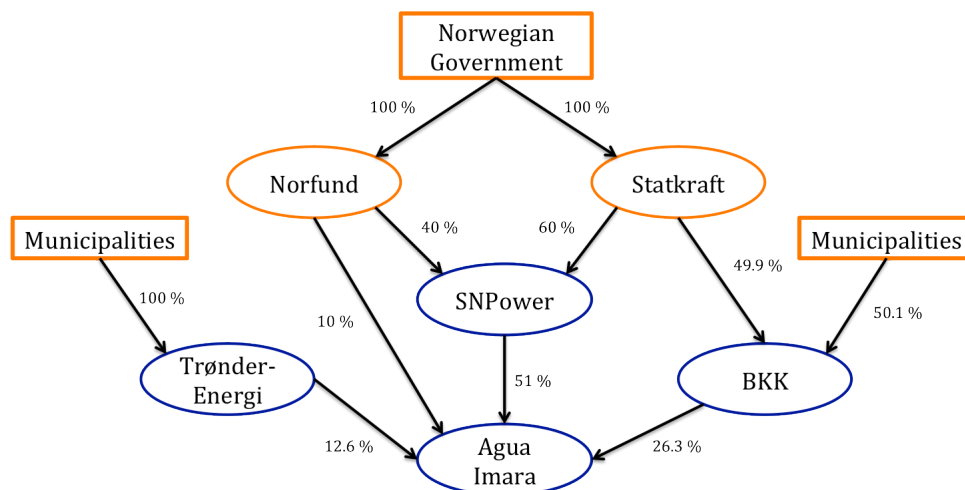


Figure 24: Agua Imara & TrønderEnergi Ownership Structure.

5. Findings

Agua Imara, Scatec Solar and TrønderEnergi have established each their vanguard project to build or acquire and operate a renewable energy production plant in sub-Saharan Africa. The aim of these projects was to search for new opportunities and develop some preliminary capabilities in a new but related business area. Alongside this, it was aimed to generate experience and information that could inform subsequent strategic decision making about whether the firm should build a portfolio of similar plants in the region. The following sections will present the findings of each individual case, structured with the research framework in figure 16 and the PCB model in figure 11 in mind. These findings are presented using the theoretical concepts from section 2. The individual case findings will then be cross-examined and discussed in section 6.1.

5.1 TrønderEnergi

Information from interview with Inge Stølen

A vanguard project is a *“first-of-its kind project, launched in a deliberate effort to move away from a firm’s core business activity and venture into a new market or technology base”*. According to project development manager Inge Stølen from TrønderEnergi, which is the head of international project development, this definition fits well with the Bugoye project they developed in Uganda. TrønderEnergi launched their internationalization plan with this project and moved the company into a new market. 24 local Norwegian municipalities own TrønderEnergi and there is according to Mr. Stølen certain resistance among the owners regarding investments internationally as oppose to nationally. Local job creation and local competence building are important political topics that accelerate resistance against further investments in Africa. There is therefore a great deal of uncertainty regarding the pipeline of projects Mr. Stølen and the international department of TrønderEnergi would like to develop. Due to this uncertainty it’s difficult to claim with 100% certainty that TrønderEnergi is about to move their base and establish a new market, as described by Frederiksen and Davies (2008) and Brady and Davies (2004). Despite the uncertainty regarding the willingness of local municipalities to give the green light for new projects, TrønderEnergi is very interested in capitalizing on the learning and experience gained from a successful first project. Bugoye was finished before time, a rarity in Uganda. One squeezed finger was the only injury during construction and the plant started running on a 99 % utilization rate less than 12 months after opening. Although the cost exceeded the budget, Bugoye was still a very successful project for TrønderEnergi according to Mr. Stølen. He believes Bugoye has opened many doors for TrønderEnergi in SSA and that good revenue from Bugoye will change the political willingness to continue the internationalization.

TrønderEnergi decided to develop Bugoye in Uganda for three reasons, (1) financial returns and good IRR (Internal rate of return), (2) few opportunities for hydropower projects in Norway, deteriorating the in-house technical knowledge of conducting such projects, and (3) reputation building. When Bugoye was given a green light in 2007 there was no long-term strategic plan to build competence towards a potential future

portfolio of similar projects according to Mr. Stølen. But based on the good experience from Bugoye they decided to search for new projects. TrønderEnergi realized that the knowledge and experience gained from Bugoye would make new projects in Uganda even better. Investments in competence building are already taken and new projects would therefore harvest on these previous investments. The knowledge and competence, plus the local organization built up in Uganda can easily serve new projects in Uganda and east Africa with marginal extra capital requirements.

Bugoye can from a theoretical view, given that TrønderEnergi continues their investments in Uganda, be labelled a *vanguard project* as illustrated in figure 11 and 16, initiated as the first step in a base moving, internationalization plan. These figures are therefore used as reference to analyse and examine the characteristics of this project and to understand how empirical data relates to relevant theory. Bugoye was primarily initiated to exploit TrønderEnergi’s technical know-how regarding hydropower development. The technical challenges are more or less the same anywhere in the world where hydropower plants are developed. TrønderEnergi is already a world-class provider of technical solutions to hydropower projects, accumulated through numerous developments in Norway. The international experience is however very scarce and knowledge and experience from projects abroad was built by a *learning-by-doing* approach through the development of Bugoye. Mr. Stølen explained that the development of Bugoye was very much a exploration project for TrønderEnergi.

TrønderEnergi has always had a 100% single equity position in previous projects and raising finance for Bugoye was a new experience. Dealing with international standards and regulations, a foreign legal environment, anticorruption programs and a difficult political institutional environment have, according to Mr. Stølen, made Bugoye a steep and rapid learning experience. The key factor for success for TrønderEnergi in Uganda has been their link with co-investor Norfund that provided important connections and experience in local matters. “Bugoye would never work without Norfund, but our organization has acquired skills and experience so that Norfund, although still being useful, is not a vital partner for future projects in Uganda”, said Mr. Stølen.

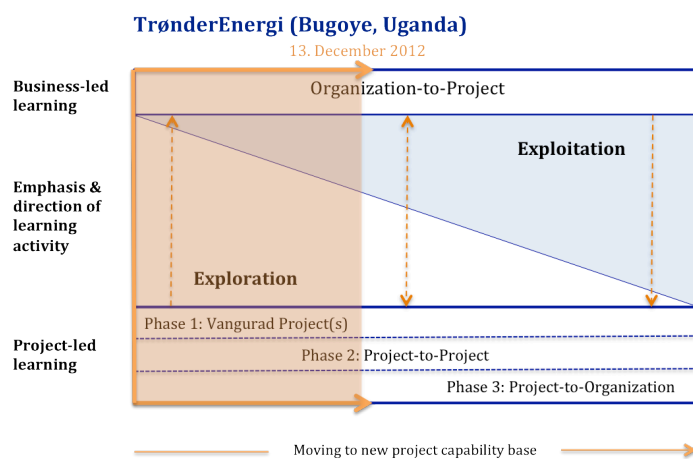


Figure 25: TrønderEnergi According to the Project Capability-Building Model. Adapted from Brady and Davies (2004)

Figure 25 illustrates Bugoye (orange area) in the *project capability-building model* from section 2.3.3. The *project-led learning* from Bugoye has moved TrønderEnergi through phase 1, the vanguard project where they have experienced a rapid bottom-up, exploration-based project learning from their first ever project in Africa. TrønderEnergi is currently moving into phase two, the *project-to-project* phase, where “*attempts are made to capture and transfer the experience and insight of participants in the vanguard project to subsequent project teams who can benefit from them*” (Brady, Davies 2004, p.1607). Jon Einar Værnes was the project manager for Bugoye, and Mr. Stølen only joined the project in 2009 when the plant was already operational. Mr. Stølen has been given the project manager responsibility for 55 MW in the pipeline projects from two separate hydropower sites. Mr. Stølen said that knowledge transfer from Mr. Værnes has been very important and highly present. He is experiencing great benefits from the knowledge acquired by Mr. Værnes. This type of knowledge transfer is described in figure 16. Mr. Værnes was head of the Bugoye, vanguard phase, and developed important tacit skills and experiences from on-the-ground working and first hand knowledge and information acquisition. When Mr. Stølen joined in 2009 he needed to learn from Mr. Værnes and transfer the knowledge acquired by him through his work on Bugoye. This is very much in accordance with the *project-to-project* phase described by Brady and Davies (2004).

Section 2.2.2 explained how knowledge converges in an organization and the term *socialization* is used to describe transfer of tacit knowledge to tacit knowledge. According to Mr. Stølen the tacit knowledge acquired by Mr. Værnes was transferred to him through dialogue, imitation and verbal guidance. The international project group in TrønderEnergi is very small, including no more than four to five people. Socialization and personal transfer of knowledge is therefore the preferred and most efficient method for project-to-project learning. Mr. Stølen did however mention that a higher degree of formalization and explicit articulation of gained knowledge would have been favorable. Especially if the international section in TrønderEnergi grows bigger in the future.

The international section of TrønderEnergi is small and Mr. Stølen could not mention any formal routines for sharing or storing of experience and knowledge. From one project to the other experts are being reused and specialization is more on an individual than organizational level. The projects are typically organized via person-to-person communication and informal encounters. Prencipe and Tell 2001 would identify TrønderEnergi as having a typical L-shaped learning landscape, illustrated in figure 13. “*The L-shaped learning landscape compromises firms that rely to a great extent on people-embedded knowledge*” (Brady et al., 2002). Typical for these firms is the lack of formal project-to-project learning mechanisms and therefore rely heavily on personal and informal contacts for knowledge transfer purposes (Brady et al., 2002). These descriptions are good depictions of TrønderEnergi from information given by Mr. Stølen.

Section 2.2.2 and figure 4 illustrated the organizational memory and the different *retention facilities* where organizational knowledge is stored and knowledge can be retrieved from. From information given by Mr. Stølen it seems like a few individuals constitutes the most significant retention facility for knowledge. TrønderEnergi has got

a small international section and has not developed a culture, structures or other retention facilities for organizational storage of the knowledge gained from their operations in Africa.

From the interview with Mr. Stølen few *business-led learning* (explained in section 2.2.3) practices was identified. TrønderEnergi is a large company with several large business areas, such as operating and developing new national hydropower projects and developing wind power plants. Their operations in Africa are early stage, small scale and mainly involve a few individuals in the organization. The political barrier created by the municipality owners seems to reduce the top-down, business-led learning and strategic support needed to move rapidly to a position of exploitation. The investments made in a vanguard project such as Bugoye can only be truly justified if TrønderEnergi exploits the knowledge and experience gained to create a portfolio of similar projects, according to Mr. Stølen.

