Dynamic capabilities and internationalization: a theoretical framework

By

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ABSTRACT

This Master thesis revolves around the development of a management tool for internationalization in the form of a theoretical framework. The management tool can be used for managers of a middle to large organization who have the intention to internationalize. The tool can be used to identify bottlenecks in the internationalization process which managers can use to develop a change program in order to solve the bottlenecks.
EXECUTIVE SUMMARY

The goal of this Master Thesis project is to develop a practical management tool that middle to large organizations can use to internationalize successfully. Consequently, the research question is as follows:

*What is a suitable framework for identifying and assessing internationalization issues?*

A thorough literature review on sustained competitive advantage and internationalization resulted in a theoretical framework that combines the dynamic capabilities model developed by Teece (2007) with important aspects of the internationalization process (dynamic capabilities are routines for intentionally adapting the resource base of a firm). This model has been used at the ARCADIS rail signaling department (that has the intention to internationalize) in order to identify challenges regarding their internationalization process. A survey based on the framework and interviews among employees have been used to spot internationalization challenges for the rail signaling department. Three other departments of ARCADIS (‘rail studies and consultancy’, ‘track and electrification design’, ‘tunnels and underground space’), are involved in the project. This provides, besides useful results for the departments, also possible learning opportunities for the rail signaling department. The results have been used to spot positive and negative trends of the rail signaling department. Positive trends are the organizational culture, the willingness of employees, the manager as a role model and the business environment. Negative trends involve the market scanning activities, networking capabilities, communication, uncertainty and involvement concerning internationalization and knowledge management. Using the positive trends, a change program has been designed in order to diminish the negative trends. The change program needs to transform the rail signaling department from inwardly focused to market oriented in order to make market scanning a routine which entails the first step of successful internationalization. The change program consists of four different categories: mental models, tactical processes, operational processes and leadership style (facilitative leadership).

A practical model for implementing routines for creating a market oriented culture can be found below (figure 1). The change program starts with a communication plan on what is going to change, what employees can expect from it and what is expected from everyone involved. The next step is to introduce market scanning techniques and form cross-functional teams. Moreover, a database has to be designed and implemented in order to distribute the information as efficiently as possible. Three aspects will have an effect on all the different steps: the incentive program, measuring and controlling
and facilitative leadership. Changing employees’ mindset is a complex and difficult process. An important step in this process is to make employees recognize that they have a choice; they have a choice to be either market oriented or not (Pfeffer, 2005). The process should not be completely focused on convincing that one approach is better than the other, it is about triggering internal motivation of employees to become market oriented. This will be the only way to create a market oriented organization where market scanning and managing networks are a routine.

![Diagram of operational processes of the change program](image)

**Figure 1: Operational processes of the change program**

As with most change programs, it is important to have an owner, someone leading the project. This has to be someone with authority and enthusiasm concerning the internationalizing process. The most logical choice would be someone who has international market knowledge and stays close to the department in order to fit the change program to the exact needs of the department. A shift from a non-market oriented department to a market oriented department takes time (Cameron & Quinn, 2006) and a budget is needed to implement the different operational processes. Management has to keep employees motivated when short term successes do not present themselves. One of the most important aspects that can determine the success of the change program (cultural shift) is stamina (Alvesson, 2002). Stamina ensures that the project remains a top priority and employees stay committed to making the project a success over a longer period of time. This can be enabled by using a systematic approach and an overriding vision (Alvesson, 2002).

The management tool that combines the dynamic capabilities framework by Teece (2007) with internationalization is optimized using the results and the development of the change program for the rail signaling department. The three dynamic capabilities of the model by Teece (2007) are ‘sensing’,
‘seizing’, ‘managing transformations’. The micro-foundations that influence all the three categories are ‘facilitative leadership’ and ‘unlearning capabilities’. The other micro-foundations are directly linked to one of the dynamic capabilities. The optimized management tool looks as follows:

Figure 2: revised theoretical framework
PREFACE

This paper represents my Master thesis for the Master Innovation Management at the Eindhoven University of Technology and is the final step towards the degree Master of Science.

I would like to thank my mentor of the TU/e dr. ir. Bob Walrave. Bob Walrave was my mentor during my Bachelor thesis and we continued our successful collaboration for this Master thesis. With excellent observations and suggestions, while always keeping in mind the overall goal of this thesis, he contributed highly to my Master thesis. I also would like to thank my second supervisor of the TU/e dr. Myriam Cloodt. Her expertise and feedback has been a valuable addition to the overall result.

I conducted this project from February 2014 till August 2014 at ARCADIS BV. Seven months I had the pleasure of working with enthusiastic employees who involved me like a colleague. Moreover, I would like to thank my direct supervisor at ARCADIS, Jeroen Hoekstra. His practical suggestions were an addition to my Master thesis. I also would like to thank Michel Fleuren, the principle of my project at ARCADIS.

Obtaining my Master’s degree marks the end of an era, my time as a student. While the past five years have been an amazing experience, new opportunities lie ahead and with a solid education I can face them with confidence.

Jeroen van den Broek

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CONTENTS

Abstract ........................................................................................................................................... i
Executive summary ............................................................................................................................... ii
Preface ................................................................................................................................................ v

1 Introduction: Innovation and competitive advantage ................................................................. 1

2 Theoretical background .................................................................................................................. 3
  2.1 Explaining competitive advantage ......................................................................................... 3
    2.1.1 External perspective and competitive advantage: five forces ........................................... 3
    2.1.2 Internal perspective and competitive advantage: the resource based view .................... 4

2.2 Changes in the environment ....................................................................................................... 6
  2.2.1 Dynamic capabilities ........................................................................................................... 6
  2.2.2 Dynamic capabilities framework ....................................................................................... 8

3 Towards a new theoretical model .................................................................................................. 14
  3.1 Introduction to internationalization ....................................................................................... 15
  3.2 Internationalization and dynamic capabilities .......................................................................... 16
    3.2.1 Dynamic capabilities and micro-foundations ................................................................. 16

4 The theoretical model .................................................................................................................... 27

5 Method .......................................................................................................................................... 29
  5.1 Research Plan and context ....................................................................................................... 29
  5.2 Data collection .......................................................................................................................... 29
  5.3 Data analysis ............................................................................................................................ 31

6 Results ......................................................................................................................................... 33
  6.1 Exogenous influences .............................................................................................................. 33
    Within case analysis .................................................................................................................. 34
      6.1.1 Sensing: market scanning capabilities ............................................................................. 34
      6.1.2 Sensing: networking capabilities .................................................................................. 35
      6.1.3 Seizing: marketing capabilities ...................................................................................... 36
      6.1.4 Seizing: business model mindset .................................................................................. 36
      6.1.5 Managing transformations: culture ............................................................................. 37
      6.1.6 Managing transformations: knowledge management .................................................. 38

  6.2 Within-case analysis, trends: the rail signaling department ...................................................... 39

  6.3 Between-case analysis ............................................................................................................. 41
    6.3.1 Sensing: market scanning capabilities ............................................................................. 41
    6.3.2 Sensing: networking capabilities .................................................................................... 42
    6.3.3 Seizing: marketing capabilities ....................................................................................... 43
6.3.4 Seizing: business model mindset ................................................................. 44
6.3.5 Managing transformations: culture ............................................................ 45
6.3.6 Managing transformations: knowledge management ..................................... 46
6.4 Between-case analysis: Learning possibilities .................................................. 47
7 Designing routines ............................................................................................. 49
  7.1 Mental models .............................................................................................. 51
  7.2 Leadership style ........................................................................................... 52
  7.3 Tactical processes ......................................................................................... 53
  7.4 Operational processes .................................................................................. 54
    7.4.1 Communication plan .............................................................................. 54
    7.4.2 Cross-functional teams and a shared database ....................................... 55
    7.4.3 Incentive program and measuring and controlling .................................. 56
    7.4.4 The routine implementation process .................................................... 57
8 Discussion ......................................................................................................... 59
  8.1 Improvements of the framework ................................................................... 59
  8.2 Contributions to current literature ............................................................... 63
9 Limitations and future research ...................................................................... 65
10 Conclusion ....................................................................................................... 67
11 Bibliography .................................................................................................... 68
12 Appendix A: survey questions ....................................................................... 72
13 Appendix B: market scanning results ............................................................. 75
14 Appendix C: Networking capabilities results ................................................ 75
15 Appendix D: Marketing capabilities results .................................................... 76
16 Appendix E: Business model mindset results ................................................ 76
17 Appendix F: Culture results ............................................................................. 77
18 Appendix G: Knowledge management results ................................................ 77
1 INTRODUCTION: INNOVATION AND COMPETITIVE ADVANTAGE

Innovation is the process of bringing new products and services to the market (Johnson & Whittington, 2011). Innovation is responsible for improvements in terms of quality, price, and product characteristics and it also destroys existing markets and can create new ones (Hauser, Tellis, & Griffin, 2006). This is in line with Schumpeter (1934). He introduced the idea of creative destruction and states that innovations destroy the market positions of firms that stay committed to old technologies. Incumbents that do not innovate will slowly lose sales and profitability over competitors that innovate past them (Hauser, Tellis, & Griffin, 2006). It is also stated that innovation is a precondition for competitive advantage (Grünbaum & Stenger, 2013). The bottom line is that innovation seems vital for the performance and survival of firms.

Innovations can be divided into two categories: product innovations and process innovations (Enkel, Roseno, & Mezger, 2012). Bergfors & Larsson (2009) define product innovation as the development and improvement of finished products. Objectives of product innovation are to develop new products, improve product characteristics and improvement in terms of quality. They define process innovation as the development of internal production objectives. Improvements in terms of costs, yield, characteristics, volumes and environmental friendliness are all part of process improvement. Another aspect of innovations is the nature of the innovation. The innovation can be either incremental or radical of nature (G. Johnson & Whittington, 2011). Incremental innovation refers to stepwise innovation, minor changes to existing products, services or processes while radical innovation regards the development of completely new products, services and processes. Incremental versus radical innovation and the firm structure are linked to each other. The organizational strategy and the structure of the organization influence which form of innovation, in terms of incremental versus radical, fits best (Ettlie, Bridges, & O’Keefe, 1984). They state that firms who introduce new venture groups, aimed at penetrating new markets, have a great chance of discovering radical process innovations. Firms with a more traditional organizational structure and large, complex decentralized firms tend to produce incremental product and process innovations.

According to the theories of Schumpeter (1934) and Hauser et al. (2006), in order to maintain or gain market share a firm has to innovate. Therefore, in order to change the current competitive position, companies depend on their ability to introduce innovations (radical and incremental product innovations) including creating new business models (Enkel, Roseno, & Mezger, 2012). It can be
concluded that many different forms of innovations exist. One special category of innovation focuses on the development of an organization’s business model (Johnson, 2001). An important way to exploit opportunities and create growth and value is to expand the organization’s processes and operations into a new geographic market e.g. internationalization (Jantunen, Puumalainen, Saarenketo, & Kylaheiko, 2005). Thus, in case an organization changes its business model from domestic oriented to internationally oriented i.e. internationalization, the organization innovates in order to gain market share. To win (sustained) competitive advantage in any market, a firm needs to be able to deliver a given set of customer benefits at lower cost than competitors, or provide customers with a bundle of benefits its rivals cannot match (Markides & Williamson, 1994). Why some firms are able to gain and maintain market share in new geographic markets and some do not will be the subject of the remainder of this thesis. The goal of the Master Thesis is to create a tool for organizations that have the intention to internationalize successfully i.e. trying to explain why some organizations can internationalize successfully and some organizations do not. This results in the following research question:

What is a suitable framework for identifying and assessing internationalization issues?

Answering the main research question has several benefits. First, literature on the success of international expansion will be further improved. Especially why some firms can achieve and sustain their international success and other firms do not. Secondly, it can help managers determine what they have to do in order to internationalize successfully. Particularly when having the ambition to internationalize or struggling with the internationalization process, this research can be of significant value.

This paper will continue with an extensive literature review (chapter 2 and 3) on sustained competitive advantage and internationalization. The literature study will result in a theoretical framework (chapter 4) that will link sustainable competitive advantage to internationalization. This is followed by a description of the research plan, data collection and analysis (chapter 5). Next, the framework will be put into practice and the results will be described (chapter 6). The results will be used to improve the theoretical framework and the measuring device (chapter 7). This paper will conclude with a discussion on possible improvements and limitation of this research and future research directions (chapter 8). The complete overview of the thesis can be found below (figure 3).

![Figure 3: thesis overview](image-url)
2 THEORETICAL BACKGROUND

2.1 EXPLAINING COMPETITIVE ADVANTAGE

This chapter is concerned with explaining competitive advantage of firms. Competitive advantage is a thoroughly investigated research topic. Researchers developed multiple frameworks, taking different perspectives, to explain why firms differ in their success in a particular market (Porter, 1979) (Barney, 1991) (Teece, Pisano, & Shuen, 1997). The section will start with the description of a framework that describes competitive advantage as determined by the environment. This framework will be used as a starting point in a search to an understanding of competitive advantage.

2.1.1 **External perspective and competitive advantage: five forces**

A very influential view upon competitive advantage is created by Porter (1979). He states that the strength of five forces determines the potential profit that can be generated in an industry. Indicating that the competitive position of a firm will be determined by the strength of five external sources.

The five forces are the industry rivalry, bargaining power of suppliers and customer and the threat of substitutes and new entrants (Porter, 1979). The five forces determine the potential long-term profitability. The forces determine how the economic wealth will be divided; how much is retained by companies in the industry, how much is bargained away by suppliers and customers and limited by substitutes and new entrants. Porter (1979) states that organizations should formulate their strategy in such way that they reduce the total strength of the five forces and choose a market position that is less vulnerable to be attacked. This view seems legit but Porter leaves out many other aspects. He assumes that firms within an industry may be heterogeneous and have the same resources and pursue the same strategies. Frameworks that explain competitive advantage through an external perspective also wrongly assume that resources are perfectly mobile and heterogeneity is thus short lived (Barney, 1991). Furthermore, Porter (1979) does not describe the processes and skills a firm needs to possess to scan the environment and formulate and execute the most successful strategy.

Referring back to the relationship between innovation and competitive advantage, a firm needs to possess resources that enable innovation in order to gain or maintain market share in any market. Much research has been done on the resources that can create this beneficial situation (Wernerfelt, 1984) (Barney, 1991) (Barney, 2002) (Helfat & Peteraf, 2003). Research aims to explain why some firms perform well and others do not (Barney, 1991). This research stream revolves around explaining
competitive advantage by investigating the internal situation of firms instead of looking at exogenous factors as with Porter’s five forces framework.

A very influential view, is the resource based view. This is a framework that tries to predict the sustained competitive advantage firms can achieve based on their resources. Many researchers (Gibbert, 2006) (Sirmon, Hitt, & Ireland, 2007) (G. Johnson & Whittington, 2011) investigated this framework and its implications, the most influential ideas and implications will be discussed.

2.1.2 Internal perspective and competitive advantage: the resource based view

Barney (1991) was one of the first authors trying to explain competitive advantage by looking at the resource base of a firm, and more specifically, trying to explain sustained competitive advantage. Barney (1991) describes the difference between competitive advantage and sustained competitive advantage as the situation when a firm is not able to duplicate or imitate the benefits from implementing a certain strategy. Competitive advantage can namely be achieved through implementing a strategy that is not simultaneously implemented by a competitor. Sustained competitive advantage also requires that the benefits cannot be imitated by competitors.

Trying to explain sustained competitive advantage with the resource base of a firm, Barney (1991) developed a framework named the resource based view. The resource based view suggests that firms compete based on unique resources that are valuable, rare, difficult to imitate and non-substitutable by other resources (Simon, 2010). The resources of a firm consist of assets, capabilities, processes, attributes, information, knowledge, etc. (Barney, 1991). The resource based view is based on the assumptions that resources are heterogeneous and immobile. In contrast to the five forces framework where resources are assumed to be perfectly mobile. This framework focusses on the internal situation of a firm (Gibbert, 2006). Helfat and Peteraf (2003) define the function of the resource based view as follows:

“The resource based view provides an explanation of competitive heterogeneity based on the premise that close competitors differ in their resources and capabilities important and durable ways” (Helfat & Peteraf, 2003, p. 1).

As briefly mentioned before, the attributes of unique resources are valuable, rare, costly to imitate and non-substitutable. This can be combined in the acronym VRIN. Resources that comply with the VRIN framework can be used by organizations to create a sustained competitive advantage. This advantage
can be created by using the resources to implement new strategies that are difficult to replicate for competitors (Wu, 2010). The four criteria for unique resources will be explained in the following section. Valuable resources enable a firm to implement strategies that can improve its efficiency and effectiveness. Johnson & Whittington (2011) state that the value of resources consists of four components. Resources can take advantage of opportunities and neutralizing threats, can be of value to customers, provide a potential competitive advantage and a resource can be costly in terms of money. Valuable resources can either increase the price paid by customers i.e. the customer is willing to pay a higher price, decrease the production costs or have an effect on both. If valuable resources are possessed by a large number of firms, many firms will be able to implement the same effective strategy. This results in a reduction of advantage of the strategy. Thus, the valuable resource will not enable a sustained competitive advantage and will not be a strategic asset. The process of determining whether or not a resource is rare, is difficult. This depends on how many firms have to possess a particular valuable resource in order to create a perfect competition (Barney & Clark, 2007).

Valuable and rare resources can be a source of sustained competitive advantage, but only if those resources are difficult to copy or substitute. Some resources are imperfectly imitable for three reasons:

1. Dependent on unique historical conditions
2. Causally ambiguity between resources and the firm
3. The generation of the resource is socially complex

Barney (2002) changed one of the criteria. He uses the VRIO (valuable, rarity, imitable, organizational) framework. An organization has to be organized in such way and needs to implement structures and processes that enable the firm to actually utilize the strategic resources (Barney, 2002). Markides and Williamson (1994) add that long term competitive advantage will depend on the organization’s ability to continuously adapt and improve its strategic assets to meet new customer and market demand. They also state that a firm needs to create new strategic assets to exploit in a new or existing market in order to remain competitive.
2.2 Changes in the Environment

The five forces framework and the resource based view try to explain (sustained) competitive advantage taking an external and internal view, respectively. The five forces framework sees five external forces as the determinant of the profit a firm can make and the competitive position it can take while the resource based view includes unique VRIN resources.

Both frameworks do not consider one concept: dynamics that occur over time. Eisenhardt & Martin (2000) agree by stating that the resource based view misses the strategic role of time. The environment of an organization consists of the internal environment and the external environment (Duncan, 1972). The internal environment consists of physical and social factors within the boundaries of an organization or specific business unit that are directly taken into account during decision making. The external environment are factors outside the boundaries of an organization taken directly into account. Organizational environments change constantly, either gradually changing or rapidly changing (Duncan, 1972). How resources are developed and change over time and how this impacts the competitive advantage is not explained by either of the frameworks. It can be stated that both theories are rather static frameworks. This is also recognized by the research field of strategic management. Eisenhardt & Martin (2000) state that the resource based view breaks down in high velocity markets where the duration of a competitive advantage is unpredictable and time is an important aspect of a firm’s strategy.

A very influential theory that tries to explain sustained competitive advantage and includes the aspect of time and changing environments is the dynamic capabilities theory. One of the main authors of this theory is Teece (1997).

2.2.1 Dynamic capabilities

Teece (2007) argues that sustainable advantage requires more than ownership of strategic assets. It also requires unique and difficult to imitate dynamic capabilities. “Dynamic abilities involve adaptation and change because they build integrated or reconfigure other resources and capabilities” (Helfat and Peteraf 2003, p 1).

The core competencies that are used in the current business tend to become static and constraint the ability to create and implement new strategies (Enkel et al., 2012). Caused by the fact that when an organization masters a capability, the firm will continue using it long past the point of obsolescence (Day, 2011). This is caused by many factors including path dependency, lock-in and inertia (Day, 2011).
Resources will be used to exploit the existing capability and leaves little for sensing, experimentation and exploration (Day, 2011) (March, 1991). Levinthal & March (1993) add that if a firm achieves success, it decreases the search while failure increases search.

Barney (2002) himself supports this view. He states that the fact that a firm has a sustained competitive advantage does not guarantee that this advantage will last forever. Changes in the environment and internal situation of the firm may cause the competitive advantage to disappear. If change is not only rapid but also unpredictable and variable in direction, dynamic capabilities and even the higher-order learning approaches need to be updated repeatedly (Zollo & Winter, 2002). Doving & Gooderham (2008) agree on this view and state that especially in markets with high uncertainty and rapidly changing environments the need for dynamic capabilities grows.

Many definitions exist in literature of dynamic capabilities. In order to come to a profound understanding of dynamic capabilities, some definitions used in the literature will be given.

“Dynamic capabilities are the abilities to reconfigure a firm’s resources and routines in the manner envisioned and deemed appropriate by its principal decision-maker” (Zahra et al. 2006, 918).

Dynamic capabilities are “The firm’s processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match or even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resources configurations as markets emerge, collide, split, evolve and die.” (Eisenhardt and Martin 2000, 1107)

Winter (2003, 1) provides the following definition: “An organizational capability is a high-level routine (or collection of routines) that, together with its implementing input flows, confers upon an organization’s management a set of decision options for producing significant outputs of a particular type.”

Helfat et al. (2007, 1) give the following definition: “the capacity of an organization to purposefully create, extend or modify its resource base.”

It can be concluded that dynamic capabilities are routines for intentionally adapting the resource base of a firm. The overall aim of dynamic capabilities is to generate new value creating strategies. Implicating that the newly developed resources can be used to create new strategies (Eisenhardt & Martin, 2000). The sustained competitive advantage of dynamic capabilities lies in using dynamic capabilities sooner
and better than competitors to create resource configuration that have that competitive advantage (Eisenhardt & Martin, 2000).

Teece (2007) argues that dynamic capabilities can be divided into three different categories: the capability to sense and shape opportunities and threats, the capability to seize opportunities, and the capability to manage transformations. This framework will be discussed in the next chapter followed by a review.

### 2.2.2 Dynamic capabilities framework

Teece (2007) developed a framework concerning dynamic capabilities. This framework aims to explain sources of competitive advantage over time. Whereas the resource based view is a static framework, the dynamic capabilities framework is not. According to Teece (2007) the dynamic capabilities of the firm are sensing opportunities and threats, seizing the opportunities and managing change and transformations. The following diagram (figure 4) shows the three capabilities and their relationships.

![Figure 4: Dynamic capabilities model (Teece, 2007)](image)

Teece (2007) explains the three dynamic capabilities in terms of the nature of the capability and the micro-foundations. The nature of capabilities sketches the rough outlines of the way dynamic capabilities play a role in a specific business environment.

"The micro-foundations of the subject are the definitions of its basic elements and the allowable operations that can be performed using these elements (Lippman & Rumult, 2003)." Thus, the micro-foundations are the dynamic capabilities more explicitly stated. It is rather difficult to identify the micro-foundations of dynamic capabilities of organizations (Teece, Pisano, & Shuen, 1997). Otherwise the competitive advantage would erode as competitors can easily identify and possibly replicate them.

The next section contains a brief overview of Teece’s framework. The nature of the three capabilities will be describes followed by a short description of the, by Teece (2007) selected, micro-foundations,
2.2.2.1 Sensing opportunities

Sensing of opportunities involves the activities of scanning, creating and interpreting. These activities usually need investment in research and related activities. When opportunities are identified, managers need to interpret the event, which technologies to pursue and which market segments to target. They have to understand how the technologies will evolve and how the customers, competitors, suppliers and governments will respond. The way the different parties react towards the opportunity changes the nature of the opportunity and the changes for the organization.

As mentioned before, the five forces framework is also concerned with the surrounding market/industry of a firm. However, both frameworks have a different perspective. The five forces framework takes exogenous viewpoint while the dynamic capabilities framework takes an endogenous point of view. Teece (1997) states that the five forces framework limits the ability to sense opportunities and threats and properly align them with strengths, weaknesses and technological and market paths. He also states that some relevant forces are not present in the five forces framework. These are technological opportunities, path dependencies, learning and regulation.

The dynamic capabilities framework does not see the industry as the environmental context of a firm but the ecosystem that the firm creates. Market structure is the result of innovation and learning and thus endogenous (Teece, 2007). Porter (1991) himself states that in an environment where exogenous variables influence the organization heavily, a more dynamic strategy has to be used. This would indicate that the five forces indeed lacks some features but it does not mean that the framework cannot be useful or be used together with the dynamic capabilities framework.

Teece (2007) states some micro-foundations for sensing opportunities. He claims that with the necessary skills an organization will be able to manage internal R&D activities and select new technologies, tap supplier and complementor innovation, tap developments in exogenous science and technology and identify target market segments, changing customer needs and customer innovation. All the subjects evolve around market orientation and scanning. It can be noted that it is not suggested what the processes actually are or how to implement or even develop them.

2.2.2.2 Seizing opportunities

Seizing opportunities concerns the way sensed opportunities are addressed through new products, services and processes (Teece, 2007). These processes require investments in development and commercialization activities.
Maintaining and improving technological competences is an important part of addressing sensed opportunities. Another vital part is the way an organization invests in the opportunity. Organizations face the problem of when, where and how much to invest. A second problem an organization faces is the choice of a certain business model. As with sensing of opportunities, seizing opportunities requires certain skills regarding creativity and intelligence. Visionaries with new business models must convince the people with negative views and transform the internal views and facilitate necessary investment (Teece, 2007). Decision making processes involve bureaucratic features that are necessary for some purposes but contain the innovative initiatives. Mostly large incumbent face problems caused by bureaucracy and myopia and fail to seize the sensed opportunities (Teece, 2007). Within most firms, the existence of established assets and routines removes the urgency to innovate and enhances the problem of risk aversion. In order to seize opportunities, managers should make unbiased judgments about future demands, competitor responses and the payoffs from investments in intangible assets. It is therefore of vital importance that tacit investments skills are developed and shared.

The micro-foundations for seizing opportunities revolve around finding a fit between customer needs and business models, setting organizational boundaries and coping with biased decisions and building loyalty and commitment (Teece, 2007). These micro-foundations enhance the probability of properly seizing the sensed opportunities.

2.2.2.3 Managing threats and transformations

According to Teece (2007), an important factor for sustained profitable growth is the ability to recombine and reconfigure assets and structures as the organization changes and grows and markets and technologies change. Redeployment and reconfiguration is needed to maintain evolutionary fitness, meaning that organizations have to adapt to changing circumstances. When organizations have success, routines will develop. Zollo and Winter (2002) define routines as follows: “Routines are stable patterns of behavior that characterize organizational reactions to varying, internal or external stimuli” (Zollo & Winter, 2002, 340).

Routines will help to sustain the success until the environment and circumstances change. Therefore routines have to change accordingly. Changing routines is difficult, costly and not instantaneously accepted. The change of routines can create anxiety among the employees unless a culture is present that contains high level of acceptance regarding internal changes (Teece, 2007).
Redeployment can also involve the transfer of strategic assets to another organization or geographic area. According to Helfat and Peteraf (2003) two forms of redeployment of strategic assets (capabilities) exist. The first form is the activity of sharing between old and new employees or systems. The second form of redeployment involves the transfer of resources between two or multiple geographic locations.

The micro-foundations of managing threats and reconfiguration include decentralization, governance, cospecialization and knowledge management (Teece 2007). These processes and skills are necessary for the reconfiguration and redeployment of assets.

Knowledge management includes the transfer and integration of explicit and tacit knowledge and achieving knowledge protection. Randeree (2006) states that knowledge management comes down to the processes and tools to capture and share data as well as using knowledge within an organization. Governance structures will be able to support this process by reducing agency issues, align incentives of management and workforce and check for strategy malfeasance.

2.2.2.4 Review of the dynamic capabilities framework

Referring to the first chapter of this literature review, the overall aim is to explain competitive advantage of firms. After the discussion of two static frameworks, a more dynamic framework has been discussed; the dynamic capabilities framework. Since there is some debate around the dynamic capabilities theory, this section contains a brief review.

There is much discussion on what dynamic capabilities exactly are and how they influence organizations. According to Ambrosini and Bowman (2009) the term itself (dynamic capabilities) causes some confusion. They state that some authors use the term ‘dynamic’ as environmental dynamism or that dynamic refers to the fact that capabilities change themselves over time. These ideas are both incorrect (Ambrosini & Bowman, 2009).

Dynamic capabilities are in general associated with competitive advantage and change. However, dynamic capabilities not always lead to competitive advantage (Ambrosini & Bowman, 2009). As mentioned before, dynamic capabilities involve developing resources. If the new resources do not comply with the criteria of VRIN resources (resource based view) the renewal of resources will not lead to competitive advantage. While Teece (2007) states that dynamic capabilities are difficult to define and therefore difficult to duplicate by competitors. Eisenhardt and Martin (2000) stress that the functionality of dynamic capabilities can be duplicated across firms; it is about the resources they create, not the dynamic capabilities themselves. Helfat and Peteraf (2003) add that it is difficult to fully explain
competitive advantage when considering the use of resources and capabilities, meaning that the debate is still going on.