The introduction of new hydro projects in Uganda, and the knowledge transfer between the head of the Bugoye project, Mr. Værnes to the new head of hydropower projects in Uganda, Mr. Stølen, both indicate that TrønderEnergi is moving from a vanguard phase to a project-to-project phase. The seemingly lack of top down, business-led learning within the organization is however likely to prevent *project-to-organization* learning, vital to build a capable organization ready to efficiently tap the vast opportunities for hydropower developments in SSA. The bottom-up learning is currently happening for TrønderEnergi, and Bugoye is running well. 55 MW of new project developments are in the pipeline, but the lack of top-down support seem to slow down the process and constitute a hindrance for TrønderEnergi in moving to a new project capability base according to the theory by Brady and Davies (2004).

Mr. Stølen emphasized that conducting projects in Africa, successful or not, is the only viable way of learning about business on the continent. Learning-by-doing, testing and experimentation are according to Mr. Stølen important, if not the only way of learning about less mature and complex market environments. Daft and Weick (1984) found that the high degree of equivocal information typical of unanalyzable environments is reduced if firms use an active approach towards gathering information. Organizations doing this, like TrønderEnergi, are named *enacting organizations* in the research by Daft and Weick (1984). Most of the information and learning made by TrønderEnergi in Uganda are juridical, institutional and bureaucratic, hence country specific. Although the cultural learning is applicable to the whole Eastern Africa region, and the project learning is general, most of the learning is still specific for Uganda. It is therefore, according to Mr. Stølen, important that new projects in Africa are located in Uganda or in similar countries in Eastern Africa (Figure 26). Only there can previous gained knowledge be exploited to provide *economies of repetition*.



Figure 26: Map of East Africa, showing position on Bugoye. Adapted from Nystrom (2012)

Translated to figure 16, Bugoye was the vanguard project set out in the forefront of TrønderEnergis internationalization to SSA. Mr. Værnes and the team working on Bugoye had little relevant *congenital learning* from before so most of the knowledge acquisition had to be made through *experimental learning*, *vicarious learning* from other firms and *grafting*. The experimental learning from Bugoye has already been firmly emphasized as learning-by-doing, cultural interactions, knowledge and information acquisition and exploration in general. All of which are illustrated in figure 16 and empirically identified through interview with Mr. Stølen. The vicarious learning that took place was acquired second-hand knowledge and experience from co-investors Norfund. Mr. Stølen emphasized that the success of Bugoye was strongly dependent on the vicarious learning from Norfund. Learning from grafting was also necessary due to the rather scarce inherent relevant knowledge in TrønderEnergi. Consultants from Newplan provided important local knowledge throughout the vanguard project phase. The knowledge transfer and organizational learning back to the organization was according to Mr. Stølen limited to exchanges from one individual to the other, a *socialization* of tacit knowledge from one person to the other. This transfer of knowledge was primarily between the project group and external resources or between members of the project group. Transfer of knowledge and organizational learning from the project and back to the organization was not identified through the interview with Mr. Stølen. Mr. Stølen emphasized that this was not ideal and something he would like to improve in the future. However, as described earlier, Mr. Stølen was the receiver of knowledge and experience from Mr. Værnes and the other participants of Bugoye prior to his position as head of the successive project developments in Uganda.

Theories covered in chapter two indicate that TrønderEnergi could benefit from better connection and transfer of knowledge between the project group working in SSA and the organization working at home. Easterby-Smith et al. (2008) found that a firm's total innovative capabilities can be significantly improved by sharing knowledge both within and across firms. Nonaka and Takeuchi (1995) found that knowledge creation in a firm

is related to the articulation and sharing of knowledge and experience across individuals and departments in a firm. Huber (1991) stated that “*when information is widely distributed in an organization, so that more and more carried sources for it exists, retrieval efforts are more likely to succeed and individuals and units are more likely to be able to learn*”. A better knowledge transfer and organizational learning link between the vanguard project, Bugoye, and the organization, TrønderEnergi, as illustrated in figure 16 could therefore benefit both the organization as a whole and the performance of successive projects in Uganda and SSA.

5.2 Agua Imara

Information from interview with Nils Arne Nessiøy

The creation of Agua Imara was a result of a strategy process where the owners of SN Power, the precursor to Agua Imara, decided to bundle projects from SSA and Central America together. Nils Arne Nessiøy was given the responsibility for the African sector, and in 2011 the first project was undertaken as a 51% purchase of Zambia’s Lunsemfwa Hydropower Company (LHPC) was completed. Before Agua Imara was created and Mr. Nessiøy was employed as *vice president Africa*, SN Power had been working several years to find the right entry project for launching the investments in SSA. SN Power has since 2002 acquired or developed over 1300 MW of hydropower, mostly in Asia and South America. SN Power also initiated the Bugoye project, introduced in section 4.3.4, but after failing to run the project it was sold to TrønderEnergi. Agua Imara was then created and LHPC became their first project. Mr. Nessiøy was given the responsibility for this project and for developing new projects in SSA. Figure 24 reveal that Agua Imara owned by the Norwegian government (74.1 %) and various Norwegian municipalities (25,9 %). Aware of the strong aid reputation Norway has in Africa, Mr Nessiøy quickly emphasize that Agua Imara is working on a commercial mandate from it’s owner and that there is no room for aid in that mandate. Agua Imara is therefore a purely commercial player, despite the governmental owners. Having that said, there is a risk profile attached to Agua Imara’s investments that most commercial investors would not accept. This however, does not change the fact that Agua Imara is a commercial player pursuing financial return to investment for its owners according to Mr. Nessiøy.

LHPC is Agua Imara’s first project in Africa, launched in a deliberate effort to introduce a new market base of similar projects in SSA. Agua Imara has already finalized the purchase of 51% of LHPC and is currently initiating a series of improvements and expansions of the existing plants. Although most projects in the near future will be related to LHPC, Agua Imara is still actively looking for new acquisitions and development projects. Mr. Nessiøy said that LHPC is an important project both for learning and for reference. The current capacity of about 52.5 MW is planned increase by ten times by 2020. In order to reach the 2020 goal of 500 MW in Zambia, Agua Imara has initiated multiple projects related to, and in addition to LHPC.

According to theory of vanguard projects in this paper, illustrated in figure 11 and 16, Agua Imara has initiated their international base moving process to a new market base by introducing the acquisition of LHPC as their vanguard project. Agua Imara’s mandate to develop projects in SSA is according to Mr. Nessiøy a combination of political

ambition to invest in emerging markets, and a desire from Statkraft/SN Power to exploit the Norwegian competence in Hydropower. The research framework in figure 16 illustrates the theoretical vanguard project together with all the related theories and terms. In order to fit empirically Agua Imara and the acquisition of LHPC into this framework, one important note from Mr. Nessiøy must be made clear: He stated that LHPC is a pioneer project for Agua Imara, introducing a new market and likely to be the first of multiple similar projects. However, it is not the technicality of this project that makes it a vanguard project. Nor the financing or how the project is organized. What makes LHPC a vanguard project for Agua Imara is the introduction of business ventures in Africa. Mr. Nessiøy said that Agua Imara, through the LHPC project, is expected to build knowledge, competence and accumulate important experience in the organization. Although there is a general learning from doing business in Africa that is applicable to many different nations, the main lesson is that all African nations are completely different. Mr. Nessiøy made it clear that Agua Imara is building competence in Zambia mainly to be used in Zambia. *“It is the country specific commercial side of these projects that are difficult and where learning must be made. Previous learning and experience from the commercial side of these projects can make a significant difference in successive projects,”* according to Mr. Nessiøy. Section 2.1.1 emphasized the importance of distinguishing between experimental learning that can be generalized and experimental learning that must be discriminated (Figure 2). Haleblian and Finkelstein (1999) found that experience must be carefully used to generalize. If generalizations are made on dissimilar events, they have a negative impact on the performance. It is therefore important for Agua Imara, as indicated by Mr. Nessiøy that generalizations made from experiences in Zambia is carefully assumed viable in other SSA markets unless adequate reasons for generalization exists.

The commercial learning and country specific knowledge necessary to develop projects in Zambia can, according to Mr. Nessiøy, only be learnt through learning by doing and learning from failure. *“Agua Imara needs to explore how things are related, who the players are, where decisions are made, what the rules are and if the market is sufficiently deregulated, in order to develop good projects in Zambia”,* said Mr. Nessiøy. He also emphasized; *“all African markets have certain specifics that you need to be involved with to understand”*. This is what Agua Imara is in the process of doing, exploring the market in Zambia.

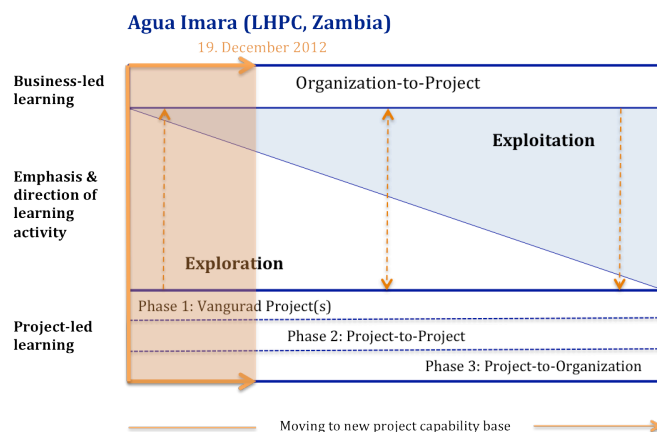


Figure 27: Agua Imara Development According to the Project Capability-Building Model. Adapted from Brady and Davies (2004)

Figure 27 illustrates where Agua Imara is located (orange area) according to the project capability-building model from section 2.3.3. Mr. Nessiøy and his two colleagues working on the project group of the LHPC project are developing *project-led learning* as described by Brady and Davies (2004). Agua Imara is slowly expanding their activity in Zambia by upgrading and new development on the already operating LHPC. They are currently upgrading the 52.5 MW station to reach 70 MW. While doing this Mr. Nessiøy and his colleagues are actively building competence, relations and routines necessary for later large development plans of 300-400 MW on LHPC. As opposed the case with TrønderEnergi, Agua Imara has lots of *congenital learning* sources from inception. Mr. Nessiøy has years of previous experience from projects in Africa, and Agua Imara can also pool resources from SN Power. SN Power has experience from over 1300 MW of hydropower developments in emerging markets in Asia and South America. Agua Imara is accordingly not expected to have the same steep learning curve as TrønderEnergi. But learning and experience from Agua Imara's vanguard phase is still according to Mr. Nessiøy expected to create the foundation for further success in Zambia. The *knowledge acquisition* in Agua Imara is different to TrønderEnergi. More congenital learning from inception in Agua Imara has reduced the need for *grafting* and *vicarious learning*. The experimental learning is however nevertheless ever so important.

Agua Imara is a small company with a long-term mandate from its owners to build competence and operational experience from Zambia and later other markets in SSA. There is a clear top-down, *business-led learning* strategy at place, securing the sequential move from the current *vanguard phase*, through a phase of *project-to-project* learning and finally reaching the *project-to-organization* learning phase. Agua Imara will enter the project-to-project phase when they start capitalizing on experience made from either the acquisition of LHPC or from some of the upgrading or developing projects that are already in the pipeline. According to Brady and Davies (2004) this shift from vanguard phase to project-to-project phase, and later to project-to-organization is characterized by the increased degree of exploitation as oppose to the initial exploration. Mr. Nessiøy seems to believe that Agua Imara has a strategy in place to secure that the company moves to a position of being able to perform repeatable routinized projects in Zambia and other African markets. Mr. Nessiøy is also confident that when routines and knowledge are at place, exploitation of these will make projects so profitable that regular commercial investors will start complementing Norfund and other governmental investments schemes. This statement implies his belief in *economies of repetition* and that Agua Imara will be able to capitalize on knowledge and experience gained from their vanguard project.

Mr. Nessiøy also explained that there is a strong path dependency related to dealing with business in Africa. Being present in the market early is not only important to secure the best projects, but also important to create connections, trust and build competence. The path dependency of these factors makes it difficult for new players to enter a specific market long after its competitors. Early presence in Africa can therefore lead to a head start that can be difficult, if not impossible for competitors to equalize.

The research framework in figure 16 gives a fairly good depiction of Agua Imara's LHPC (vanguard) project. The project team working directly on the LHPC project is acquiring tacit knowledge and experience. According to Mr. Nessiøy there are few formal routines for codifying the knowledge gained in Zambia. Knowledge and experience is therefore mainly transferred to the rest of the organization through informal *socialization*, as described by *Nonaka and Takeuchi (1995)*. This seems to be working fine as long as Agua Imara's portfolio remains small and with a few people involved. But, according to *Nonaka and Takeuchi (1995)*, Agua Imara could benefit from *externalization* by conceptualizing their experience and by doing that easier spread and store the knowledge. For the time being it looks like Agua Imara is small enough to justify not putting much effort into codifying or explicitly store/distribute the accumulated knowledge and experience. Socialization and oral sharing of tacit knowledge is the current practice for knowledge transfer and organizational learning between the LHPC project and the rest of Agua Imara according to Mr. Nessiøy.

As LHPC is up and running in Zambia and Agua Imara is awaiting new projects both within LHPC and elsewhere in Zambia they are also trying to establish a foothold in Mozambique. Mozambique has no potential hydropower companies for acquisition, so greenfield is the only viable option for entering this market full of potential said Mr. Nessiøy. Agua Imara has recently (29.12.2012) opened a local office in Maputo, the capital of Mozambique (Agua Imara, 2013). The regulatory and legal framework seems to create a solid barrier to new projects in Mozambique as of today, but Mr. Nessiøy believe the vast opportunities in the country justifies the early physical entry. If or when regulatory and legal frameworks are sufficiently sophisticated, Agua Imara wants to be prepared according to Mr. Nessiøy. He also mentioned that Agua Imara are working towards several other exciting markets in SSA, and that he is expecting much activity in the coming years.

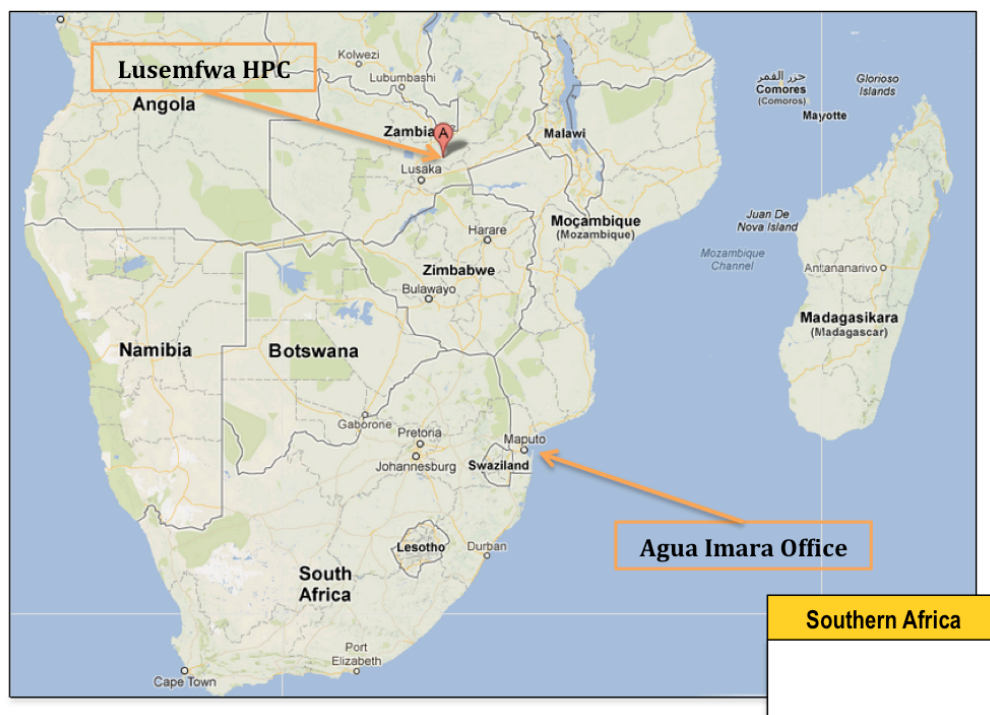


Figure 28: Map of Southern Africa Showing Agua Imara Locations. (maps.google, 2013b)

5.3 Scatec Solar

Information from interview with Christian Lie Hansen

Scatec Solar has since 2007 established themselves as a serious project development and engineering procurement and construction (EPC) player, providing utility scale solar photovoltaic (PV) power plants around the world. The financial crisis and the following euro crisis have, according to Project Development Manger in Scatec Solar, Christian Lie Hansen, forced a geographic market change for Scatec Solar. Previous key markets like Italy, Germany, Czech Republic and France where feed in tariffs made several solar projects very lucrative, are now completely changed. Government schemes and feed in tariffs have vanished and large-scale solar power projects are not profitable anymore. As a response to this dramatic change, Scatec Solar turned their attention towards emerging markets in Asia and especially Africa. Mali was the first country to target, mainly because of personal contacts between board members of Scatec Solar and key decision makers in Mali, according to Executive Vice President of Scatec Solar, Roar Haugland (2012). However, while negotiating the final terms and conditions for a 60 MW PV plant in Mali, a military junta mainly consisting of former mercenaries from Gaddafi's Libya regime made a military coup (BBC, 2012), smashing the whole project. Despite this dramatic lesson, Scatec still consider West Africa as one of their prime targets and the incident in Mali has according to Mr. Lie Hansen provided valuable experience for future reference.

Scatec Solar started working in South Africa just after Mali, and South Africa has been given high priority since early 2010. The work in South Africa had been going for three years when a project tender was finally accepted and financing closed the 9th November 2012. According to Mr. Lie Hansen this tender victory was a direct result of three years of networking, learning, experience building and failures. *"We would never succeed in SA without the three year "ramp up" phase, and we will only succeed in following tenders if we learn and use previously gained knowledge and experience"*, said Mr. Lie Hansen. Early entry to SA and projects where learning and experience building has been the only outcome, has been key to the current success Scatec is experiencing in SA according to Mr. Lie Hansen. From a portfolio of 10 projects in SA, Scatec first won a 75 MW tender in Kalkbult and then in round two they were awarded two projects in Linde and Dreunberg, respectively sized 40 MW and 75 MW. The total backlog in SA is therefore 190 MW according to Mr. Lie Hansen.

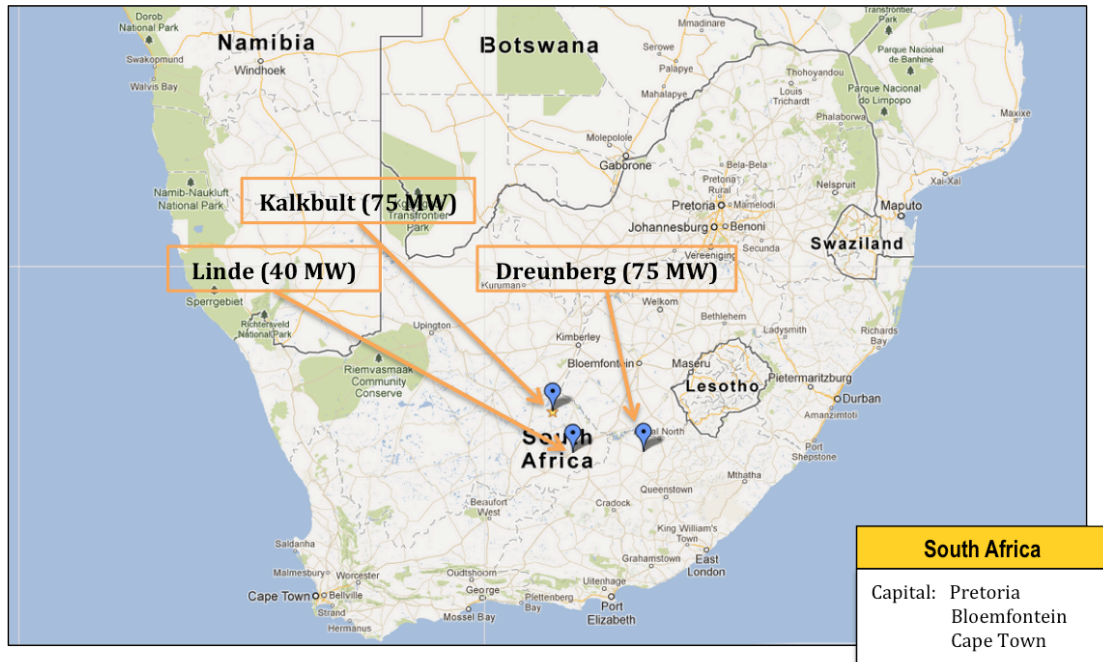


Figure 29: Scatec Solar Projects in South Africa. (maps.google, 2013a)

South Africa has according to Mr. Lie Hansen developed a bidding system for solar projects very different to what the case was in Europe. For projects in Europe, feed in tariffs was given by government to incentivize building of solar parks. In South Africa they introduced a *Renewable Energy Independent Power Producer Procurement Programme (iprenewables, 2012)*, where companies were given a tender guideline of thousands of pages and anyone could feel free to send in their tender projects. About 70 % of the decision basis from the government of SA was price, and 30% were other socio-economic development objectives. To correctly offer the right price, i.e. high enough for it to be good business, but low enough to secure winning the tender, lots of local experience was needed. This experience was according to Mr. Lie Hansen gained in the years leading to the tender win, and Scatec Solar’s early entry to SA was therefore vital for the successful Kalkbult tender.