Literature points out that dynamics capabilities differ from normal (operational) capabilities in terms of change (Ambrosini & Bowman, 2009). Dynamic capabilities evolve around and realize change in an organization. Døving and Gooderham (2008) state that dynamic capabilities are, however not a requirement in order to change. Many changes are triggered by the environment of a firm (internal or external) and are a one-time event. Such a situation can be seen as ad-hoc problem solving and this is not a routine and thus not a dynamic capability according to the definition used here.

It also has to be remarked that dynamic capabilities are concerned with strategic change but are not strategic change itself. Dynamic capabilities are about changes the resources base and not a synonym for strategic change (Ambrosini & Bowman, 2009).

Ambrosini and Bowman (2009) also comment directly on the framework developed by Teece (2007). They state that sensing, seizing and managing are not dynamic capabilities but are managerial and organizational processes (micro-foundations). These processes enable the deployment of dynamic capabilities. While this statement seems correct, the definition of dynamic capabilities shows another perspective. For this purpose, the definition by Eisenhardt and Martin (2000, p1107) will be used:

*Dynamic capabilities are the organizational and strategic routines by which firms achieve new resources configurations as markets emerge, collide, split, evolve and die’*

Based on this definition, dynamic capabilities are routines. Sensing and seizing can also be seen as routines that sense and seize opportunities which can alter resources which means that they are indeed dynamic capabilities.

There is also debate on how to intentionally build dynamic capabilities (Ambrosini and Bowman, 2009). There is only little theoretical and empirical evidence on how to develop them. Zollo and Winter (2002) state that the development of dynamic capabilities is due to three learning mechanisms: Routines and experience accumulation, knowledge articulation and knowledge codification. While the definition of dynamic capabilities has become clear, the development of dynamic capabilities still remains largely unexplained (Romme, Zollo, & Berends, 2010).
2.2.2.5 Combining resource based view and dynamic capabilities

Since dynamic capabilities and the resource based view can easily be linked to each other it seems that both frameworks can be combined. Teece (2007) agrees by stating that while the resource based view is static it is still of relevance to dynamic capabilities. Meaning that one has not to choose between one of the two frameworks but that both are useful in their own way. The two frameworks can even complement each other. The dynamic capabilities framework tries to explain sustained competitive advantage by looking at the capabilities of a firm to modify their existing resource base. Dynamic capabilities are, as mentioned before, not the actual resources of an organization. The resource based view centers around the actual resources of a firm but excludes how resources can be developed and altered over time in changing environments.

Dynamic capabilities can be used to develop strategic resources and transform existing ones. Simon (2010) argues that the two frameworks can be used both and both have practical implications for organizations. He developed a new framework that combines both theories. He developed the following framework (figure 5) that incorporates dynamic capabilities and VRIN resources:

![Figure 5: RBV and dynamic capabilities combined](image)

Simon (2010) states that the three most important concrete dynamic capabilities of a firm are leadership, culture and strategic thinking. According to his research, the most important resources are financial capital, technological know-how, specific staffing issues and reputation. The model as proposed by Simon (2010) is a clear example of the well working combination of the dynamic capabilities theory and the resource based view which is an excellent way of explaining sustained competitive advantage. This also results in the conclusion of this chapter which has the goal of trying to explain sustained competitive advantage. Additionally, theories on sustained competitive advantage can be linked to a specific strategy, which will be the subject of the next chapter.
3  TOWARDS A NEW THEORETICAL MODEL

As described during the review of the dynamic capabilities model developed by Teece (2007), many misunderstandings exist regarding dynamic capabilities and their implications. Enkel, Roseno, & Mezger, 2012 state that dynamic capabilities as described by Teece (2007) are often vague and have little practical implications. Enkel et al. (2012) also state that the micro-foundations as proposed by Teece (2007) are embedded on different levels and do not have a clear usage. But some research has been done on combining dynamic capabilities with a specific strategy or specific situation. Ambrosini and Bowman (2009) mention some research that identified a specific strategy as dynamic capabilities. They remark that R&D, acquisition process, product innovation, resource divestment and absorptive capacity have been identified as dynamic capabilities. Dynamic capabilities have also been linked to internationalization because an important way to exploit opportunities and create growth and value is to expand the organizations processes and operations into a new geographic market (Jantunen, Puumalainen, Saarenketo, & Kylaheiko, 2005). Weerawardena, Mort, Liesch, & Knight (2007) and Griffith & Harvey (2001) investigated dynamic capabilities essential for born global firms. Enkel et al. (2012) investigated which dynamic capabilities are important for new business ventures developed by established firms. However, on international expansion and dynamic capabilities is little information available. Luo (2000) proposed some dynamic capabilities important when expanding internationally. However, his model has seen very little attention and no further research has been done on this subject since (Weerawardena et al., 2007). For this thesis, a new theoretical model on international expansion will be proposed and tested.

Using the micro-foundations as proposed by Teece (2007) and the research done on combining dynamic capabilities with a specific strategy, a new theoretical model will be designed including the dynamic capabilities vital for firms looking to internationalize.

The next section will be used to introduce a theoretical model that combines the dynamic capabilities framework developed by (Teece 2007) and international expansion. First, some aspects of international expansion will be discussed. Secondly, the actual theoretical model will be introduced and elaborated.
3.1 INTRODUCTION TO INTERNATIONALIZATION

“Internationalization is the process by which firms increase their involvement in operations across borders” (Prange & Verdier, 2011, p. 126). This means that that the marketplace will expand from national to a global marketplace. Competition in the global marketplace intensifies through deregulations and the reduction of trade barriers (Luo, 2000). Operating in foreign markets means that the entering firm suffers some disadvantages relative to local incumbents (Luo, 2000). The foreign firm has to adapt to new national cultures, industry structures and national governments. One vital factor that is embedded in the national culture is the way business is done. Another drawback a foreign entrant suffers is the possible lack of a local network. Local incumbents have a network of customers, suppliers and regulators (Luo, 2000). An important factor to take into account when internationalizing is the country risk which includes, among others, the drawbacks mentioned above. Country risk is namely determined by the uncertainty about the demands, the competitors, the costs and market conditions and political risk (Quer & Rienda, 2007). The countries with a high risk level should be avoided when doing direct business operations (Ojala & Tyrväinen, 2008). The firm must find a flexible position. This allows the firm to adapt to changing conditions. When conditions change in an unfavorable way during operations, a firm can easier adapt or even leave the country without significant losses (Quer, Enrique, & Rienda, 2007).

Another drawback concerns the transfer of resources. The transfer of knowledge related assets between markets is not possible since the coordination, usage and integration of such assets create a value that is not possible to replicate in another market (Teece, 1982). Thus, in order to overcome difficulties in a new international market, a firm needs to develop new resources. Developing new resources in a new market requires the existence of dynamic capabilities in a firm. The learning capability of a firm will determine for a large part whether or not a firm will be able to develop new resources and be successful in a new foreign market. Learning capability is the capacity to generate ideas and to acquire new knowledge as stated by Luo (2000).

A firm with well-developed learning capabilities will be able to cope with the uncertainty which is an advantage when operating in a foreign market where uncertainty is high (Tallman, 1992) (Prange & Verdier, 2011). Jantunen, Puumalainen, Saarenketo, & Kylaheiko (2005) state that reconfiguration of capabilities for the entry of foreign markets, early on in the process and subsequent entries, is of vital importance.
To conclude, a foreign entrant needs to have the capabilities to mitigate the mentioned drawbacks from entering foreign markets. Prange & Verdier (2011) state that international performance depends on the ability to reconfigure and adapt resources. Mitigating or even countering the mentioned drawbacks requires continuously upgrading of a firm’s capabilities, hence, dynamic capabilities are of vital importance.

3.2 INTERNATIONALIZATION AND DYNAMIC CAPABILITIES

3.2.1 Dynamic capabilities and micro-foundations

Since dynamic capabilities are of great importance to internationalizing firms, a theoretical model will be proposed that will link internationalization to the dynamic capabilities framework developed by Teece (2007). The proposed model by Teece (2007) will be used as a stepping stone towards a new model regarding dynamic capabilities and international expansion.

For all of the three factors (sensing, seizing and managing transformations) of Teece’s framework, the most appropriate micro-foundations will be selected. The selection will be based on prior research on linking dynamic capabilities and international expansion and new business development. The most important selection criteria will be if the micro-foundations help an organization counteract the drawbacks it endures compared to incumbents and enables an organization to achieve sustained competitive advantage in a new market. The recommended micro-foundations are suggested to enhance the chance of success when expanding internationally as they help a firm counteract the drawback when entering a foreign market. Every section will start with a description of the chosen micro-foundation and explanation on why the micro-foundation is important for internationalizing firms. Also, execution methods and challenges will be elaborated including the important role of leadership.

3.2.1.1 Sensing

This section will contain micro-foundations that will enable a firm to sense opportunities in international markets. Two important sensing capabilities for identifying international opportunities are the ability of market learning and the ability to manage networks (Weerawardena et al., 2007). Market learning capabilities involve the acquisition of market information. As mentioned in the previous section, foreign entrants suffer some drawbacks compared to incumbents. One of the disadvantages concerns the lack of a local network. In order optimize the use of current networks and developing new ones, a firm needs to have the ability to manage their networks. Hence, networking is adopted as an important micro-
foundation. It is proposed here that market learning and the ability to manage networks will maximize the chance of identifying valuable international business opportunities. Teece (2007) also mentions internal R&D as a micro-foundation. However, this micro-foundation is of little use for the process of internationalization since no new products have to be developed but business models need to be developed with the goal of entering new markets. Teece (2007) also states other micro-foundations like ‘tapping supplier innovation and developments’ and identifying target markets. These micro-foundations are combined in the proposed market scanning capabilities. The trends and scouting capability as proposed by Enkel et al. (2012) is also included in the micro-foundation ‘market scanning capabilities’.

3.2.1.1.1 Market scanning capabilities

Market scanning activities include keeping track of competitors, suppliers, customers, substitutes, new entrants, technologies, political forces and forces. Sirmon, Hitt, & Ireland, (2007) state that organizations should consistently scan and monitor the external environment Scholars agree on the fact that market scanning or monitoring activities have a positive effect on the (international) performance of firms. Zahra and George (2002) state that information on the industry and potential foreign markets can increase the level of international entrepreneurship. Research by Lindell & Karagozoglu (1997) suggests that the ability to gather information on foreign markets is positively related to the internationalization process. Morgan, Vorhies, & Mason (2009) even state that a market orientation has a liberating effect on the capabilities of a firm. To summarize, market scanning activities have a positive effect on the performance of a firm.

Market scanning activities ensure that employees stay close to the market and customers (Zahra & George, 2002). This will help firms to keep track of latest market developments and identify trends. With identifying trends, it is important to focus on the long term, especially because firms have the tendency to ignore the long run (Enkel et al., 2012) (Levinthal & March, 1993). This tendency results in the fact that long run survival is sometimes endangered.

Implementation

Market learning involves continuous monitoring of markets in which an open minded inquiry is of vital importance. Open-mindedness ensures employees to be open to trends and events that presents market opportunities (Day, 1994). Market-driven leadership will be able to create an open and inquisitive culture where everyone is encouraged to spot market related problems and opportunities and excellent market monitoring capabilities (Day, 2011). Part of a market-driven leadership style is to
introduce reward systems based on customer satisfaction and a recruiting program focused on customer problem solving skills (Day, 2011). Also, a profound understanding of the process of market learning will increase the market monitoring performance (Day, 2011). When a firm seeks to expand internationally, it is important to perform market scanning within the global marketplace. This can be enabled when management tries to seek and exploit international opportunities (Weerawardena et al., 2007). Hence, highlights the importance of leadership.

3.2.1.1.2 Networking capabilities

A second fundamental part of sensing opportunities is the ability to create a vast and efficient network (Weerawardena et al., 2007). Networks are important for the discovery of opportunities and gathering of information. Especially when operating in new foreign markets the ability of managing existing and creating new networks is essential. Coviello & Munro (1995) state that firms entering a foreign country need existing relationships in the foreign country in order to internationalize successfully.

As mentioned before, firms entering a foreign market suffer drawbacks in terms of the absence of a strong local network. Consequently, often a completely new network has to be developed and managed. Since networking capabilities are of such importance, an overview of practical insides will be given in the next section.

Implementation

A network plays an important role in the decision of which country a firm could choose to expand internationally. Managers should take an active role when they develop network relationships and they should focus on market entries in leading markets. If the firm takes a passive role in networking, a firm might lose market opportunities in leading markets and end up operating in countries where the market potential is low (Ojala & Tyrvainen, 2008). Implicating that firms should actively manage their networks. Firms should examine their networks for potentially useful partners and make their own firm visible to partners in the network and developing their attractiveness as a partner for different counterparts (Freeman & Sandwell, 2008) (Moen, Gavlen, & Endresen, 2004). Managers have to put substantial resources, time and effort in identifying suitable partners, strengthening relationships and developing close, social relationship with foreign partners prior and post entry to assist with their ongoing positioning, orientation and communication (Freeman & Sandwell, 2008).

Internationalizing firms should not underestimate the importance of relationships. Relationships are a resource that should be exploited optimally and as such, should be intensively managed (Agndal & Chetty, 2007). Business relationships are more important than social relationships in influencing change.
Business and social relationship are often intertwined. A company can use social relationships with distributors and customers to gain access to knowledge and resources, which accordingly can reduce uncertainty and hence risk.

Moen, Gavlen, and Endresen (2004) stress that the main challenge is to balance the allocation of resource between the expansion of the network through current relationships and a focus on establishing new relationships and customers independent of existing networks. They support an earlier conclusion that the individuals’ personal contact appears to be crucial. The importance of systematically increasing the number of external contacts is stressed by Moen, Gavlen, & Endresen (2004), as this leads to more freedom and more chances of identifying opportunities.

Networks are also important for human resource management. Because the person in charge of a foreign office should have a considerable network of former clients and acquaintances (Moen, Gavlen, & Endresen, 2004). This will help speed up the process of adapting to a new environment. Besides having a local person in charge another important aspect is that locally-based salespeople should be hired if not present already. Whereas technicians should be descended from the domestic market (Moen, Gavlen, & Endresen, 2004). Local sales people have a better understanding of the culture of the foreign market and will be better to communicate and network in the new market.

3.2.1.2 Seizing

This section will describe the dynamic capabilities needed to seize the sensed opportunities when a firm seeks to expand internationally. As stated before, seizing opportunities concerns the way sensed opportunities are addressed through new products, services and processes (Teece, 2007).

New processes, business models, complementary assets and methods are needed in order to capitalize on the opportunities (Jantunen, Puumalainen, Saarenketo, & Kylaheiko, 2005). This rather ambiguous description will be made more specific in the next section where two dynamic capabilities concerning seizing will be described. First, marketing capabilities will be described. Secondly, the business model mindset will be explained. The marketing capabilities of a firm regards the ability to address opportunities while the business model mindset ensures that employees take into account every aspect of new business development. Together, the two capabilities enhance the probability of successful addressing of opportunities. The two micro-foundations will include (parts of) the four micro-foundations as proposed by Teece (2007) (selecting business models, decision making protocols, selecting enterprise boundaries and building loyalty and commitment) and two micro-foundations as proposed by Enkel et al. (2012) (Business model thinking and decision making processes). Day (2011)
emphasizes the importance of sensing capabilities of the firm by stating that deep market insights are needed for well-above average execution of marketing activities.

3.2.1.2.1 Marketing capabilities
An important dynamic capability regarding seizing opportunities is the marketing capability of a firm. A firm’s marketing capabilities involve the ability to formulate marketing mix strategies and having the ability of competitive positioning (Weerawardena et al., 2007). The success of formulating marketing mix strategies and competitive positioning depends on the ability to use the information gathered using the sensing capabilities; it depends on the absorptive capacity of a firm (Weerawardena et al., 2007). “Absorptive capacity confers the ability to recognize the value of new information, assimilate it and apply it to commercial ends” (Cohen & Levinthal, 1990, p. 1). Hence, absorptive capacity also seems important for sensing capabilities (recognizing the value of information). However, the assimilation of information and the ability to apply it to commercial ends are strongly related to seizing capabilities. An organization's absorptive capacity depends on the absorptive capacities of the individual employees (Cohen & Levinthal, 1990).

Implementation
A manager has a big influence on the success of seizing opportunities (Day, 2011). A manager with a marketing orientation can create specific marketing-related strategies aimed at overcoming challenges and maximizing performance (Knight & Cavusgil, 2004). Firms that can formulate and leverage marketing strategies best, have an entrepreneurial orientation (Weerawardena & O’Cass, 2004). Entrepreneurship enhances overall foreign profitability and the ability to cope with hostile environments (Zahra & Garvis, 2000). In order to create an environment with an entrepreneurial orientation a firm has to have a high tolerance of risk taking and stimulate employees to be proactive and creative (Weerawardena & O’Cass, 2004).

3.2.1.2.2 Business model mindset
A business model describes how a business creates the value it provides to customers and how it captures the economic profits (Day, 2011). A business model mindset is a mindset that includes multiple aspects of the business model like the customer value proposition, profit formulas, resources and key processes (Enkel et al., 2012). A business model mindset is an important dynamic capability when it comes to new business creation (Enkel et al., 2012). Entering new foreign markets and starting operations can be seen as a sort of new business creation in established firms. Seizing in a business creation context involves the evaluation, development and implementation of new business models.
Therefore, it is proposed here, that a business model mindset is an important capability in an internationalizing context.

**Implementation**

Teece (2007) expresses too that business models are an important dynamic capability and states some key points that are essential to the creation of business models and that should be part of the business model mindset. Bias, delusion, deception and presumptions undermine the process to seize the opportunities. A way to overcome biases is to implement disciplined approaches for decision making. This means that information asymmetries have to be detected and agency problems have to be solved. According to Teece (2007), an outside view during the review of data helps avoiding biased decisions. Besides being aware of biased decisions, managers also need to create an environment where individuals do not feel reluctant to provide their honest opinion.

### 3.2.1.3 Managing Transformations

Managing threats and transformations is, according to Teece (2007), another dynamic capability. Teece (2007) selects, as mentioned before, the following micro-foundations: decentralization, governance, cospecializaton and knowledge management. He proposed that the third category of his dynamic capabilities framework is about the on-going adaption and evolution of a firm’s resources. The third category of dynamic capabilities of the proposed model is thus about managing the transformation/organization in such way that the sensing and seizing capabilities can be used to their fullest potential. This can be done by creating a culture that supports the firms’ strategy (Simon 2010) and implement knowledge management practices that ensure an efficient flow of information that supports sensing and seizing within the firm (Teece 2007). That is why both micro-foundations are included in the theoretical model. Teece (2007) himself mentions also governance as an important micro-foundation, which is included in the description of the role of leadership for the proposed micro-foundations.

#### 3.2.1.3.1 Culture

Simon (2010) points out that culture is a key driver for success. An organizational culture can be defined as the combination of shared values, norms and expectations that influence the way employees work and communicate with each other (Alvesson, 2002) (McShane and Traviglione, 2010). Creating a successful culture for international expansion is a complicated and time consuming process and the
design depends on the situation (Jantunen et al., 2005). The most appropriate culture when internationalizing will ensure that sensing and seizing capabilities can be used to their fullest potential. Zollo and Winter (2002) investigated what successful cultures are and concluded that the most successful cultures can cope with change and where managers have created an environment where change practices are accepted. This enables organizations to gain higher returns from learning experiences and maintain responsive and flexible (Zollo & Winter, 2002). This view on successful cultures is consistent with the view of Teece (2007) regarding an organization’s culture since he states that a culture with high levels of acceptance of internal change is of vital importance.

The aspects of an organizational culture can be captured using six dimensions of organizational cultures (Hofstede, Neuijen, Ohayv, & Sanders, 1990). The six dimensions are: means versus goal oriented, employee versus job oriented, parochial versus professional, open versus closed system, tight versus loose control and pragmatic versus normative (Hofstede, Neuijen, Ohayv, & Sanders, 1990).

Which culture is needed during international expansion can be determined by looking at the necessary sensing and seizing capabilities that are needed for realizing the firms' strategy. The dimensions as described above consist of two extremes, however, a firm can score everywhere in between the two extremes. The culture that increases the chance of success when internationalizing will be described next, together with an explanation of each of the dimensions.

As stated before, in order to sense and seize opportunities, managers and employees need to be risk-seeking, innovative and proactive. Strategies that include structures, incentives and processes that capture new ideas and reward creative thinking will decline the level of risk aversion. This is clearly a role for leadership (Teece 2007). A culture that is medium goal oriented suits this requirement best. In a goal orientated culture, employees are focused on achieving internal goals and getting results even if substantial risks need to be taken. Since the amount of risk employees take has to be controlled, a medium goal oriented culture is suggested here.

The organization also needs to be more pragmatic than normative. Sensing capabilities include continuously monitoring markets. Therefore, a culture that is externally driven (pragmatic) is needed. In an externally driven culture, meeting customer’s requirements and obtaining good results are most important compared to having an ethical attitude. Another important aspect of a culture that suits international expansion is whether either a tight or loose control structure exists. A tight work discipline means that employees are very cost-conscious, punctual and serious (Hofstede et al., 1990). It is
proposed here that such a culture limits the creativity of employees and therefore limits the exploration and development of new ideas. Consequently, a loose work discipline is preferred when a firm aims to expand internationally. Another aspect of an organizational culture is the level of professionalism. A culture can either be parochial or professional. In a professional culture, employees are long term directed and externally focused (Hofstede et al., 1990). This is exactly needed when internationally expanding. As mentioned before, a long term and external focus is needed to spot trends and serve future customer needs (Enkel et al., 2012).

One more aspect of organizational culture is the openness of the culture. An open culture is open to both insiders and outsiders (Hofstede et al., 1990). Since transforming resources is part of the dynamic capabilities theory, it is possible that new employees need to be hired in order to change current practices (Grünbaum & Stenger, 2013). It is therefore essential that employees are open towards new employees and make them feel welcome. In order to create an environment where employees are creative, do not feel reluctant to provide their opinion and where failures are accepted, which is important for seizing opportunities (Teece, 2007), an organization has to have a medium strong employee orientated culture. In an employee oriented organization, management takes responsibility for the welfare of the employees. A job oriented organization puts high pressure on the performance, even at the expense of the employee (Hofstede et al., 1990).

Besides the six dimensions of an organizational culture according to Hofstede (1990), two other factors have turned out to be important for sensing and seizing opportunities. Loyalty and commitment and company identification are considered three powerful forces with a positive influence on the firm’s performance (Enkel et al., 2012) (Teece, 2007). Managers can create loyalty and commitment by making quality decisions, communicating goals, values and expectations (Enkel et al., 2012) (Teece 2007).

**Implementation**

Changing an organizational culture is, as mentioned before, difficult and a long term project (Cameron & Quinn, 2006). As mentioned before, the cultural change process depends on the situation (Jantunen et al., 2005); it depends on the current situation, the preferred situation, employees involved, the industry, timeframe etc.. However, some guidelines exist to increase the chances success regarding changing organizational cultures. Management and communicating are the two main aspects that determine success of transformation. Hofstede et al (1990) and Cameron & Quinn (2006) stress the importance of leadership in changing organizational culture by stating that a manager should act as an example and act out the desired values. Commitment and dedication on the part of the management team is also of vital
importance to make a cultural change a success (Cameron & Quinn, 2006). The management team should also incorporate a systematic approach towards changing organizational cultures and a clear vision that supports implementation (Alvesson, 2002). Communicating from the start till the end of the process is also of importance; continuous and comprehensive communication. Managers should design a communication strategy that includes reciprocal communication channels to keep everyone informed on changes that are involved in the process and how, when, where and who will communicate the new cultural values (Alvesson, 2002) (Cameron & Quinn, 2006). Personalizing the strategy and culture change can also be beneficial since employees will be directly involved in the process. In order to do so, behaviors and competencies that each employee need to develop for the new culture have to be identified (Cameron & Quinn, 2006).

3.2.1.3.2 Knowledge management

As mentioned before, the third category contains capabilities that enable to make optimal use of the first two categories of the dynamic capabilities model. Knowledge management is a micro-foundation that can assist excellent execution of the sensing and seizing capabilities. Market focused learning provides, if performed well, information on markets. This information has to be distributed throughout the organization to make optimal use of the information (Day 1994). Teece (2007) also mentions that knowledge and market information should be able to flow freely throughout the department and organization. Cromer (2008) adds that only when sharing of information and the transfer of knowledge takes place in and between organizations, a market orientation can be successful.

Knowledge also has to be accessible to relevant employees to use the information to its fullest potential and to reduce information asymmetries (Teece 2007) (Day 1994). Day (1994) refers to the availability of knowledge as the accessible memory of an organization. Accessible (market) knowledge can be achieved through an efficient and vast database (Day, 1994). If knowledge and information is available for every employee, employees will be able to create similar mental models. Shared or similar mental models enable employees to adapt quickly to changing tasks and demands (Mathieu, Goodwin, Heffner, & Salas, 2000). As proposed by Zollo and Winter (2002), the development of dynamic capabilities takes three stages in which the management of knowledge is of vital importance. The three stages are, knowledge accumulation, knowledge articulation and knowledge codification. The three stages give inside in the development of knowledge routines and dynamic capabilities and can function as a guide for a knowledge management strategy and process. In order to understand knowledge management and implementation process, the three stages will be discussed briefly in the next section.
Routines and experience accumulation

Two types of routines exist. The first type regards performing known procedures for generating profit. The second type of routines involves inflicting change in the existing operations and is regarded as the foundation of dynamic capabilities. It is difficult to define how routines are developed but it is suggested that routines reflect experiential wisdom that is gained by trial and error. This puts emphasis on the importance of tacit knowledge since tacit knowledge is developed by personal experience (Tua, 2000) (Zollo & Winter, 2002). Experience accumulation is defined as the learning process by which operating routines are developed. Repeated practice is an important learning mechanism for the development of dynamic capabilities (Eisenhardt & Martin, 2000). This first step does not include knowledge management practices but is important for the understanding of knowledge development and the basis for the next two steps.

Knowledge articulation

Knowledge articulation regards the development of collective competences, the process through which implicit knowledge is articulated via discussions, debriefings and performance review processes (Zollo & Winter, 2002). Consequently, this impacts the knowledge management strategy. By comparing opinions, employees can create an improved level of understanding about what has to be done to execute a certain task (Zollo & Winter, 2002). Romme, Zollo, & Berends (2010, P. 3) define knowledge articulation as follows: “Knowledge articulation consists of deliberate efforts to articulate and share the experiential knowledge developed from the enactment of organizational routines”. To conclude, knowledge articulation is about deliberately sharing the accumulated knowledge person-to-person.

Knowledge codification

During knowledge codification employees codify their knowledge of routines and performance implications through manuals, project management software, decision making tools and blueprints (Romme et al., 2010)(Zollo & Winter, 2002). Codification is therefore not only important for knowledge transfer but also for the evolution of knowledge. Codification efforts force organizations to explicitly state the implications of experience, routines and knowledge (Zollo & Winter, 2002). Knowledge codification makes stored experience easier to apply and it accelerates the building of routines (Eisenhardt & Martin, 2000). Romme, Zollo, & Berends (2010) build on the theoretical model proposed by Zollo & Winter (2002) by investigating the model using the system dynamics perspective. They state that routines, codification and articulation can be modeled as stocks. One of their most important
managerial implications from their simulations is that it is crucial for any firm to understand the impact of environment and how to adapt their learning efforts accordingly (Romme et al., 2010). It is evident that knowledge management plays an important role in supporting the codification of knowledge.

**Implementation**

Two kinds of knowledge exists: explicit knowledge and tacit knowledge (Wyatt, 2001). Explicit knowledge consists of facts, rules and policies that can be documented. Tacit knowledge underlies personal skills and is obtained by experiences, reflections and talents of individuals (Tua, 2000) (Wyatt, 2001). Two main knowledge management and sharing strategies exist for explicit and tacit knowledge. These strategies are the codification strategy and the personalization strategy (Hansen, Nohria, & Tierney, 1999) (Wyatt, 2001). The codification strategy entails identifying, capturing and indexing of explicit knowledge (Wyatt, 2001). The personalization strategy relies on face-to-face communication and personal networks (Hansen et al., 1999). This implicates that only knowledge accumulation and articulation are involved, thus excluding knowledge codification. A codification strategy requires heavy investment in IT systems (Hansen et al., 1999). The knowledge management strategy depends on the strategy of the firm, the processes it incorporates and the products it makes or the service it delivers. Focusing on one specific strategy does not implicate that two strategies cannot be used simultaneously. An organization can combine, for example, an emphasis on codification and a moderate personalization strategy (Hansen et al., 1999).