Scatec Solar was forced to move from their current market base in Europe to venture into a new market environment in Africa. A vanguard project is according to Frederiksen and Davies (2008) often *“motivated by the need to generate learning, information and the creation of knowledge in an effort to develop or renew the capabilities of the firm”*. This description is according to Mr. Lie Hansen typical for Scatec Solar’s early entry to South Africa. Vanguard theory as described in section 2.3.1 provides a very accurate theoretical description to Scatec Solar’s market entry to South Africa. Mr. Lie Hansen emphasizes the value of exploration, learning and the gaining of knowledge and experience in the first phase of their market entry to South Africa. The first set of projects initiated in SA failed to be realized, but provided Scatec Solar with a compatible SA-Norway corporate culture, bureaucratic exercise, legal and regulatory training and network building according to Mr. Lie Hansen. Frederiksen and Davies (2008) wrote in their paper: *“a vanguard project may not lead to successful move into a new base, although it may generate useful knowledge for future vanguard projects.”* This has most certainly been the case for Scatec Solar in South Africa. Mr. Lie Hansen stressed that

winning the Kalkbult tender was a direct result of previous learning and knowledge transfer from other projects.

The Kalkbult project is signed of and the 200 million euro investment is secured. Building was commenced the 25th of November 2012 and is expected to be in commercial operation by fall 2013. Scatec Solar has cleverly organized their project group in a way that secures knowledge transfer from one tender process to the other. As soon as the project development group has finalized and secured a tender, they hand it over to another division within Scatec so that they can focus entirely on new tenders, utilizing the knowledge gained in previous tenders. Learning and improving from one tender to the other in SA is a necessity as the government is expecting reduced price from one tender round to the other. Mr. Lie Hansen explained that the ipprenewable procurement program in SA expected a cost reduction on contracted power delivery amounting to 40 % from tender round one to tender round two, five months later. It was therefore expected that Scatec Solar from winning the Kalkbult project gained so much experience and knowledge that the exploitation of this knowledge in project round number two would result in a 40% decrease in cost. Mr. Lie Hansen explained that this was possible due to better connection with, and knowledge about banks, resulting in better interest rates, suppliers, resulting in lower procurement costs and legal, regulatory and bureaucracy experience, resulting in a more efficient tender process. All of the above are examples of how Scatec Solar exploited experience and knowledge from their first vanguard projects and used it in a project-to-project deliberate way to improve in succeeding projects. Scatec Solar secured two new projects in the ipprenewable procurement program round 2, namely the 40 MW Line project and the 75 MW Dreunberg project, both illustrated in figure 28.

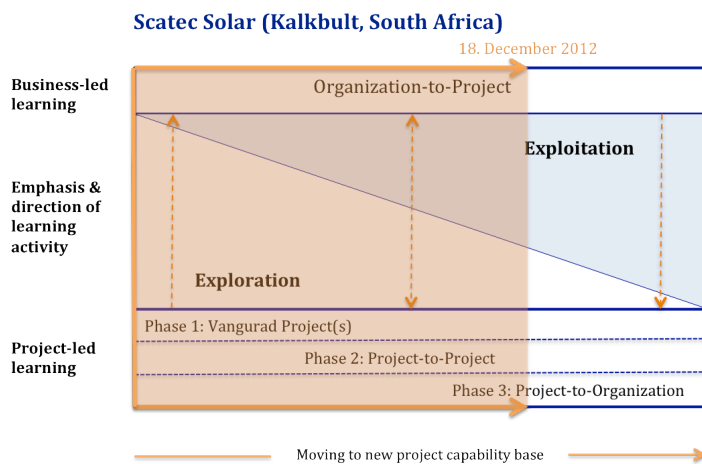


Figure 30: Scatec Solar Development According to the Project Capability-Building Model. Adapted from Brady and Davies (2004)

Figure 30 illustrates where Scatec Solar is positioned (orange area) according to the model developed by Brady and Davies (2004). As described in section 2.3.3, this model illustrates how firms move from a *vanguard phase* with focus on exploration, via a *project-to-project phase* and finally to a *project-to-organization phase* where exploitation of previously gained knowledge and experience are more dominantly present. From interviewing Mr. Lie Hansen it seems like Scatec Solar has a strong *Business-led learning* strategy in place. The top-down organizational capabilities and routines seems to

support the transfer of knowledge from one project to the other and hence strengthening the competitive position Scatec Solar has in South Africa. It was a strategically wise decision to enter South Africa early. Scatec Solar has organized their project group cleverly so that one group can specialize in winning tenders, whereas other groups specialize in financing, building and operation. The people involved in winning Kalkbult was released from this project as soon as the tender was won so that they could exploit their experience and knowledge towards winning new tenders in round two. Specialized building and operating teams take over the responsibility of a project as soon as the tender is won, allowing also these groups to transfer building experience quickly from one project to the other. This structure allows Scatec Solar to move quickly to a position where they can perform repeatable routinized project activities as described by Brady and Davies (2004).

The vanguard project for Scatec Solar was the process of winning Kalkbult, including all the other vanguard projects that was initiated and lost before Kalkbult was won. This process was according to Mr. Lie Hansen full of exploration, learning, knowledge building, networking and trial and error. This is similar to what Brady and Davies (2004) theoretically emphasized about the vanguard phase of a project. Scatec then managed to capitalize from the learning gained before Kalkbult was won and moved into a phase of project-to-project learning when *"...attempts were made to capture and transfer the experience and insight of participants in the vanguard project to subsequent project teams..."* (Brady and Davies, 2004) Scatec won project Linde and project Dreunberg with a 40% lower cost proposal than Kalkbult in round 1. This was only possible because Scatec Solar started exploiting the knowledge and experience from Kalkbult said Mr. Lie Hansen.

Scatec Solar are already involved in the third and last bid process in South Africa where preferred bidders are announced 16th July 2013 (ipprenewables, 2012). They are establishing local presence in Cape Town, South Africa. They are also working in other Southern African markets like Namibia, Botswana and Zambia. In addition they are involved in a project together with the International Finance Corporation (IFC) looking at solar PV development opportunities in Western Africa, especially Benin, Burkina Faso, Niger, Togo and Cameroon. Altogether it seems like Scatec is about to enter the last phase of the project capability- building model in figure 30, explained in section 2.3.3. *Project-to-organization* is when *"attempts are made to spread the accumulated information and knowledge gained from successive projects throughout the department, business unit or division responsible for delivering projects"* (Brady and Davies, 2004). Scatec Solar is about to be a fully integrated player in the Southern African renewable energy sector, especially as far as South Africa are concerned, but things may also quickly happen in surrounding markets and in Western Africa.



Figure 31: Scatec Solar Projects in Western Africa. (maps.google, 2013c)

The research framework in figure 16 gives a good depiction of how Scatec Solar has organized their vanguard projects. Figure 16 was created to illustrate how theoretical concepts from organizational learning and knowledge transfer relates to vanguard projects. Scatec Solar approached South Africa with a portfolio of ten such vanguard projects according to Mr. Lie Hansen. These base-moving projects, as illustrated by figure 16, became directly exposed to the new SA market. These projects were run by a project group of 20 people (Scatec Solar is approx. 80 people), all of which spent most of their time in SA. These vanguard projects were in section 2.4.1 described to be: *“initiated to uncover foreign unknown market specifics and move the knowledge back to the organization via organizational learning processes and knowledge transfer. When the knowledge is transferred back to the organization, it becomes a knowledge management task to evolve the new knowledge and capabilities, which should then be stored in the organizational memory and exploited in following projects.”* Mr. Lie Hansen gave one very good example to underpin the previous statement. When he started working in Africa he realized that the organization was very sensitive to bad news and delays. The people working in Norway would quickly panic and be over-hasty with change and new solutions. What Mr. Lie Hansen and the guys on the ground in SA experienced was that bad news and delays often gets fixed as quick as it occurs. SA has a different culture, somehow a more direct and unfiltered social and business language, which often appears as volatility in the work place. For instance any diversions from the expected path are quickly verbalized. A “crisis” is, however, quickly turned to a fortunate event and vice versa. Patience and a cool attitude often solve the most hopeless looking situations. As soon as Mr. Lie Hansen and his vanguard team learned this lesson they transferred their knowledge of the local culture back to Scatec Solar in Oslo and Germany so that a shared corporate culture in dealing with SA culture was created. “African time” was introduced and the organization as a whole learned to deal with a culture where “A” not always means “A”, but sometimes “B” or “C”. In a way efficiency had to be replaced by patience, according to Mr. Lie Hansen. He remember well when Scatec Solar back in November got a phone call from South Africa saying that the whole

financing for one of their large projects had fallen apart. Despite the dramatic news, Scatec Solar had developed a culture that told everyone to wait one week without any panic to see what happens. One week later everything was fixed and back to normal.

Section 2.1.1 introduced an organizational memory model by Walsh and Ungson (1991), and culture was listed as one of the organizational retention facilities from which information is stored and can be retrieved from. Schein (1984) wrote that “*organizational culture is a learned way of perceiving, thinking, and feeling about problems that is transmitted to members in their organization*”. This statement complies well with the corporate culture developed by Scatec Solar as elaborated in the previous paragraph. When Scatec Solar first tried to establish business in Mali, through a vanguard project, they learned an important lesson. “*We must always have a portfolio perspective when working in high risk markets*”, said Mr. Lie Hansen. Risk must be spread among different geographical markets, and also among different projects in each market. After Mali, knowledge and experience was transferred from the project group to the main office so that entering South Africa was different. In South Africa, Scatec Solar entered with a 10-project portfolio, and although several failed they still have three seemingly very successful projects in the pipeline.

Mr. Lie Hansen said that there are few formal routines for communicating “lesson learnt” or store experience and knowledge. He said that most experience is communicated between members in meetings and while travelling together. Nonaka and Takeuchi (1995) named such knowledge transfer *socialization*, tacit knowledge is shared through dialogue as explained in section 2.2.2. In the South Africa case, Mr. Lie Hansen said that important knowledge regarding the bidding process is stored explicitly in the written tender itself. This is somewhat similar to the *externalization* from section 2.2.2. Nonaka and Takeuchi (1995) explained how knowledge gets created and amplified in an organization when knowledge changes through the “phases” socialization, externalization, combination and internalization (Figure 7) . Mr. Lie Hansen explained that explicit information stored in two or more successful tenders could be combined to create the foundation for new tacit knowledge important for winning new tenders. This transfer of knowledge from explicit sources to tacit usage was named *internalization* by Nonaka and Takeuchi (1995), and finalizes what they named the *knowledge spiral* (Figure 7). This knowledge spiral is according to the research by Nonaka and Takeuchi (1995) the *organizational knowledge creation process*. As knowledge passes through the spiral it amplifies and form the basis for new knowledge created from within the company.