Challenges concerning knowledge management are not restricted to choosing the most appropriate strategy but also motivating employees to share their knowledge (King & Marks, 2008). Some individuals stick to the motto ‘knowledge is power’. These employees tend to hoard knowledge and are only willing to share knowledge when motivated to do so (King & Marks, 2008). A reduction of one’s fear to lose power and unique value can be achieved by trust in management (Renzl, 2006). King and Marks (2008) conclude that the most important motivator of knowledge sharing is supervisory control. Hence, again underlining the role of leadership.

Now all the micro-foundations have been determined and described, the theoretical model can be composed. Consequently, the next chapter will continue with an overview of the theoretical framework and the different components will be explained.
4 THEORETICAL MODEL

A new theoretical model can be designed using the capabilities described in the previous chapter. The theoretical model links the dynamic capabilities model (Teece, 2007) to internationalization. Based on a thorough literature research, six constructs have been selected and proposed to have a positive effect on the sensing, seizing and managing transformations capabilities of an internationalizing firm. The complete theoretical model looks as follows:

Since foreign entrants suffer drawbacks compared to local incumbent, firms need to adapt, alter and modify their resource base. Therefore, the micro-foundation ‘networking capabilities’ has been selected. In order to spot as much international opportunities as possible, an internationalizing firm needs to have excellent (internationally focused) market scanning capabilities. In order to seize the sensed opportunities, a firm needs to be able to understand and use the gathered information. Consequently, marketing capabilities have been added to the model. Marketing capabilities include the ability to formulate successful marketing mix strategies by which the success depends on the absorptive capacity of the employees of the firm. Entering new markets can be regarded as new business creation. Accordingly, a business model mindset is of vital importance. A business model mindset is a mindset that includes multiple aspects of the business model like the customer value proposition, profit formulas, resources and key processes (Enkel et al., 2012). In order to benefit and support the sensing and seizing capabilities, knowledge management are included as the capabilities to manage transformations. Successful knowledge management will ensure that information will flow freely throughout the organization. The right organizational culture is also of vital importance. An
organizational culture can be defined as the combination of shared values, norms and expectations that influence the way employees work and communicate with each other (McShane and Traviglione, 2010). Creating a successful culture for international expansion is a complicated and time consuming process and the design depends on the situation (Jantunen et al., 2005). The most appropriate culture when internationalizing will ensure that sensing and seizing capabilities can be used to their fullest potential.
5 METHOD

5.1 RESEARCH PLAN AND CONTEXT

The theoretical framework can be used for organizations or departments that have the intention to internationalize. The results of the usage of the framework has two directions. First, the results can be used to improve and optimize the framework. It can become clear if vital micro-foundations are missing or that the description of the micro-foundations is incomplete, despite the extensive literature study. Consequently, micro-foundations can be added, removed or updated. Secondly, the results can be used to help organizations discover some aspects that can be improved in order to increase the chance of successful international expansion. The discovered aspects can be used to design and implement improved processes. The goal of this research results in an exploratory research with the aim of gaining new insights in a new literature direction.

In order to do so, an organization has to be found that faces both situations where it has departments that are struggling to expand internationally and it has departments that are more successful in foreign countries. This allows for comparison between departments and can therefore show possible improvements of the theoretical framework. An organization that fits this requirement is ARCADIS. ARCADIS is a multinational design and consultancy firm. Their services include, among others, design, consultancy, engineering and project management. ARCADIS covers many branches, including water management, heavy rail, urban transport, design and construction. ARCADIS has 70 offices located all over the world and employees well over 18,000 people. With an annual turnover exceeding 2 billion euro makes ARCADIS the third largest engineering and consultancy company in Europe and the ninth largest worldwide.

The struggling departments of ARCADIS need to modify, alter and update their current resource base. They will be able to do this by implementing routines that deliberately modify resources; dynamic capabilities. This makes ARCADIS an excellent candidate for researching dynamic capabilities for international expansion and testing and optimizing the proposed framework.

5.2 DATA COLLECTION

The developed theoretical framework will be tested and possibly improved in the remainder of this research. This implicates that the research will be exploratory of nature. For exploratory research, multiple data collection methods are of great importance (Pinsonneault & Kraemer, 1993). Two
different data collection methods will be used for this research: a survey and in-depth (semi-structured) interviews. An exploratory survey can be used to discover new concepts but is in exploratory research not sufficient (Pinsonneault & Kraemer, 1993). Therefore, multiple interviews will be held too. This allows for data triangulation. Both data collection methods will be described next.

The survey will be conducted among employees of ARCADIS. The questions will concern the six categories of capabilities important for internationalization as identified during the literature review. All the questions are based on studied literature and can be found, together with their references, in appendix A. The survey consists of 60 questions. All questions contain a 5 point rating scale from fully agree to absolutely not agree and do not know. The answer option ‘do not know’ can give some interesting insights in the communication practices and/or interests of employees and whether or not questions are well formulated. The content validity will be secured by the fact that the question of the survey are based on existing questionnaires or known construct. Multiple departments will be notified through email and/or a presentation concerning the theoretical model, the aim of the research and the survey. The involved departments are the rail signaling department, ‘rail studies and consultancy’, ‘track and electrification design’ and ‘tunnels and underground space’. The possible improvements will be directed towards the rail signaling department since they are the primary principle. A week after emailing the link to the survey a reminder will be emailed. The employees of the rail signaling department will be also be reminded face-to-face after no response in order to increase the responses and thus the value of insights.

In order to increase the validity of the results, data triangulation will be used. Some exploratory interviews will be held with employees from the rail signaling department and employees outside the rail signaling department concerned with foreign projects. Multiple project managers, consultants and engineers from multiple departments will be interviewed (15 in total). The interviews will be semi structured; some questions will be prepared beforehand but since new information has to be discovered the interviews will have an open character (Blumberg, Cooper, & Schindler, 2008). This allows for a bigger chance to discover new opinion, issues, challenges and internal conflicts.

The qualitative data can be used to back up the data gathered through the survey and thus increase the validity. The external validity will be assured by including multiple departments of ARCADIS who are operating in different fields. This can increase the generalizability of the conclusions.
5.3 **Data Analysis**

The data collection resulted in an overall response rate of 57% which leads to 80 responses. The response rates of the departments are 67%, 43%, 47%, 76% for the rail signaling department, ‘rail studies and consultancy’ department, ‘tunnels and underground space’ department and the ‘track and electrification design’ department, respectively.

The first step of the data analysis is to check for outliers. Outliers will alter the results and thus the interpretation in a negative way. This will be done using SPSS. Outliers will be analyzed and if needed, deleted from the dataset. The variance for each respondent will also be checked. In case of an extremely low variance, it is assumed that the respondent did not fill out the survey seriously. As an extra check, the time it took for a responded to fill out the survey will also be taken into account. The survey is estimated to take between 8 and 15 min. These estimates are based on several test runs with employees of the rail signaling department. In case the elapsed time between start and end is far below the estimate, the data of the respondent will be deleted. In this case it is assumed that the responded did not take enough time to answer the questions adequately. These procedures resulted in the removal of two cases where the elapsed time was less than 5 minutes. Consequently, the dataset will be reduced to 78 cases. The number of respondents enable the possibility of a thorough analysis which can give insights in the current situations at the four included departments.

The average scores and the variances will be combined to arrive at one score for every respondent for every question. Based on calculated scores, multiple departments can be compared regarding their sensing, seizing and managing transformations capabilities. A distinction has been made between engineers and the employees involved in project management and consultancy for every department since both categories of employees have different responsibilities regarding the internationalization process. Consequently, the engineers can be compared to the project management team of the department and engineers can be compared across different departments. The same holds for the project management teams and consultants.

As mentioned before, multiple departments have been included in this research. The rail signaling department is central during this research and the analysis of this department will be regarded as a within case analysis. Yet, the rail signaling department can also be compared to the other departments involved. This allows for two analysis: a within-case analysis (the rail signaling department) and a between case analysis (a benchmark). The between-case analysis will enable the possibility for the rail signaling department to learn from positive aspects of the other departments. The results of the survey and interviews will therefore be divided into two sections: a within-case section and a between-case
section. This allows for a clear separation of the identification of trends of the rail signaling department and learning possibilities for the rail signaling department from other departments.

The results will be used to improve the designed theoretical model. If certain questions could not provide the wanted information or a question turned out to be wrongly interpreted, improved questions will be proposed. If the gathered data show that some aspects of the internationalization process are missing, the current constructs can be modified or deleted or new construct can be added. A changed constructs can also result in modifications to the measuring device.

The results of the within-case analysis and the between-case analysis can will be discussed in the next chapter.
6 RESULTS

This chapter contains an overview of the results of the survey and the interviews held with employees of ARCADIS. The ‘results’ chapter will start with a description of the background of the issues at ARCADIS rail signaling. The chapter will continue with the within-case analysis and the between-case analysis, as described before. The description of the results will be divided into six micro-foundation as proposed in the theoretical framework. The within-case section will conclude with a description of positive and negative trends while the between-case analysis will conclude with possible learning opportunities for the rail signaling department.

6.1 EXOGENOUS INFLUENCES

The departments of ARCADIS involved in the rail industry are facing problems internationalizing, especially the rail signaling department among others. The problems regard the large drawback firms suffer when they enter foreign markets. They suffer from a lack of knowledge on international markets, international customers and competitors and a well-functioning local network. The history of the company plays an important role in the causes of several problems. In order to understand the reason, a short description of the main events in the history of the company will be given. Until the year 1995, the NS (Nederlandse spoorwegen i.e. Dutch railway company) owned two engineering firms: NS Engineering firm and Articon. The NS Engineering firm was privatized in 1995 and renamed ‘Holland Railconsult’ and Articon was sold to ARCADIS in 1998. ‘Holland Railconsult’ was renamed to Movares in 2006, now ARCADIS’ biggest competitor in the Dutch rail market. The largest part of the orders for Movares and ARCADIS rail signaling came and still come from Prorail. Around the time of the separation, the economy was doing well and order forecasts were positive. This did not trigger the urgency and need to innovate and search for new opportunities. Now, the economy is in a downturn, number of orders are declining and forecasts are not positive. The new climate calls for a new approach.
WITHIN CASE ANALYSIS

6.1.1 Sensing: market scanning capabilities

Employees of the rail signaling department (engineers and project managers) claim to keep track of technological trends and changing customer demands. However, only a few employees admit that they scan markets (20%) or that the department scans for new possibilities continuously (17%). The department also has little knowledge on international competitors and customers. It can be concluded that there seems to be a false sense of the being market orientated. A willingness to be market orientated is present both among the engineers and the project managers of the rail signaling department. This can be concluded using the scores on the questions whether or not employees want to have customer contact and whether or not it is important to have market information. However, only a few people admit that they know exactly how the process of market scanning works and, as mentioned before, admit that they scan the market. The low scores on the question about customer satisfaction being linked to rewards shows that no clear incentive program exists to stimulate employees to be customer and market orientated. The scores of the rail signaling department can be found in figure 7 (below).

Using the fact that the department has very little knowledge on international markets and few employees scan the market, it can be concluded that no successful routines are present at the rail signaling department regarding market scanning activities. This is supported by the orientating interviews held with multiple employees of the rail signaling department and employees from the international business office. Employees of ARCADIS revealed that employees of the rail signaling department are inward focused and passive when it comes to new (international) opportunities. A key employee of the rail signaling department also concluded that about 15% of the employees of the rail signaling department is open to new experiences. An employee of the foreign projects office stated the following: “employees of the rail signaling department complain but not one of the employees took initiative and comes to me and asks about the status of foreign projects”. Again, it can be concluded that employees are not market orientated and/or not stimulated to be market orientated. Also, routines seems to be missing that can modify, update and alter the existing knowledge on international markets.
6.1.2 Sensing: networking capabilities

The rail signaling department scores mediocre on networking capabilities (figure 8). The results show that networks are not actively managed and expanded by the rail signaling department. Since none or few projects are gained through the vast worldwide ARCADIS network, it can be concluded that existing networks are not used to their fullest potential. The fact that employees feel that their manager has a worldwide scope does unfortunately not result in the use of the worldwide ARCADIS network.

Interviews with employees of the rail signaling department revealed that networks are indeed not actively managing their networks, especially their possible international network. Some employees of the rail signaling department have been working in the rail industry their entire career and developed a vast network with possibly many opportunities but employees mention that they do not always know how to use the contacts in their networks to their fullest potential.

Figure 8: networking capabilities of the rail signaling department (1 is positive, 5 is negative)
6.1.3 Seizing: marketing capabilities

The most troubling result regarding the marketing capabilities of the rail signaling department is that the employees of the rail signaling department (engineers and project managers) feel they do not have the skills and knowledge to translate opportunities into (profitable) projects. This may be caused by the fact that only few employees feel that they are stimulated to be proactive when it comes to international expansion. Furthermore, the value of new market information is not always vivid for employees and employees do not always feel that they get the time and budget to realize their ideas. Again, employees criticize the usefulness of the marketing department when it comes to strategic advice regarding internationalization. The results of the survey can be found in figure 9.

It can be concluded that the employees of the rail signaling department (engineers and project managers) do not possess over extensive marketing skills that can help addressing new opportunities.

<table>
<thead>
<tr>
<th></th>
<th>I am able to apply new information for business creation</th>
<th>I know who to contact when I have an idea</th>
<th>I will be rewarded for risk-seeking and proactive behavior</th>
<th>The department has processes for analyzing market information</th>
<th>I am rewarded through time and money to explore and exploit my ideas</th>
<th>Our marketing department is known of its useful strategy recommendations</th>
<th>I am able to recognize the value of new market information</th>
<th>I will be rewarded for creative thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS Engineer</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>RS Project Management and consultancy</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*Figure 9: marketing capabilities of the rail signaling department (1 is positive, 5 is negative)*

6.1.4 Seizing: business model mindset

The rail signaling department does not seem to have any incentive programs to stimulate a business model mindset (The results of the survey can be found in figure 10). Although employees feel that their manager has an entrepreneurial attitude, this does not apply for the way the manager addresses international opportunities. A positive result is that employees see their manager as an entrepreneur and someone who tries to benefit international opportunities. However, when asked if the manager supports risky international projects to expand internationally, employees give a low score. This is according to the current belief that management has the ambition to internationalize but it has not let to any concrete actions. This belief is discovered through multiple interviews. Another positive result is
that employees do not feel reluctant to provide their opinion when it comes to new business opportunities.

<table>
<thead>
<tr>
<th></th>
<th>RS Engineer</th>
<th>RS Project Management and consultancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>My department manager of our company supports the projects that are associated with high risks in order to expand internationally</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>My department management has an entrepreneurial attitude</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>My department management tries to exploit international opportunities</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I do not feel reluctant to provide your honest opinion when it comes to business opportunities decisions</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>My department management has a disciplined approach for decision making in order to minimize agency problems</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Figure 10: business model mindset of the rail signaling department (1 is positive, 5 is negative)

6.1.5 Managing transformations: culture

The culture of the rail signaling department suits, according to the results of the survey, international expansion fairly good which contradicts the firm’s believes about the culture (which is revealed during interviews) (The results of the survey can be found in figure 11). Feeling comfortable in new situations and the long term focus are positive aspects of the department culture. However, thorough evaluation of the results of less successful projects is not part of the current culture. The distribution of the evaluation also does not take place often. This results in a culture where mistakes are not completely accepted and where less successful projects are not fully used to learn from the mistakes. The most remarkable results concern the involvement of employees in the internationalization process. Employees of the rail signaling department and the ‘rail studies and consultancy’ department feel that they are not involved in the internationalization process (15%) while they want to be involved (50%). This remarkable result is also recognized by the head of the rail signaling department who feels that he tries to involve employees in the internationalization process. However, for the head of the department it is not clear who would like to be involved and how some employees can be involved. This is triggered by the fact that employees take little initiative when it comes to involvement in the internationalization process. The head of the department mentions that some employees are not able to work independently, be creative and have the ability to come up with ideas. Change programs have been implemented in the past, without significant results. The insignificant results are caused by, according to
employees of ARCADIS, the human factor. Employees of the rail signaling department are selected mostly based on the technical skills, while their ability to work independently, their creativity, their resistance to change and enthusiasm regarding international project has been of lower concern. This causes the problems regarding the skills of the employees, as mentioned before. Combining the results from the survey and the interviews, it can be concluded that the intentions of most employees are good while their ability to be involved and proactive is questionable.

![Figure 11: culture of the rail signaling department (1 is positive, 5 is negative)](image)

6.1.6 Managing transformations: knowledge management

The lowest scores can be found on the question about sharing knowledge between different levels of the organizations and different locations of ARCADIS worldwide. However, important news on competitors or customers will be quickly distributed throughout the department which indicates the existence of a dense network. But a clear knowledge management strategy seems to be missing. The results of the survey can be found in figure 12.

An interview revealed that a database exists that contains information on multiple accounts. However, this database is hardly used. Mainly because the database is claimed (during interviews) to be not user-friendly and the existence is not widely known. During this project, a tacit knowledge database was introduced. However, the database has been mainly used for sharing explicit knowledge and employees do not feel the urge to share their knowledge and add items to the database. While the survey does not test for the personalization knowledge management strategy, interviews revealed that the main strategy is not codification but personalization; there is no extensive use of databases but a dense network seems to be present. Although this is not explicitly documented or procedures are implemented to support this knowledge management strategy.
6.2 **WITHIN-CASE ANALYSIS, TRENDS: THE RAIL SIGNALING DEPARTMENT**

This section will contain an overview of trends at the rail signaling department that can be extracted from the data. It can be concluded that certain routines are missing at the rail signaling department. The department scores low market scanning routines and moderately low on seizing routines. Employees claim that they try to keep up with technological trends and changes in demand. But according to the results, the department is not a market oriented. This can implicate that there are misunderstandings on what market scanning is and who is (or should be) involved. The fact that only 15% claims to scan the market means that market scanning routines are not clearly present. Many employees have little knowledge on the internationalization process and activities of the international marketing department. This causes misunderstandings, low commitment and low active involvement. As an employee mentions about the employees of the foreign marketing department: “*those people are not any good*” (i.e. the intentions of the employees of the international marketing department are not good). Active management of networks, especially internationally, also allows for improvement with the current mediocre networking capabilities. An interesting finding regards the involvement in the internationalizing process. About 15% feels that they are involved in the internationalization process but over 50% would like to be involved. While the department manager feels he involves his employees as much as possible, employees of the rail signaling department do not perceive it as such. The communication seems to be a large problem within the internationalization process. Weak communication towards employees causes uncertainty concerning internationalizing and can also cause employees not to be willing to get involved. As said before, actual market scanning routines seem to be missing (figure 7). But even if there is some market knowledge, the market knowledge cannot be distributed since effective knowledge management practices seems to be absent (figure 12).
The negative trends concern issues when trying to expand internationally. As mentioned during multiple interviews: the ambition and willingness to internationalize is present among certain managers but the process does not initiate. However, some positive trends can be distinguished as well. The organizational culture within the rail signaling department seems to suit international expansion quite well. This contradicts current beliefs about the organizational culture stating that significant cultural change needs to take place in order to internationalize successfully. Especially the willingness of the employees to be involved, the fact that they feel comfortable in new situations are positive aspects of the current culture (figure 11). Employees also do not feel reluctant to give their honest opinion on internationalizing issues which would indicate a good climate for decision-making. However, formal decision-making procedures are not present. The manager of the rail signaling department performs his role as a role model fairly good (figure 10). The fact that people perceive that he tries to seize international opportunities can be seen as very positive.

The following table (figure 13) shows an overview of the negative and positive trends:

<table>
<thead>
<tr>
<th>Positive trends</th>
<th>Negative trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational culture</td>
<td>Market scanning</td>
</tr>
<tr>
<td>Willingness of employees</td>
<td>Networking</td>
</tr>
<tr>
<td>Role model manager</td>
<td>Communication</td>
</tr>
<tr>
<td>Business Environment</td>
<td>Uncertainty internationalization</td>
</tr>
<tr>
<td></td>
<td>Involvement internationalization</td>
</tr>
<tr>
<td></td>
<td>Knowledge management</td>
</tr>
</tbody>
</table>

*Figure 13: trends for the rail signaling department*
6.3 **BETWEEN-CASE ANALYSIS**

6.3.1 **Sensing: market scanning capabilities**

The ‘rail studies and consultancy’ department seems to suffer the same problems as the rail signaling department although the department scores better on keeping up with changing customer demands and whether or not the department has good relationships with customers. This may be caused by a presentation by a manager responsible for international business. One of his subjects was what he the employees would like to do. This included keeping up with the market trends, improving the English language skills (internationalization) and updating resumes, among others. However, this one time event did not seem to have a significant effect on the ‘rail studies and consultancy’ department when analyzing the results. The engineers score even slightly worse than the rail signaling department. This insignificant impact can be caused by the possible lack of support by the department managers, lack of regular communication and having a too low priority.

The departments ‘track and electrification design’ and ‘tunnels and underground space’ seems to score consistently better on market orientation questions (see figure 8). Especially the ‘tunnels and underground space’ department scores on some questions extremely high. Aspects on which every department has a low score are the amount of knowledge on international competitors, international markets. One question on which every department scores extremely low was the question about the (international) marketing department. It can be concluded that employees do not know what the employees of the marketing department do. It seems that clear communication between the marketing department and other departments is missing.

The biggest differences can be found on the question whether or not the departments search continuously for new possibilities. The rail signaling department scores extremely low on this question while the ‘tunnels and underground space’ department scores extremely high. A remarkable result is score for the ‘track and electrification design’ department on this question. Engineers feel that their department scans continuously for new possibilities while the project management team and consultants feel that they absolutely do not. This contradicts with the results from interviews with employees from the ‘track and electrification design’ apartment. It turns out that the department has a couple of employees (approximately 10) who are enthusiastic about international projects, take initiative and tried to look for new opportunities. The head of the department knows exactly who these people are and he depends on them to spot new opportunities. The head of the department supports these employees giving them time and about a budget to be market oriented. The low score for the
A department can be caused by the fact not every employee is market oriented, if half of the employees are market oriented and the variation is high, the score will be low.

The following table (figure 14) shows the differences in overall scores on market scanning capabilities in percentages relative to the engineers of the rail signaling department (RS: rail signaling; Rail studies: Rail studies and consultancy: T&E D: ‘track and electrification design’; Tunnels: ‘tunnels and underground space’). The rail signaling engineers have score zero. The rail signaling department seems to be the least market oriented. As mentioned before, the score for the engineers of the ‘tunnels and underground space’ department is noteworthy. The results of the survey can be found in appendix B.

<table>
<thead>
<tr>
<th>Market scanning capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunnels Project Management and Consultancy</td>
</tr>
<tr>
<td>Tunnels Engineers</td>
</tr>
<tr>
<td>T&amp;E D Project Management and Consultancy</td>
</tr>
<tr>
<td>T&amp;E D Engineers</td>
</tr>
<tr>
<td>Rail Studies Project Management and Consultancy</td>
</tr>
<tr>
<td>Rail Studies Engineer</td>
</tr>
<tr>
<td>RS Project Management and consultancy</td>
</tr>
</tbody>
</table>

![Figure 14: market scanning capabilities relative to the engineers of RS department](image)

### 6.3.2 Sensing: networking capabilities

The most remarkable result is that engineers of the ‘tunnels and underground space’ department and the ‘track and electrification design’ department feel that their department networking capabilities are adequate and their management has a worldwide scope. This contradicts with what the project management team and consultants think about their departments (‘track and electrification design’) networking capabilities (figure 15). The rail signaling can improve dramatically on the usage of their network and to effectively and efficiently manage it. It seems that routines are missing that involve managing networks and using networks to their fullest potential. The following table (figure 15) shows the differences in overall scores on networking capabilities in percentages relative to the engineers of the rail signaling department. The results of the survey can be found in appendix C.
Figure 15: networking capabilities relative to the engineers of the RS department

6.3.3 Seizing: marketing capabilities

Again, the engineers of the ‘tunnels and underground space’ department are extremely positive about their department’s marketing capabilities (see figure 16). The ‘tunnels and underground space’ department has the highest scores compared to the other departments on this capability they seem to have well working incentive programs to stimulate people being proactive when it comes to internationalization and it is clear to whom employees have to go to with their good ideas and employees feel that they can translate opportunities into projects. They also feel that they got the time and budget to capitalize their ideas.

This remarkable result can be verified by an interview with the head of the ‘tunnels and underground space’ department. The ‘tunnels and underground space’ department does not have account managers. The project managers are responsible for maintaining contact with customers and translating market information into new projects. Although existing contacts are adequately managed, new contacts are rarely established. The head of the department also gives employees the time and freedom to explore new ideas. He also describes himself as a ‘walking around manager’ while he tries to be involved in employees’ business and aims to be an example for his employees.

The ‘track and electrification design’ department also scores better than the rail signaling department. This positive result for the department is caused by the fact that the head of the department gives some employees the freedom to try to seize the sensed opportunities. The employees have an intrinsic motivation and enthusiasm which has a positive effect on the department manager. The department
manager gets in his turn enthusiastic about international opportunities which influences the employees positively: positive interaction.

There are two aspects of the marketing capabilities that have low scores for every department. Not a single department feels that their manager supports risky projects in order to be able to expand internationally and no department has processes for analyzing market information. Since many departments rely on Prorail for projects and most of the projects are publicly offered and marketing capabilities were not vital for the success of the departments. Again, the usefulness of the marketing department is taken in doubt. No department feels that the marketing department provides strategic advice regarding internationalization. This may be caused by the fact that communication on what the department does is missing. The following table (figure 16) shows the differences in overall scores on marketing capabilities in percentages relative to the engineers of the rail signaling department. The results of the survey can be found in appendix D.

<table>
<thead>
<tr>
<th>Marketing Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunnels Project Management and Consultancy</td>
</tr>
<tr>
<td>Tunnels Engineers</td>
</tr>
<tr>
<td>T&amp;E D Project Management and Consultancy</td>
</tr>
<tr>
<td>T&amp;E D Engineers</td>
</tr>
<tr>
<td>Rail Studies Project Management and Consultancy</td>
</tr>
<tr>
<td>Rail Studies Engineer</td>
</tr>
<tr>
<td>RS Project Management and consultancy</td>
</tr>
</tbody>
</table>

![Bar chart showing marketing capabilities relative to the engineers of the RS department](image)

**Figure 16: marketing capabilities relative to the engineers of the RS department**

### 6.3.4 Seizing: business model mindset

The most significant differences can be found in the way employees are stimulated to be creative. The employees of the ‘tunnels and underground space’ feel that they are intensely stimulated to be creative. This time, both the engineers and the project management team feels the same way.

It can be concluded that the business model mindset is average for most departments (appendix E). The extremely positive score of the engineers of the ‘tunnels and underground space’ department is, again, noteworthy. Especially when compared with the score of the project managers and consultants of the ‘tunnels and underground space’ department, the high score seems unlikely. However, the manager of
the ‘tunnels and underground space’ department puts high value on team identity and collaborating, which become clear during an interview with the head of the department. The team identity and positive atmosphere could be a cause of the positive result.

The seizing problems (for most departments) seems to be in the ability to translate opportunities into valuable new projects and not the business model mindset. The following table (figure 17) shows the differences in overall scores on business model capabilities in percentages relative to the engineers of the rail signaling department.

<table>
<thead>
<tr>
<th>Business model mindset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunnels Project Management and Consultancy</td>
</tr>
<tr>
<td>Tunnels Engineers</td>
</tr>
<tr>
<td>T&amp;E D Project Management and Consultancy</td>
</tr>
<tr>
<td>T&amp;E D Engineers</td>
</tr>
<tr>
<td>Rail Studies Project Management and Consultancy</td>
</tr>
<tr>
<td>Rail Studies Engineer</td>
</tr>
<tr>
<td>RS Project Management and consultancy</td>
</tr>
</tbody>
</table>

![Figure 17: business model mindset relative to the engineers of the RS department](image)

6.3.5 Managing transformations: culture

The ‘track and electrification design’ department and the ‘tunnels and underground space’ department score significantly better on some criteria than the rail signaling department. Especially on the questions to what extent the manager communicates the internationalization strategy and whether or not results are more important than procedures. Communicating the values and expectations regarding international business seems to have more benefits. It seems that when managers clearly communicate about the internationalization strategy and goals, people can better identify with the company, they accept decisions from their manager more easily, feel more comfortable in new situations and they feel the results are more important than the procedures being used (see appendix F).