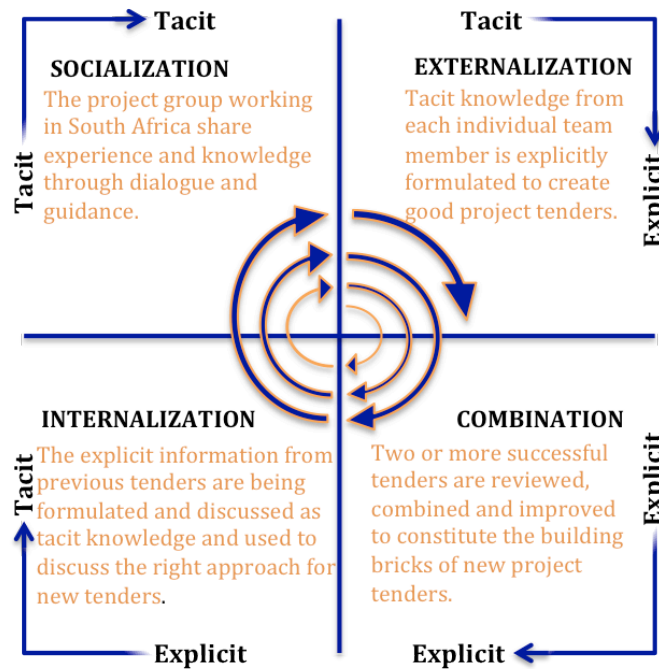


Figure 32: Scatec Solar Knowledge Spiral. Adapted and modified from Nonaka and Takeuchi (1995)

Figure 32 illustrates the findings from previous paragraph and Scatec Solar is hence a good empirical example for explaining the theories developed by Nonaka and Takeuchi (1995).

Scatec Solar seems to have succeeded in their vanguard approach to marked entry in South Africa. A highly competent organization is build from knowledge transfer and learning achieved by project groups working in distant markets. With a backlog of 190 MW in South Africa they certainly are in a prime position to negotiate with suppliers, banks and government, and therefore secure that projects in South Africa become good business for the company. Having this said, Scatec Solar is not walking a risk free path. Much can go wrong when Kalkbult, with its 312.000 solar panels, 158 km of substructure and hundreds of local workers, are kicked off in the start of 2013. However, as figure 30 illustrates, Scatec Solar seems to be very close to finalizing the development of a highly competent and well-structured organization capable of maneuvering gently in the South African market environment.

6. Discussion

The previous section presented findings and analysis from each of the individual case studies. These findings are for the most part limited to the empirical data that was gathered through semi-structured interviews in December 2012. Attempts were made to express the findings using theories and frameworks from the literature review in section 2. By placing the qualitative information from the three cases in common frameworks, structured comparisons can be made and conclusions drawn. This section will combine and cross-examine the findings from each individual case. The objective is to derive empirical evidence for or against the main hypothesis and to create generalisations needed to answer the connected research questions.

Hypothesis: ***Organizations use vanguard projects to learn, create preliminary capabilities and gain the first hand experience needed to make informed judgements and decisions about further investments in culturally distant, emerging markets.***

Section 6.2 *Implications* and section 6.3 *Limitations and Further Research* rounds up this discussion chapter.

6.1 Cross-Case Syntheses

The similarity amongst the three selected case companies strengthens the power of comparison. They are all Norwegian renewable energy companies with a recent market entry to Sub-Saharan Africa. Scatec Solar is privately owned and Agua Imara and TrønderEnergi are publicly owned, but they are all running projects with a strictly commercial mandate from its owners.

6.1.1 Project Capability-Building Model

The cornerstone of the theories developed by Davies and Brady (2000), Brady and Davies (2004), Frederiksen and Davies (2008), from which the theoretical foundation of this paper is made, is the *Project Capability-Building (PCB) Model* introduced by Brady and Davies (2004). Although originally designed from a study of capital goods suppliers, it has proven to be useful in analyzing companies moving into a new culturally different market base. The different phases, the duality of exploration and exploitation and the project-led and business-led learning mechanisms have all been useful in analyzing the renewable energy companies in this case study.

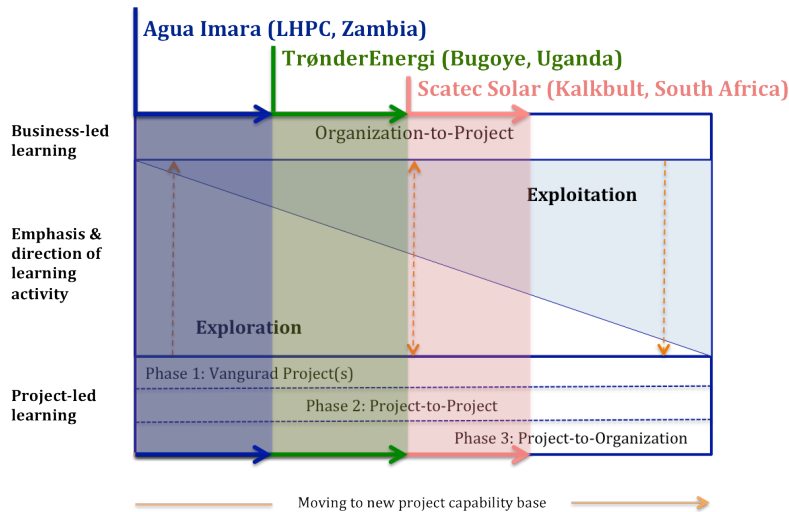


Figure 33: Case Companies Positioned in the Project Capability-Building Model. Adapted from Brady and Davies (2004)

The PCB model was used in this paper to examine the dynamics of project capability building that occurs when firms move into a new line of projects in a new culturally distant market. Figure 33 illustrates the case findings and visualizes where the three case companies are positioned according to the PCB model. It is important to emphasize that the case companies are positioned purely based on their foreign direct investment/base moving activities towards markets in Sub-Saharan Africa. All three case companies share a desire to create a new market base for renewable energy production in Sub-Saharan Africa. Between 2009 and now they have all initiated their *vanguard project* as defined by Brady and Davies (2004): “a vanguard project is the first project to be launched in a deliberate effort to move away from a firm’s core business and venture into a new market...” The vanguard project itself is only a subset of a series of base-moving projects set out to enable a firm to diversify into a new market position (Frederiksen and Davies, 2008). Findings indicate that the three case companies are positioned at three different levels according to the PCB model in figure 33. They have all gone through a vanguard phase, initiating their first project in SSA. TrønderEnergi and Scatec Solar have moved into a project-to-project phase, and Scatec Solar seems to be heading steadily towards the last phase of project-to-organization learning. In addition to time, findings indicate that other important factors impact the base-moving performance, or position of each company according to PCB model.

Project-Led Learning

The project-Led Learning is the bottom-up learning that occurs in an organization when it first enters a culturally distant market. The bottom-up learning has three phases. The first phase is where new projects are introduced and the exploration starts. The second phase is the transition phase where subsequent projects directly capitalize on the exploration done in the first phase. The last phase involves the transfer of captured experience and knowledge from phase one and two, to build new organizational capabilities to support a growing number of similar projects in the new market.

Phase 1: Vanguard Project(s)

According to the definition of vanguard projects, they involve an unknown solution space and therefore a risk of failing. This risk is however justified by the desire to

generate new knowledge about business in an unknown market environment. Even when failing, these projects can be concluded a success because of the learning that took place and experience that was gained. All three case interviews revealed that the desire to investigate the business opportunity in each of the respective markets in SSA left them with no other choice than to initiate a vanguard project. The nature of these emerging markets and the complexity of their institutional, legal, bureaucratic and cultural framework makes any attempt to analyze from distance a “shot in the dark”. Direct exploration through “hands-on” experience and learning is needed in these markets to be able to make informed decisions about further investments and market entry. This view is not only supported by the three case companies, but also a large report by Ernst & Young (2012) indicate that there is a large gap between perceived risk and actual risk related to African markets. In their survey, Ernst & Young (2012) found that correct knowledge about African markets to a large extent was limited to people with a track record from the given market. In more predictable, stable and mature western market it seem reasonable to invest time and resources on strategic “causal models” prior to any direct project investments. Whereas a more “trial-and-error” based approach seem suitable for unpredictable, somewhat unstable and immature markets in Africa. As an example, projects in Norway are likely to benefit from solid planning, estimations and schedules like *Gantt Chart* etc. The stability and maturity of the Norwegian business environment and the predictability of the institutions limit the possible outcomes of a venture. It is hence worth the effort to plan according to a set of qualified predictions about the project outcome. As opposed to this, a project in Uganda, for instance, would benefit from a more flexible approach to a venture as predicting the outcome is more of a “gamble” due to the many unknowns created by the less developed institutions. What matters in such a market is to have an organization willing to experiment and adapt thereafter.

According to Mr. Lie Hansen there is a path dependent learning curve in emerging African markets. His experience from various vanguard projects with Scatec Solar is that the longer one has been present with projects in these markets, the stronger one stands in competition against later arrivals. *“It is very difficult to equalize a head start in these markets”* according to Mr. Lie Hansen. Mr. Nessiøy also mentioned early entry as a significant competitive advantage. He said it was important for Agua Imara to be early in order to secure the best sites and projects for hydropower developments. When TrønderEnergi back in 2007 decided to develop and operate Bugoye Hydropower Plant in Uganda they did so because of few project opportunities in Norway at that time. Bugoye was an attempt to capitalize and maintain the technical knowledge and know-how of developing hydropower projects. Back then TrønderEnergi was not planning a portfolio of such projects in Western Africa according to Mr. Stølen. However, after good experience from Bugoye and with new knowledge and a more capable organization they decided to investigate two new projects. Mr. Stølen argued that it makes sense economically for TrønderEnergi to capitalize on the learning and experience gained through the development of Bugoye. *“There is a clear economy of repetition for us related to new projects in Uganda and we are very interested in capitalizing on the knowledge and experience we developed through Bugoye”*, said Mr. Stølen. Scatec Solar initiated their first vanguard project in Mali, but after the coup d’état in March 2012 the whole project evaporated. This experience taught Scatec Solar an important strategic lesson to not

“put all one’s eggs in one basket”. Because vanguard projects by definition involve risk and uncertainty it is smart to diversify the projects. After Mali, Scatec Solar approached South Africa with a “basket” holding 10 different projects. Most of them failed to become more than plans on a paper, but all of them contributed learning and knowledge towards what is now a 75 MW plant in construction and a backlog of another 125 MW where construction will be commenced in 2013.

In general findings indicate that exploration through conducting vanguard projects might be the only viable way to acquire knowledge and build experience needed to make informed and wise decisions regarding projects in SSA. Companies must be prepared to enter these markets early, before opportunities are lost or competitors get a head start that is impossible to equalize. These vanguard projects must however be accompanied by a “trial-and-error” attitude, a flexible approach and a organization willing to develop a organizational culture suited for doing business in SSA. Strategic management must recognize that the rewards from early entry and exploration of these markets may only be realized in the longer run. They need to be willing to accept the short-term risk of experiencing problems, or even failure, associated with conducting unfamiliar vanguard projects, in the expectation that the future revenue streams will recover any losses.