Both the ‘track and electrification design’ department and the ‘tunnels and underground space’ department score low (approx. 6%) on involvement in the internationalization strategy while employees would like to be involved (30%). The head of the ‘track and electrification design’ department recognizes this phenomena and states that he only involves employees who take initiative and are openly
enthusiastic about international opportunities. The following table (figure 18) shows the differences in overall scores on department culture in percentages relative to the engineers of the rail signaling department.

![Culture](image)

Figure 18: culture relative to the engineers of the RS department

### 6.3.6 Managing transformations: knowledge management

The most remarkable results concern the results of the ‘tunnels and underground space’ department (figure 19, appendix G). According to the results, knowledge sharing takes place between different positions and market information is spread throughout the department. Especially the engineers are extremely positive about the knowledge management practices at their department. The project management team recognizes that knowledge management only takes place between different functions and not between different ARCADIS offices around the world, which contradicts with the beliefs of the engineers. An interview revealed that employees of the ‘tunnels and underground space’ department spent quite some time at a round lunch table in the middle of their office, during lunch or coffee break. It is possible that information and knowledge is shared during these breaks and therefore people feel that they actively share knowledge.

Comparing the survey data and the results from interviews resulted in a remarkable result for the ‘track and electrification design’ department. The project management team scored low on every aspect of knowledge management except for knowledge sharing between function. However, an interview with the head of the department revealed that the department keeps a database with information on technologies and projects. The following table (figure 19) shows the differences in overall scores on knowledge management practices in percentages relative to the engineers of the rail signaling department.
6.4 **Between-case analysis: Learning possibilities**

The between-case analysis provides the opportunity to learn from positive results and mechanisms of the ‘rail studies and consultancy’ department, the ‘tunnels and underground space’ department and the ‘track and electrification design’ department.

Positive results of the ‘tunnels and underground space’ department seem to be partly caused by the fact that the manager of the department tries to keep close contact with his employees. He described it as walking around regularly, managing by walking around, in order to spot potential problems and solve existing ones. He tries to make sure that employees (from all different levels) collaborate with each other and intervenes when this is not the case. This can create a strong affiliation within the ‘tunnels and underground space’ ‘team. The positive atmosphere may have influenced the positive results of the ‘tunnels and underground space’ department.

The head of the ‘track and electrification design’ department gives creative employees with a business model mindset the time and budget to explore new opportunities or ideas. A clear strategy to stimulate employees to be market and business oriented is not implemented. It seems to be the intrinsic motivation of the employees themselves. The manager recognizes this fact and uses these employees to their fullest potential.

The knowledge sharing practices among the engineers of the ‘tunnels and underground space’ department is another learning possibility. Engineers feel that knowledge sharing takes place regularly. As mentioned before, this can be caused by the round table where employees spend their lunch time
and discuss problems. It has also to be mentioned that especially the project management team take a stroll almost every day during lunch break where multiple work related problem are discussed. This does not take place up to the same extent among the engineers of the rail signaling department.

The learning possibilities can be linked with some of the negative trends at the rail signaling department as concluded earlier. The following links can be made:

**Figure 20: Learning possibilities for the rail signaling department**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Learning possibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Managing by walking around; tunnels department</td>
</tr>
<tr>
<td>Knowledge management</td>
<td>Shared lunch table; tunnels department</td>
</tr>
<tr>
<td>Employee involvement</td>
<td>Business freedom; track and electrification design</td>
</tr>
</tbody>
</table>
To recall, the dynamic abilities model consists of three stages: sensing, seizing and managing transformations. In order to seize opportunities, an organization needs to sense opportunities first. As Day (1994) mentions, excellent market scanning activities are needed for marketing capabilities. The results show that the current practices at the rail signaling department contain barely any market scanning activities. While the seizing capabilities are also not adequate, the first problem that needs to be tackled is the sensing capabilities of the rail signaling department. The first major step is thus to change the department from inwardly focused to market oriented. In the new situation, employees will be market focused, searching the environment for possibilities continuously, managing their network and be enthusiastic about international opportunities. This can be achieved through implementing market scanning routines, following the developed framework. Implementing market scanning routines is proposed to enhance market scanning, reduce uncertainty and improve involvement in internationalizing process. The change program will make use of the strengths of the rail signaling department while diminishing the weaknesses (figure 13). The learning points from the other departments of ARCADIS included in the project can be included in the change program. The change program will focus on the sensing capabilities of the department. The change program is suggested to create a market focused organization and thus improving the sensing capabilities. The following scheme (figure 21) shows an overview of the impact of the change program on the developed framework.

Figure 21: effects of the change program

A change program should contain two parts: a top-down approach and a bottom-up approach (Narver, Slater, & Brian Tietje, 1998). The top-down approach is activity centered which implicates that management implements activities and a bottom-up approach is results driven (Narver et al., 1998). This
implicates that management assigns people to problem-solving contexts. The bottom-up approach is the key to learning and reinforcing cultures, it has a positive effect on participation and involvement which increases the commitment of the employees (Narver et al., 1998).

The change program will be divided into strategic processes, tactical processes and operational processes. The separation and classification of different processes will be a useful decision making structure (Hendriksen & Andersen, 2009). Accordingly, the processes and their relationships will be explained in the following. The goal of the change program is to force a cultural change where employees of the rail signaling department become market oriented, scan the market and make use of their networks. Since a market orientation is an ‘invisible hand’ that guides employees’ everyday activities and is thus a mindset, current mindsets and mental models need to be altered. This process is also known as ‘unlearning’ and will be the basis of the design of the routine (Baker & Sinkula, 2002). Changing the mental models of employees (unlearning) can be seen as the strategic process of the change program. The next level is the tactical level and this level bridges the gap between the strategy and the operational processes (Hendriksen & Andersen, 2009). The tactical processes will concern market scanning and the interpretation process. The operational processes will contain processes on that can be implemented at the rail signaling department on the short term.

Unlearning can be stimulated with a specific type of leadership. Leadership is a crucial in the dynamic capabilities theory and the development of dynamic capabilities (Day, 1994) (Helfat et al., 2007) (Teece, 2007). Since the overall goal of the change program is to create a market focused organization where market scanning is a routine, leadership style will also be part of the design. Every level of the change program will be explained in the next sections. An overview of the three different steps of the change program and their relationship with the leadership style can be found below (figure 22).

![Diagram](image)

*Figure 22: categories of the change program*
7.1 Mental Models

As (market) conditions change, organizations need to discard their present mental models. As mentioned before, mental models are organization-wide beliefs about the world (Daft & Weick, 1984). A number of cause and effect relationships might develop into models and are a powerful influence on behavior. Mental models can be used by individuals to make sense of reality. However, they are not lasting, as Baker and Sinkula (2002) state: “Mental models become obsolete as reality changes”. The process of discarding obsolete mental models, values, norms and behavior is called unlearning. Unlearning is an important predecessor of learning and involves eliminating organizational memory (Akgun, Byrne, Lynn, & Keskin, 2007). The organizational memory includes three different aspects: 1. organizational beliefs, values, norms and mental models, 2. formal and informal behavioral routines, procedures and mechanisms, 3. the organization’s physical artifacts (Akgun et al., 2007). Unlearning the present way of doing something and replacing it with a new way is the highest form of organizational learning, hence the change program will include every aspect of the organizational memory and mental models are the top category of the proposed redesign. Obsolete mental models will cause severely biased market scanning activities and market information (Day, 2011). Moreover, flawed mental models may narrow the scope of environmental scanning (Day, 1994). However, managers often do not recognize their mental models and that their mental models are a barrier to change (Baker & Sinkula, 2002). In order to make sure that obsolete mental models are replaced with new ones, an organization needs to promote the fact that every mental model is temporary. Challenging employees to question their current believes and assumptions is an important aspect of preventing obsolete mental models (Baker & Sinkula, 2002). Techniques have to be developed to induce employees to look at their external environment from different perspectives. An important mechanism that enables organizations to deviate from the existing culture and mental models is the acceptance of failures (Sinkula, 2002).

The employees of the ARCADIS rail signaling department also have a particular mental model. The employees are very internally focused and do not take much notice of the environment, let alone the international environment. In order to successfully internationalize, the employees have to change their current mindset into a market oriented mindset where market scanning is part of their daily business, routines and way of thinking. Creating a learning environment and stimulating and facilitating unlearning requires a certain type of leadership, which will be the subject of the next section.
7.2 Leadership Style

Top management is critical for changing cultures in general, hence also for changing the market orientation and creating a learning orientation. Management can influence change by deliberate role modeling, measuring and controlling progress, create a creative tension within the organization (Slater & Narver, 1995) and establish a sense of urgency for creating a market orientation (Narver et al., 1998). Since the change program will be implemented at the rail signaling department, top management is in this case the head of the department and the senior project managers. One form of leadership fits the market orientation change best: facilitative leadership (Slater & Narver, 1995) (Farrel, 2000). Facilitative leadership can be defined as a leadership style that enhances the ability to adopt, solve problems and improve performance and achieving shared, negotiated or complementary goals (Conley and Goldman, 1994). Facilitative leadership includes motivating employees to want to learn, to promote a learning environment and stimulate employees to take risks (Slater & Narver, 1995). This fits well with the theory on mental models and the implications for organizations. Management should encourage lateral, cross-functional transfers to force employees to learn and develop new skills and share their existing skills and perspectives (Slater & Narver, 1995). Facilitative leaders also frequently and effectively communicate. They share information about business trends and competitors activities to maintain a competitive focus. They also should provide operational information such as productivity and quality to share success and quickly identify problems (Slater & Narver, 1995). The management team needs to show actual successes from market scanning, which reinforces the wisdom of the norm and encourages full acceptance of the new strategy. Facilitative leaders thus facilitate a learning environment. This style of leadership not only needs to be present among the head of the department but also among the project managers and team leaders. Project managers and team leaders have often contact with employees and can therefore be a role model for their subordinates.
7.3 TACTICAL PROCESSES

The processes bridging the gap between the operational processes and the strategy are the tactical processes and are in this case the market scanning process and the interpretation process (Hendriksen & Andersen, 2009). Market scanning is defined as the process of monitoring the environment and providing environmental data to managers. During the interpretation phase, data is given meaning. Interpretation can be defined as the process of translating events and developing shared understanding and conceptual schemes. Hence, mental models play a significant role not only during environmental scanning but also during the interpretation phase.

Market scanning characteristics and activities depend on two aspects: how an organization perceives the environment (analyzable or unanalyzable) and the intrusiveness of the scanning activities (Daft & Weick, 1984). They state that there is a relationship between the way an organization perceives the environment and the interpretation process. When an organization perceives the environment as analyzable, it assumes that the environment is measurable and deterministic. The interpretation process includes in this case linear thinking and logic (Daft & Weick, 1984). In case an organization perceives the environment as not analyzable, the interpretation process is more personal and improvisational. At the moment, ARCADIS rail signaling scans the market passively while perceiving the environment as unanalyzable. This has been noticed through interviews with employees of the rail signaling department. The current scanning method is not working adequately. Assumptions about the environment are hard to change. However, the organizational intrusiveness can be changed. Daft and Weick (1984) state that four different market scanning categories exist: enactment, conditioning, undirected viewing and conditioned viewing. Enactment involves active scanning without a specific scanning department and the environment is perceived as unanalyzable and subjective. Conditioning involves passive scanning where information will be stored in databases, data sources are internal and impersonal and the environment is seen as analyzable. Undirected viewing involves passive market scanning while assuming that the environment is unanalyzable. Therefore, data sources are mostly external and personal and no scanning department exists. Discovering involves active market scanning while assuming an analyzable environment. This implicates that a separate department exists for market scanning activities and special studies and market reports are produced on a regular basis.

The rail signaling department has to change from undirected viewing towards enacting in order to become more market oriented. This requires a change shift from passive scanning to active market scanning. This includes shifting from relying on chance to active market searching.
7.4 Operational processes

This section will be used to describe operational processes and systems that can be implemented at the rail signaling department in the near future in order to execute the market scanning activities and shift towards a market oriented department and make market scanning a routine. The operational processes are suggested to solve the negative trends, as mentioned before, while fully using the positive aspects of the rail signaling department.

The culture of the rail signaling department suits, as mentioned before, internationalizing fairly well. This results in the fact that no severe culture change has to be organized. A positive aspect of the culture is that employees are willing to be involved in the internationalization process. This can be used to its fullest potential by actively involving employees. That positive fact that the majority of the employees see their manager as a role model (till some extent) can be used by managers to act out the desired norms and values.

The next section will elaborate on several operational processes that can be implemented at the rail signaling department in order to make market scanning a well-implemented routine.

7.4.1 Communication plan

When implementing a market orientation it is of vital importance that the majority of the organization or department fully understands the marketing concept. This has multiple benefits. It enhances the possibility that market orientation becomes a new norm (Lichtenthal & Wilson, 1992). It also has a direct effect on the quality of market scanning activities of employees (Day, 1994). Market scanning activities have to be fully understood, accepted and used automatically in order to create a market oriented culture (Day, 2011) (Lichtenthal & Wilson, 1992). Therefore, designing and implementing a solid communication plan should be the first step of implementation routines. A clear communication plan is thus of vital importance. This can be achieved through a communication plan including how, when and to whom to communicate (Cameron & Quinn, 2006). Regular and clear communication is also one of the characteristics of facilitative leadership.

For the rail signaling department it is important to implement regular sessions where international activities will be discussed. These sessions can be included in the department meetings, team meetings, team leader meetings and management team meetings. One of the learning opportunities the between-case analysis produced was the management practices of the ‘tunnels and underground space’ department. To recall, the head of the ‘track and electrification’ department stays close to the employees by regularly walking around the department, informing, guiding and intervening employees.
This could be implemented in the rail signaling department as well in order to provide clarity on the internationalization process. Since clear communication between the department and the international marketing department does not exist, the communication plan should also cover a solution for establishing a better link between the two departments. These meetings and the communication plan are suggested to be an excellent start for solving the uncertainty regarding the internationalization process among employees, increasing commitment, increasing involvement and directly solving the communication issues.

7.4.2 Cross-functional teams and a shared database

Cross-functional teams have to be formed in order to involve employees in the internationalization process and they encourage employees to be market oriented. Heavyweight teams are cross-functional teams that are dedicated for the duration and development effort (Burgelman, Christensen, & Wheelwright, 2004). Forming cross-functional teams will enhance knowledge sharing between functions and help employees to take different perspectives and question their current mental models. Hence, can enable a learning organization. Cross-functional teams aimed at market scanning enables rapid awareness of and response to competition and market change (Slater & Narver, 1995). The formation of teams involved in market scanning and thus the internationalization process is suggested to solve the problem that employees feel that they are not involved in the internationalization process and the fact that market scanning is not part of employees’ daily business. Key organizational member should be involved in the team formation to show commitment of the management team (Lichtenthal & Wilson, 1992).