Phase 2: Project-to-Project

Project-to-project learning was identified very clearly in Scatec Solar when Mr. Lie Hansen explained how key personnel from their first successful tender, Kalkbult, was released from the project to support new tender projects. As soon as one vanguard project achieve something, Scatec Solar makes sure that at least one person involved are transferred to another project group. In doing this, Scatec Solar secures knowledge transfer and organizational learning between the projects. This example is very much in accordance with the definition of project-to-project learning from Brady and Davies (2004, p.1607): *“project-to-project learning is predominant as attempts are made to capture and transfer the experience and insights of participants in the vanguard project to subsequent project teams who can benefit from them”*. Project-to-project learning as the subsequent phase following a vanguard project was also identified through interviewing Mr. Stølen from TrønderEnergi. When TrønderEnergi developed and later constructed Bugoye Hydropower Plant in Uganda it was under the leadership of Jon Einar Værnes. However, Mr. Stølen was given the responsibility when TrønderEnergi decided to pursue two new projects in Uganda. Mr. Stølen said that knowledge transfer from Mr. Værnes via verbal communication is vital as he tries to expand TrønderEnergi’s portfolio in Uganda. Experiences and tacit knowledge from the people involved in Bugoye had to be transferred to Mr. Stølen and the other people involved in the new project group in order to secure that investment made in competence building prior and during Bugoye is being capitalized in succeeding projects.

Only when “lesson-learnt” is communicated to subsequent projects can costly exploration slowly evolve into more fruitful exploitation. Exploration is associated with investments and costs, whereas exploitation is associated with returns and economies of repetition. It is only when companies start exploiting their own knowledge and capabilities that revenue can be made and competitors beaten. Project-to-project

learning can therefore be identified as the phase when a company starts shifting from a purely vanguard exploration phase towards a harvesting exploitation phase.

Agua Imara has not yet been able to move into a phase of project-to-project learning as far as markets in SSA are concerned. They are however fortunate to have access to a vast pool of experience and knowledge from their precursor SN Power. SN Power has a track record of more than 1300 MW of hydropower developments and acquisitions mainly from emerging markets in Asia and South America. As far as the technical issues are concerned, Agua Imara has access to the technical competence and knowledge stored in Statkraft, one of the leading hydropower companies in the world. Statkraft and SN Power has therefore secured that Agua Imara was established with a great deal of *congenital knowledge*. It is therefore neither the technicality, nor the financial or project managerial issues that made LHPC a vanguard project. LHPC was the first project in what is expected to be a portfolio of similar projects in Africa. Mr. Nessiøy said that LHPC is a very important project both for learning and later reference. He stated that competence building through LHPC and later transfer of knowledge from LHPC to successive projects is very important if Agua Imara is to achieve their 2020 goal of 500 MW of hydropower in Zambia. Agua Imara is certainly expected to enter both the project-to-project phase, and later the project-to-organization phase needed to become a profitable and solid player in SSA.

Project-to-project learning was identified in Scatec Solar and TrønderEnergi. Both are capitalizing on the learning and experience gained through vanguard projects as they take on new projects in their respective markets. Little formalized routines, codification or knowledge articulation processes was identified. These firms seem to rely to a great extent on people-embedded knowledge. Mr. Stølen and Mr. Lie Hansen mentioned verbal communication through meetings and shared travels as the main channels for sharing knowledge. None of the companies have special group meetings or computer systems where sharing and storage of knowledge and experience is primary focus. Prencipe and Tell (2001) would place Scatec Solar and TrønderEnergi as L-shaped organizations. The L-shaped landscape (Figure 13) is typical of firms with a lack of formal project-to-project learning mechanisms and they therefore rely heavily on personal and informal contacts for knowledge transfer purposes.

Despite the lack of formal routines and programs for knowledge sharing and storage, organizational learning is devoted much attention in all three case companies. Agua Imara is actively building competence through their LHPC project so that successive, large projects in Zambia can be conducted more efficiently. TrønderEnergi expects that the knowledge and experience from Bugoye will make new projects in Uganda even more profitable for the company. Scatec Solar was able to reduce the costs from the first vanguard project, Kalkbult, to the successive projects Linde and Dreunberg by 40%. This was only possible because of project-to-project learning and by exploiting knowledge and experience from Kalkbult, according to Mr. Lie Hansen. In Scatec Solar and TrønderEnergi deliberate attempts were made to “select” successful routines and practices and carry them forward into subsequent projects.

Phase 3: Project-to-Organization

“In project-to-organizational learning attempts are made to consolidate the initial learning and to systematically spread this accumulated knowledge throughout the department, business unit or division responsible for delivering projects” (Brady and Davies, 2004, p.1608). Of the three case companies, only Scatec Solar indicated project-to-organization practices. Mr. Lie Hansen explained that Scatec Solar is in a very competitive tendering industry where each new project often needs to be won by beating several other companies on price, but also on socio-economic parameters. Winning these tenders require a highly competent and unified organization. Scatec Solar needed to improve their tender by a 40% decrease in price per MW from the first tender round to the second in South Africa. To achieve this the whole organization needed to be structured in the best possible way to secure that competence was brought from one project to the other. Mr. Lie Hansen explained how the company was divided into business units where the “development” unit was given full responsibility for winning tenders. Instead of having the same people follow the project all the way through, key personnel is taken of the project and moved to work on new tenders. A specialized “solutions” unit takes over “shovel ready” projects and as soon as the plant is operational another unit takes over operational responsibility or handover. This structure has proven to be very efficient as each unit gets to specialize in a particular area of the project, according to Mr. Lie Hansen. It’s been especially successful to let the development group move quickly from one tender to the other. This has according to Mr. Lie Hansen secured that the knowledge and experience gained in previous and current projects could be used more systematically in the setting up and execution of subsequent project tenders.

In section 5.3 another good example was given to illustrate the project-to-organization learning that has been taking place in Scatec Solar in their handling of the South African market. A small group of Scatec Solar worked in South Africa for three years leading up to their first successful tender. During that period the group learnt to understand how South Africa business and social culture is like and hence adapted accordingly. As South Africa became a very active market for Scatec Solar it became necessary to have the support of the whole organization. Mr. Lie Hansen explained how they had to transfer the cultural knowledge and experience they had from South Africa so that the rest of the organization would be on the same wavelength. The previous mentioned examples from Scatec Solar illustrates a bottom-up learning, leading to a project-to-organization learning that is necessary for knowledge and experience to become embedded in the organizational memory. Getting knowledge and experience from the vanguard group working in the various African markets is vital so that the business-led, top town strategic management and support can contribute to the project execution in the best possible way. Only when project-to-organization learning has occurred will the company be able to fully exploit previously gained knowledge and experience and provide the necessary top-down strategic support needed to facilitate a growing number of similar projects.

Business-Led Learning

The objective of the business-led learning is to refine and extend the firm's capabilities and routines in order to fully exploit its new foreign market opportunities (Brady and Davies, 2004). When firms enter a new culturally distant market it is essential that bottom-up learning and exploration from the vanguard project quickly enter the project-to-organization phase, followed by the organization-to-project phase. Only then can strategies, capabilities and structures be shaped in a suitable way to exploit the new opportunities and create a first mover advantage for the firm in the new market. The project group needs the support of the whole organization in order to create a portfolio of projects in a new market. The tables must therefore at one stage be turned from bottom-up learning focus and exploration to top-down coordination and exploitation of the new opportunities.

Business-led, organization-to-project learning was only identified in Scatec Solar. Scatec Solar was the only case company where concrete attempts were made to ensure that important project-based learning was fed back to senior management involved in formulating the overall strategy for the new business opportunity. It was explained in the previous section how Scatec Solar has transferred knowledge between project and also actively between projects and the organization. The entire organization has been educated about South African business culture and other important learning and experience has been transferred back, and distributed to Scatec Solar offices in Norway and Germany. This transfer of "on the ground" knowledge has helped the organization refine and improve their capabilities to better meet challenges in South Africa. It has also helped develop an organization where the top-down strategic decisions are made based on concrete experiences from the people in possession of the most accurate local knowledge. Experience from project development and tender rounds in South Africa were shared with senior management so that structural changes were made and Scatec Solar evolved into an efficient and highly capable project organization in South Africa.

TrønderEnergi has not been able to create the same project-to-organization learning as Scatec Solar. From the interview with Mr. Stølen, few business-led learning practices were identified. TrønderEnergi is a large company with several large business areas, such as operating and developing new national hydropower projects and developing wind power plants. Their operations in Africa are early stage and only involve an isolated group of people. There is also a great deal of uncertainty regarding the willingness of TrønderEnergi's municipality owner to continue the investments in Uganda. TrønderEnergi is seemingly lacking the top-down, business-led learning and strategic support needed to facilitate efficient transfer of knowledge from project to organization. When knowledge and experience from Bugoye and Uganda is not able to reach beyond the project organization it is difficult to get the organization-to-project support needed to fully exploit new opportunities and make Uganda and West Africa an important part of TrønderEnergi's portfolio. From interviewing Mr. Stølen it seems like there is a large gap between the "knows" and the "not-knows" about what is going on in Uganda, and how projects in Uganda are different to projects in Norway. This gap is likely to hinder efficient development of new projects in Uganda and also reduce the exploitation opportunities that exist based on the knowledge and experience gained through Bugoye, a very successful vanguard project.

Findings indicate that it is imperative that knowledge and experience from the vanguard project quickly gets transferred and shared with extended parts of the organization. It is especially important that strategic decision makers are fed with knowledge about the new market environment in which they are operating and trying to get a foothold. It's only when knowledge and experience get articulated to the wider organization that the organization is able to provide the necessary support needed to grow a vanguard project to a complete set of base moving projects, hence securing the organization a foothold in a new market. The research framework in figure 16 illustrates how vanguard projects are in the forefront of the base moving projects, and how organizational learning and knowledge transfer back to the organization is a vital part of the base-moving plan. The people involved in the vanguard project are likely to develop a special sub-organizational culture from operating in a culturally distant market. They adapt to the new "rules of the game" and the different legal, institutional, bureaucratic and cultural environment they are working in. Unless knowledge and experience is shared with extended parts of the organization, there is a danger that cultural boundaries may be created within the organization, between the vanguard project group and the rest of the organization. Such inter-organizational boundaries are likely to prevent full exploitation of a new market opportunity. Mr. Nessiøy explained how he has experienced such inter-organizational boundaries in previous projects before he started working at Agua Imara. He explained how the project group working on the ground in Africa often needed to adapt to the local culture to an extent where it became difficult to communicate with other members of the organization working from Norway. His example supports the findings that sharing of knowledge and experience from the vanguard project group to the organization is vital in order to build an organization capable of supporting a growing number of projects in the new market.

Organizations Absorptive Capacity

Cohen and Levinthal (1990) created the term *organizations absorptive capacity* to explain the skills organizations need to prevent such inter-organizational boundaries from being created. "*Absorptive capacity is the ability to recognize the value of new information, assimilate it and apply it to commercial ends*" (Cohen and Levinthal, 1990). Organizational absorptive capacity depends on more than the direct interface with the external environment, it also depends on the transfer of knowledge across and within sub-units that may be located far from the knowledge point of entry (Cohen and Levinthal, 1990). Absorptive capacity is therefore, as illustrated in the research framework (figure 16), an equally important skill at the individual level, at the vanguard project level, and also at the organizational level.

The PCB model has proven to be a useful model when analyzing a firm's entry to emerging markets. This paper hence answers the questions asked by Brady and Davies (2004) about whether their model could be applied to other project based businesses than capital good suppliers from which it was originally designed. The duality of exploration and exploitation from March (1991) is certainly relevant for project based entry to emerging markets. The three cases in this paper also prove that renewable energy companies entering markets in SSA use vanguard projects. Also the distinction between and coexisting nature of project-led learning (with its three phases) and business-led learning has provided a good framework for analyzing the market entry of

Agua Imara, Scatec Solar and TrønderEnergi. The research framework in figure 16 was developed in this paper to connect the theories of organizational learning and knowledge transfer to the theories of vanguard projects. It has been ever so important to illustrate this connection as learning is the most imperative task of any organization's market entry to immature and culturally different emerging markets. Success in these markets is more often a byproduct of learning than learning is a byproduct of success. Entering Africa requires learning and experience, and the only viable way of getting that is by trial-and-error through vanguard projects.

6.2 Implications

Section 6.1 furnished the theoretical concepts from chapter 2 with empirical information and knowledge from interviewees with relevant experience from base moving projects to sub-Saharan Africa. The project capability-building framework (figure 11), created by Brady and Davies (2004) was together with the research framework (figure 16) developed in this paper, used as foundation for the case study. The purpose was to explore the use of vanguard projects as the initiating phase of an internationalization plan to culturally distant emerging markets. The emphasis was on organizational learning and knowledge transfer in relation to the vanguard project. Section 6.2.1 presents implications for researchers and section 6.2.2 presents implications for manager before chapter 6 is rounded off by limitations and further research in chapter 6.3.

6.2.1 Implications for Researchers

This paper builds on the extensive theoretical field of organizational learning and knowledge transfer and connects it to the relatively new field of vanguard projects and project based market entry to foreign markets. The emerging markets in sub-Saharan Africa were chosen as the context and renewable energy companies with a recent entry to these markets were selected as case companies. The choice of context and case companies were chosen deliberately as sub-Saharan Africa by many is considered the frontier emerging market, and because the lack of electric power is considered the main limiting factor for growth in the region.

Answering questions from previous researchers

"The project capability-building model is based on a limited sample of capital goods suppliers... Further research is required to test whether the model can be applied beyond these project businesses to other categories of projects..." (Brady and Davies, 2004, p.1617)

This paper has shed light on the use of vanguard projects as the first phase of a firms internationalization plan to a culturally distant, emerging market. Empirical evidence have confirmed the hypothesis of this paper, that the model and practices developed by Brady and Davies (2004) is applicable for companies entering culturally distant, emerging markets. The confirmation of the hypothesis of this paper is also an answer to the questions asked for "further research" by Brady and Davies (2004). Findings in this

paper suggests that their PCB framework is ideal for discussing and analyzing the practices and strategies of firms entering culturally distant, emerging markets.

This paper has also contributed to narrow down the vast amount of literature in organizational learning and knowledge transfer, and linking it to the learning practices introduced in the PCB framework. Figure 16 was created to illustrate what concepts from organizational learning and knowledge management theory that had a direct connection to the theory of vanguard projects. Other researchers can hopefully use this framework to better integrate the theories of OL and KM to more recent theories of vanguard projects and base-moving projects.

“Further research is needed to examine the organizational process of how the integration and reuse of project outcomes translates into the project routines of the parent company” (Frederiksen and Davies, 2008, p.495)

Frederiksen and Davies (2008) introduced the use of the PCB framework to entrepreneurial ventures where organizations search for new customers in a new market as oppose to creating a new market for existing customers as the framework was originally designed for. This paper has continued on the path started by Frederiksen and Davies (2008) and also helped shed light on their request for further research. The three case companies in this paper provide several empirical examples of how the integration and reuse of project outcomes is translated into the project routines of the parent company. Especially the examples from Scatec Solar illustrate how organizations can translate learning and experience from vanguard projects into altering the routines of the parent organization.

In addition to answering the previously mentioned research questions from *Brady and Davies (2004)* and *Frederiksen and Davies (2008)*, this paper has introduced the specific analysis of western firm’s entry to sub-Saharan Africa. This frontier emerging region is one of few areas in the world with fast growing markets, and the growth is expected to continue for years to come. SSA is therefore a region to count on for profit seeking investors looking for alternative investments outside the troubled euro-zone and other low growth western economies. Emerging economy context challenges some of the assumptions of theories originally created for developed economies and the heterogeneity among emerging economies makes generalization hard and the need for context specific research vital. Research on SSA emerging economies and organizational entry to these markets are therefore expected to increase in relevance in the years to come.

6.2.2 Implications for Managers

This paper is based on interviews with highly experienced managers from three different renewable energy companies with a recent entry to sub-Saharan Africa. The interviews, together with theory, has provided insight to the field of vanguard projects that as highly valuable for managers in similar situations or with similar objectives for the future. The following bullets summarize the most significant implications managers can draw from this research paper.

- Managers must be aware of the market opportunities that exist in sub-Saharan Africa.
- Managers must understand the importance of learning by doing, trial and error, direct experience and early entry in an emerging economy context.
- Managers must be aware of the risk and unknown solution space they are likely to experience in SSA emerging markets. A flexible approach is recommended.
- Managers should always try to facilitate knowledge transfer and organizational learning from the project group working overseas in culturally distant markets, to the organization at home. This is important so that the cultural input and experience gets shared and benefits the organization as a whole.
- Managers must not underestimate the importance of local, country specific knowledge and experience in SSA.
- Managers must be careful when creating generalizations in SSA. Most countries are fundamentally different and require country specific discrimination rather than generalization.
- Vanguard projects must be managed with learning and experience building as equally important objectives as quality, time and cost. Normal project management tools like Gantt chart will hence perform poorly on vanguard projects, and need to be modified or replaced.
- A vanguard project is a highly recommended way to start an African venture.

6.3 Limitations and Further Research

There has been made several limitations of scope in this case study. These are mainly due to time and resources constraints, but there has also been a selection based on what was believed to be relevant and of greatest interest to the reader. Much effort was put into an extensive literature search and a rather comprehensive research framework was created. Well aware that the empirical study would not be able to cover it all, this was done to hopefully provide a good starting point for other research papers on the same topic. However, the empirical study was extensive enough to secure the relevance of the topics covered and also to extract interesting findings.

The scope was limited to cover the main topics under organizational learning theory, knowledge management theory and the relatively new area of vanguard project theory. The selection and distinction between theoretical topics from organizational learning theory and knowledge management theory are mainly based on the rather extensive summary of the field in the *Handbook of Organizational Learning and Knowledge Management* by Easterby-Smith and Lyles (2011b). The context is limited to cover sub-Saharan Africa, although some of the ideas and findings may be valid for emerging markets in other regions. The empirical data is limited to three Norwegian case companies. These are all Norwegian independent power producers with a recent entry to sub-Saharan Africa. The findings in this paper is however not limited to energy companies, or Norwegian companies. Any western company conducting vanguard projects in sub-Saharan Africa is likely to benefit from the findings and argumentation in this paper.

Further research is needed to provide stronger proof for some of the findings in this relatively small (3 cases) case study research. Companies from different sectors,

entering different sub-Saharan African countries need to be studied in order to provide a stronger argument for findings in this paper, and for supporting the PCB model created by Brady and Davies (2004). Further research can take a more narrow approach to the topic and investigate what specific routines are used to transfer knowledge and experience from a project group operating in a culturally distant market and back to the organization. Studies of how to improve such knowledge sharing would also be useful for managers. Further research could also try to identify or develop project management tools designed for vanguard type projects. Projects in immature markets with unstable institutions, high risk and unforeseen uncertainties require a different type of project management tools. Gantt chart and other tools are certainly useful in stable, predictable and familiar environments where cost, quality and time are key objectives. Vanguard projects need project management tools where learning and gaining of experience are as important objectives as quality, cost and time. None such project management tools were identified in the three cases from this paper, leaving it to be a good topic for further research.

Section 5 and 6 has provided empirical evidence to strengthen the relevance of vanguard projects for firms entering sub-Saharan Africa. Abstract concepts from theory in section 2 has been used to explain empirical actions, made empirical comparisons possible and hence made the relevance of the theoretical concepts stronger. The *project capability-building framework* (Figure 11) has in particular been strengthened as a framework for analyzing a firm's project based entry to foreign markets. The *vanguard project OL and KM framework* (Figure 16) created as a research framework for this particular paper has efficiently illustrated the connection between vanguard project theory and OL and KM theory. Although the mutual relevance between these areas of study was obvious prior to this study, it is believed that the explanations and illustrations provided in this paper were needed to make the connection even clearer. Altogether the examples, illustrations and findings in this paper are believed to provide a good starting point for further study of vanguard projects as entry strategy to culturally distant markets.

7. Conclusion

This case study research was motivated by the theory of vanguard projects and their function as a learning vehicle for firms entering a new market or technology base. Combined with the aspiration to help firms succeed in their entry to markets in sub-Saharan Africa, the following hypothesis was created: *“Organizations use vanguard projects to learn, create preliminary capabilities and gain the first hand experience needed to make informed judgments and decisions about further investments in culturally distant markets”*. Agua Imara, Scatec Solar and TrønderEnergi are all Norwegian renewable energy companies with a recent market entry to Zambia, South Africa and Uganda, respectively. Their market entry strategy bears resemblance to the theories of vanguard projects and was hence ideal in providing empirical data to scrutinize the main hypothesis.

From the theories of vanguard projects, a strong link to organizational learning and knowledge management was discovered. Learning, knowledge and experience building are as important measures of success in a vanguard project as cost, time and quality. This connection between established OL and KM theories and the relatively new field of vanguard projects was illustrated in the research framework created in this paper. Together with the project capability-building framework, from which the concept of vanguard projects stem, they constituted the theoretical foundation in which this paper is based. The empirical evidence from this paper epitomizes the use of these frameworks in the study of western firm’s market entry to culturally distant markets. Learning as the cornerstone of foreign direct investment to these markets is evident as they introduce a very different cultural and business environmental scene.

The first and most concrete finding in this paper was the verification of the research hypothesis. The use of vanguard projects was identified in all three case companies, hence confirming their suitability as an empirical source. The case companies stated that involvement in risky ventures in Africa was justified by their desire to generate new capabilities, knowledge and experience in what is considered to be large, future markets.

“How can a vanguard project facilitate learning, capability building and experience expansion in culturally distant markets?”

The general opinion was that the nature of the emerging markets in sub-Saharan Africa and the complexity of their institutional, legal, bureaucratic and cultural framework would make any pre-entry analysis a “shot in the dark”. The capabilities needed to make informed decisions about investments in sub-Saharan Africa are best gained through “hands-on” learning and experience from conducting vanguard projects. The luxury of pre-entry feasibility studies, outcome predictions and precise time and cost schedules as accurate decision parameters is reserved for stable, familiar and mature markets. Whereas a more “trial-and-error” based approach seems suitable for unpredictable, somewhat unstable and immature markets in Africa. This mere fact changes the way organizations should organize their first projects in these markets and how they should measure success.

“How is a vanguard project set up and how does it differ from other projects?”

Conventional projects tend to measure success through factors such as time, cost and quality. A vanguard project differs in that, in addition to these factors, there is equal or more emphasis on learning, knowledge transfer and the gaining of experience. A vanguard project can hence be successful although it fails to deliver tangible results. Findings indicate that vanguard projects are set up with a mentality that risk of experiencing problems or even failure is accepted based on the expectation that future revenue streams will recover any loss. Project-to-project learning as the subsequent phase after the vanguard project(s) was identified in Scatec Solar and TrønderEnergi. Capabilities gained in the vanguard project(s) were quickly exploited in new projects through transfer, sharing and creation of knowledge between projects. However, few formalized learning routines, codification or knowledge articulation processes were identified. They therefore relied heavily on re-use of experts and personal and informal contacts for knowledge transfer purposes. Despite the lack of formal routines, deliberate attempts were made to “select” successful routines and practices and carry them forward into subsequent projects.

“How can organizations exploit the learning, knowledge and experience gained through vanguard projects to support successive base moving projects?”

Scatec Solar was the only case company where direct project-to-organization learning was identified. Scatec Solar has deliberately transferred knowledge and experience from vanguard projects in South Africa back to the organization at home so that a shared understanding of cultural and environmental contingencies was created. Scatec Solar has therefore been able to provide the necessary top-down, organization-to-project, strategic and structural support needed to facilitate a growing number of similar projects. The transfer of “on the ground” knowledge has helped Scatec Solar refine and improve their capabilities to better meet the challenges in South Africa. Scatec Solar is therefore in a good position to exploit the new opportunities and create a solid first mover advantage in South Africa. The lack of top-down business-led support in TrønderEnergi has seemingly created a large gap between the “knows” and the “not-knows” about what is taking place in Uganda. This gap is likely to create inter-organizational culture boundaries between the project group getting exposed to the new culture and environment in Uganda and the unaffected organization at home. Such a boundary can hinder efficient development of new projects in Uganda, and hence reduce the exploitation opportunities that exist from the knowledge and experience gained through Bugoye, a very successful vanguard project. These two examples illustrate the contradictory effect of good as opposed to bad project-to-organization knowledge transfer and subsequent exploitation.

Vanguard projects are certainly being used to enter culturally distant markets in sub-Saharan Africa. The project capability-building framework is proven ideal for conducting comparative research and for analyzing the long-term, project capability-building dynamics of these firms. In addition to introducing a new application for the project capability-building framework, this paper has also, through the research framework, developed a closer and improved connection between vanguard project theory and Organizational Learning and Knowledge Management theory.

8. References

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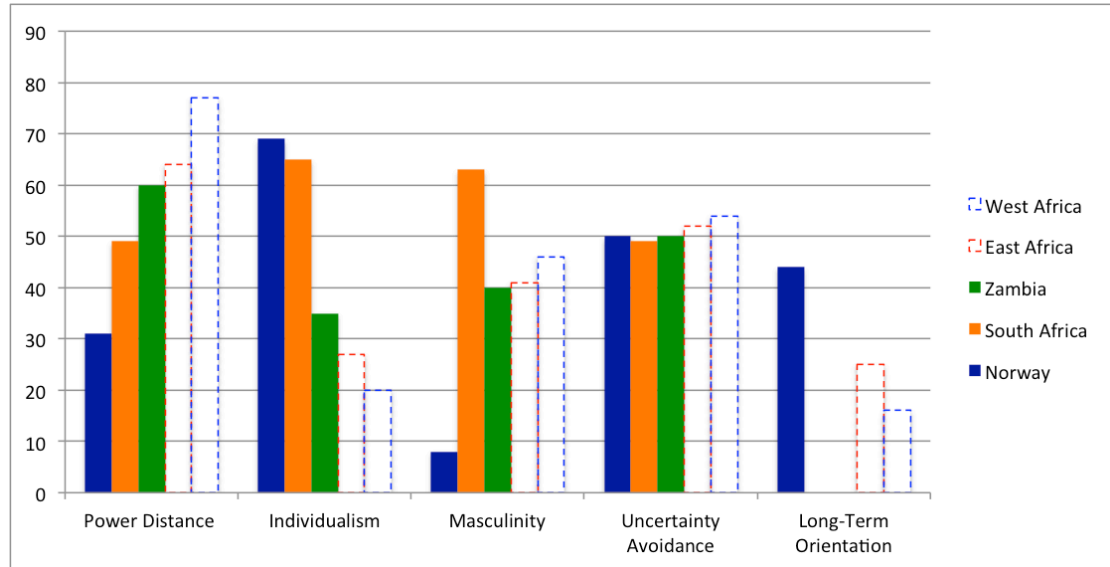
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9. Appendix

Appendix 1: National Cultural Differences

Comparing the national cultural dimensions of Norway to South Africa, Zambia, East Africa and West Africa after scored developed by Hofstede (2012).



Power Distance:

Measures the degree to which people can accept unequal distribution of power inside organizations.

Individualism:

As opposed to collectivism, represents the preference of a loosely (instead of tightly) knit social framework.

Masculinity:

As opposed to femininity, represents the degree to which people prefer values of success and competition to modesty and concerns for others.

Uncertainty Avoidance:

Refers to the degree to which people tolerate uncertainty and vagueness in situations.

Long-Term Orientation:

As opposed to short-term orientation. Can be interpreted as dealing with societies' search for virtue.

From Hofstede (2012)

Appendix 2: The CAGE Distance Framework

Framework developed by Ghemawat (2011) in his book *World 3.0: Global Prosperity and How to Achieve it*. Commonly used to analyze and measure *psychical distance*, and is hence a useful tool for companies expanding into culturally distant markets.

	Cultural Distance	Administrative Distance	Geographic Distance	Economic Distance
External distance (bilateral/plurilateral/multilateral attributes)	<ul style="list-style-type: none"> • Different languages • Different ethnicities/lack of connective ethnic or social networks. • Different religions • Difference in national work systems • Different values, norms, and dispositions 	<ul style="list-style-type: none"> • Lack of colonial ties • Lack of shared regional trading bloc • Lack of common currency • Different legal systems • Political hostility 	<ul style="list-style-type: none"> • Physical distance • Lack of land border • Difference in climates (and disease environments) • Difference in time zones 	<ul style="list-style-type: none"> • Difference in consumer incomes • Differences in availability of: <ul style="list-style-type: none"> ▪ Human resources ▪ Financial resources ▪ Natural resources ▪ Intermediate inputs ▪ Infrastructure ▪ Supplier/distribution structure ▪ Complements ▪ Organizational capabilities
Internal distance (unilateral attributes)	<ul style="list-style-type: none"> • Traditionalism • Insularity • Spiritualism • Inscrutability 	<ul style="list-style-type: none"> • Nonmarket/closed economy (home bias versus foreign bias) • Lack of membership in international organizations • Weak legal institutions/corruption • Lack of government checks and balances • Societal conflict • Political/expropriation risk 	<ul style="list-style-type: none"> • Landlockedness • Geographic size • Geographic remoteness 	<ul style="list-style-type: none"> • Economic size • Low per capita income • Low level of monetization • Limited resources, inputs, infrastructure, complements, capabilities

Appendix 3: Learning Mechanisms and Practices

This table is acquired from a study by Brady et al. (2002) and illustrates their findings of learning mechanisms and practices, and the associated knowledge process of a relatively large survey of UK firms. The table indicates something of the diversity of practices and mechanisms that can have a bearing on inter-project learning.

Learning Mechanism/Practice	Prime Knowledge Process			
	Acquire	Create	Capture	Transfer
Post-project appraisals		X	X	
Mid-project reviews			X	
End of Phase reviews			X	
Mid-phase reviews			X	
Phase handover meetings				X
Project summaries and bulletins			X	X
Incorporation of previous learning points at start-up meetings/design reviews				
Brainstorming sessions		X		
Team-building events		X		
Cross-project meetings, e.g. project manager or functional department meetings		X		X
Specialist input from outside the project, e.g. experts invited to project meetings				
Milestone/tollgate meetings and reviews			X	X
Internal conferences and seminars	X			X
External conferences and seminars	X			X
Participation in industry groups and institutions	X			X
Learning from suppliers	X			X
Learning from customers	X			X
Document management systems			X	
Product data management systems			X	
Change control systems				
Risk management systems				
Risk registers				
Project management systems			X	X
Quality management systems			X	X
Maintenance records			X	
Customer feedback		X		
Corrective action documentation				
Performance improvement methodologies			X	
Benchmarking initiatives	X		X	
Technology watching/tracking and roadmaps	X		X	
Root cause analysis	X		X	
Standard design objects and templates			X	
Standard proposal documents and templates			X	
Records of successful/failed bids			X	X
Checklists			X	
Meeting minutes and documentation			X	
Project review documents			X	
Lessons learned database			X	X
Feedback and suggestions database			X	X
Standard processes, procedures, and guidelines			X	X
Process maps and mapping			X	

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Knowledge mapping			X	
Reference projects		X		X
Technical and organisational audits	X		X	X
Standard work breakdown structure			X	
Document and design archives – electronic and hard copy			X	X
Company white pages				
Expertise/skills database			X	
Newsletters and company magazines				X
Information videos				X
Centres of competence/excellence		X	X	X
Best practice teams		X	X	X
Company intranets			X	X
Groupware			X	X
Inter-organisational extranets	X			X
Electronic/virtual universities	X			X
Hyperlinked documents				X
Discussion forums		X		X
Electronic chat rooms				X
Email communication				X
Global email distribution lists				X
Video/audio conferencing		X		X
Collocation of team				X
Shared interaction spaces, e.g. coffee areas				X
Social networks				X
Informal/ad hoc communication				X
Formal/informal social events				X
Boundary spanning individuals				X
'Travelling' experts who move around the organisation transferring knowledge				X
Mentoring and 'buddy' systems				X