Forming cross-functional teams and involving key organizational members also personalizes the cultural change which increases awareness and commitment (Cameron & Quinn, 2006). Consequently, behavior and competencies of each team member have to be identified. Especially open-mindedness is a vital behavioral feature when market scanning (Day, 1994). The cross-functional teams can be teams within a department or can consist of members of multiple departments in order to encourage inter-departmental knowledge sharing and cooperation. Each team could have a different scope in order to give a search direction and prevent overlap with other teams. The scope could be a specific country, technology, customers, partner, competitor or a combination of mentioned variables. The teams should also be encouraged to use the strong worldwide ARCADIS network. This can partly be achieved through involving account managers and senior project managers who are experienced in networking.

Short term successes are an important motivator for employees and can influence the success and durability of the change program. Short term successes can take the form of a good overview of
technological developments, a potential international opportunity spotted by the teams or an overview of the most important customers and competitors in a specific country. These successes should be spread through the organization using the communication plan.

The cross-functional teams have to make use of shared databases in order to enable that information can flow freely throughout the organization and that employees can create similar mental models (Day, 1994) (Teece, 2007). Well-designed databases can enable effectively sharing of information and reduce the lag between a decision and action (Slater & Narver, 1995). The database should contain information on network contacts (Day, 2000), technological developments and customer developments. The subjects can be divided into geographic areas which makes the search more confined. The usage of the database should be actively encouraged since current a database at the rail signaling is not used to their fullest potential.

7.4.3 Incentive program and measuring and controlling

Employees have to be encouraged and motivated to participate in the change program and become market oriented. Two kinds of motivation exist: intrinsic motivation and extrinsic motivation (Ryan & Deci, 2000). Intrinsic motivation is the doing of an activity purely for the person’s interest and not for a separable consequence and is critical for a person’s development (Ryan & Deci, 2000). To recall, the ‘track and electrification design’ department has some employees who are intrinsically motivated to be market oriented and pursue international opportunities. The manager of the department makes fully use of his employees’ intrinsic motivation, which is of such high influence that external motivators are left out. The rail signaling department does not seems to have such employees based on the results of the survey and the interviews, therefore the employees need some external motivators (extrinsic motivation). Extrinsic motivation is the doing of task for a separable outcome (Ryan & Deci, 2000). The management of the rail signaling department has to include mostly the employees who are willing to participate (intrinsic motivation) and stimulate the employees even more using the right incentive program (extrinsic motivation). Consequently, the appropriate new market oriented culture has to be rewarded (Lichtenthal & Wilson, 1992) (Slater & Narver, 1995). An important way to stimulate employees to be market oriented is to involve employees in their own international spotted opportunity, provide a sense of ownership. Another way to encourage employees to participate in the internationalize process and thus becoming more market oriented is to include goals for employees’ in their performance review. This is also an important part of measuring and controlling the process.

Measuring and controlling the implemented activities has several benefits. Management has a good overview of the progress (revealing if employees’ mental models are indeed changing), management
can adjust some parameters of the design when needed and management can communicate the progress to the employees in order to give some clarity. Measuring and controlling can take several forms. One way to measure the progress is to track the input of employees to the shared database. Another important way to measure the progress is to use a survey on a regular basis including questions to test communication, knowledge management and market orientation (Pfeffer, 2005).

7.4.4 The routine implementation process
A practical model for implementing routines for creating a market oriented culture can be found below (figure 23). The change program starts with a communication plan on what is going to change, what employees can expect from it and what is expected from everyone involved. The next step is to introduce market scanning techniques and form the (cross) functional teams. Moreover, a database has to be designed and implemented in order to distribute the information as efficiently as possible. Three aspects will have an effect on all the different steps: the incentive program, measuring and controlling and facilitative leadership. Changing employees’ mindsets is a complex and difficult process. An important step in this process is to make employees recognize that they have a choice; they have a choice to be either market oriented or not (Pfeffer, 2005). The process should not be completely focused on convincing that one approach is better than the other, it is about triggering internal motivation of employees to become market oriented. This will be the only way to create a market oriented organization where market scanning and managing networks is a routine.

![Figure 23: operational processes of the change program](image)

As with most change programs, it is important to have an owner, someone leading the project. This has to be someone with authority and enthusiasm concerning the internationalizing process. The most logical choice would be someone who has international market knowledge and stays close the
department in order to fit the change program to the exact needs of the department. A shift from a non-market oriented department to a market oriented department takes time (Cameron & Quinn, 2006) and a budget is needed to implement the different operational processes. Short term successes are possible but not likely. Management has to keep employees motivated when short term successes do not present themselves. One of the most important aspects that can determine the success of a change program (cultural shift) is stamina (Alvesson, 2002). Stamina ensures that the project remains a top priority and employees stay committed to making the project a success over a longer period of time. This can be enabled by using a systematic approach and an overriding vision (Alvesson, 2002).

This chapter and chapter 6 described the results and the developed improvement plan for the rail signaling department. These chapters trigger a discussion on the developed framework, the measurement device that has been used and the contributions to the current literature on dynamic capabilities and internationalization. This discussion will be subject of the next chapter.
8 DISCUSSION

This chapter contains discussion on the results of this research. The first part will contain a discussion of the framework and possible improvements. The second part will reflect upon the whether the research question has been answered and how this research contributed to the current research on dynamic capabilities and internationalization.

8.1 IMPROVEMENTS OF THE FRAMEWORK
Designing improvements for the rail signaling department of ARCADIS it became clear that two important constructs are missing from the framework. The importance of the two micro-foundations will be explained. The purpose of the theoretical framework is to discover bottlenecks in the process of international expansion for firms. However, in case some capabilities are missing and a (minor) cultural change is needed, the ability of an organization to unlearn the current mental models can predict whether or not an organization is capable of changing. During the usage of the framework it has been discovered that unlearning is of vital importance when implementing a change program and changing employees’ perspectives and mental models. At the moment, the unlearning aspect of internationalization is not included in the framework. Therefore, the micro-foundation ‘unlearning’ should become a part of the developed framework. As mentioned before, a certain type of leadership is needed to facilitate and stimulate unlearning. However, the results show that a specific leadership style is difficult to extract since leadership aspects have been included in several constructs of the framework. Since top management and their actions are of vital importance when internationalizing and possible altering the organizational culture and organizational micro-foundations, leadership style should be part of the theoretical model as well. This will make it easier to determine if an organization has the most appropriate leadership style that could stimulate unlearning and learning in order to manage the necessary transformation. These two capabilities are needed in every of the three dynamic capabilities. The enhanced framework looks as follows.
Adding two micro-foundations to the framework also means that the measuring device (survey) needs to be adjusted. The survey should include questions that can provide information on the unlearning capabilities of an organization and on the leadership style of the management team. Consequently, the following questions can be added (the answer options can remain the same as for the existing questions):

- **Unlearning**
  - I often look at problems from different perspectives
  - I often wonder why I perform tasks in a certain way
  - I often wonder why my department operates the way it does
  - I recognize when my current knowledge starts to become obsolete
  - I am aware of my own frame of reference

- **Facilitative leadership:**
  - My manager stimulates me to take different perspectives
  - My manager communicates market trends
  - My manager communicates operational performance indicators
  - My manager promotes a learning environment
  - My manager makes use of lateral, cross-functional transfers
  - My manager sometimes points out obsolete mental models
Besides adding the aforementioned questions to the survey in order to test the unlearning capabilities and facilitative leadership in an organization, other questions have to be added as well. The results show that the business model mindset of individual employees is not tested adequately with the current questions; the questions on the micro-foundation ‘business model mindset’ did not give clear insight in the business model mindset of employees. Rather the business model mindset of the managers is tested and the role model they are for the employees. While it is important to establish the influence of the manager on the employees, the mindset of the employees themselves is also key. In order to test the business model mindset of the employees the following question can be added to the survey.

- I always keep our customer value proposition in mind when I spot possible opportunities
- After spotting an opportunity, I am able to translate the opportunity into profit formulas
- My manager stimulates me to act as an entrepreneur
- I feel I have the ability to be an entrepreneur

The knowledge management construct can also be improved. As mentioned in the theoretical background, the knowledge management strategy depends on the products or service an organization delivers and their personal preference. Two knowledge management strategies exist: personalization strategy and the codification strategy, a combination of the two is also possible. The current measuring device only includes questions that can determine whether an organization has codification strategy; it determines whether (market) information is shared through a database or not. The current survey does not measure what the current knowledge management strategy is and how it is performed. In order to be able to determine the current knowledge management strategy the following question can be added to the survey:

- I share knowledge through face-to-face contact
- I deliberately use my internal network to gain and share knowledge
- I store tacit knowledge on business development in a shared database

As mentioned earlier, the knowledge management strategy mostly depends on the products or service an organization produces or delivers. The current survey does not check if the knowledge management strategy and the core business match up. In order to do so, the following questions can be added to the survey:
The tasks I perform are repetitive
Every project I work on is client specific
Every task brings new challenges

Designing an improvement plan for the rail signaling department did not only give insight in the importance of unlearning, facilitative leadership and knowledge management but also in market scanning activities. It turns out that, as mentioned before, that the market scanning strategy and the way an organization perceives the environment (analyzable or not analyzable) are related. Therefore, the framework developed by (Slater & Narver, 1995) can be added to the theory on market scanning. The current survey can reveal if market scanning routines are present or not. But it does not reveal whether the market scanning techniques currently used (if present) fit the strategy of the organization and the way the organization perceives the environment. Now, this can only be discovered through exploratory interviews with employees and managers. In order to enhance the model and the validity of the results (through triangulation) the framework development by Slater and Narver (1995) should be added to the model and be included in the survey. Their theory can enhance the market scanning capabilities construct. As mentioned before, the framework consists of two variables: Intrusiveness and the analyzability of the environment. These two variables can be used to construct four types of environmental scanning and interpretation: undirected viewing, conditioned viewing, enactment and discovering. In order to investigate how an organization perceives the environment the following questions can be added to the survey:

- My department perceives the environment as analyzable
- My department perceives the environment as objective

As mentioned before, the results of the engineers of the ‘tunnels and underground space’ department are extremely positive. A reasonable explanation for these results cannot be found. The positive attitude of the engineers at the ‘track and electrification design’ and the ‘tunnels and underground space’ department is remarkable. This can be caused by a false sense of positivism or trying to give the ‘correct’ answer. Hence, the survey could be altered in order to prevent unexplainable positive results. In case a responded gives the maximum possible score for a question, a follow up question can be added, asking for a brief explanation of the positive answer.

It has also become clear that employees would like to be involved in the internationalization process. However, how the employees can and would like to be involved remained unclear. At the moment, most employees do not take initiative when it comes to internationalizing. A question that can be added to
the survey is to ask employees, who respond positive to the question whether or not they would like to be involved in the internationalization process, how they would like to be involved. Hence, the following question can be added to the model: How would you like to be involved?

The aforementioned improvement of the theoretical framework and the measuring device are suggested to even further improve the usability of the theoretical framework for organization and improve the current literature on internationalizing and dynamic capabilities.

The managerial implications of this research come down to the theoretical framework. The framework is a management tool which can be used by managers who are responsible for the internationalization process. The designed framework contains eight constructs that will enhance the change of successful internationalization. Managers can test if their organization complies with all eight constructs and if not, design a change program in order to implement the missing capabilities.

8.2 Contributions to Current Literature

The goal of this research is to design a framework for measuring and assessing the internationalizing capability of middle to large organizations. Therefore the research question was the following:

*What is a suitable framework for identifying and assessing internationalization issues?*

As Weerawardena et al. (2007) mention, after the research by Luo (2000) on internationalization and dynamic capabilities, scholars have not been active further exploring this particular field of research. Helfat et al. (2007) recognizes many different future research directions that combine dynamic capabilities with a certain strategy or organizational process including market entry, market exit, diversification and organizational learning. Although some research has been done since on internationalization and dynamic capabilities (Weerawardena et al., 2007) (Jantunen et al., 2005) (Prange & Verdier, 2011) where important dynamic capabilities have been identified for internationalization, a comprehensive, holistic framework has been missing. Internationalization is a dynamic, complex process including various influences and stakeholders and therefore calls for a holistic framework. For this master thesis a comprehensive literature study has been performed to design such a framework. The framework combines the dynamic capabilities model as proposed by Teece (2007) with internationalization. The dynamic capabilities theory by (Teece et al., 1997) explains why some firms can create and maintain (sustain) a competitive advantage. Consequently, the designed framework contributes to the current literature by providing a comprehensive management tool. The framework provides insight in important constructs (micro-foundations) that determine the success of the
internationalization process of organizations. This research shows the importance of the micro-foundations as selected after a thorough literature review. The micro-foundations are market scanning, networking, marketing, business model mindset, culture and knowledge management. However, after the usage of the framework at ARCADIS, it became clear that two important micro-foundations were missing. Although not clear in current literature, it can be concluded that unlearning and facilitative leadership are important micro-foundations for internationalization too.

Using the framework at ARCADIS is became clear that the framework provided a new way of looking at the internationalizing process for ARCADIS. It made several important aspects for successful internationalization clear for ARCADIS. Furthermore, the survey that has been used to test for the (originally) six constructs, made de bottlenecks insightful in an objective manner. An interesting finding is that the research at ARCADIS showed the clear relationship between the ‘managing transformations’ dynamic capability and the sensing and seizing capabilities. The willingness of the employees to be involved in the internationalization process (culture) and their willingness to change (culture) have a direct effect on the effectiveness of the market scanning routines to be implemented. Moreover, the knowledge management capabilities influence the success of the sensing capabilities of ARCADIS since knowledge management was included in the change program for creating market scanning routines at ARCADIS.
Although the results of this research add to the literature on internationalization and creates a practical tool for managers, this research has some limitations. The limitations of this research will be explained in this chapter.

The current constructs are tested and improved through a survey and interviews among multiple ARCADIS departments. A statistical analysis was not be part of the data analysis since the aim of the research was not to predict a certain construct. This research was exploratory of nature with the aim of developing and validating a theoretical model (theory building) and spot weaknesses and strengths of the rail signaling department. However, since a framework has been designed through this research, the relationships between the constructs could be statically proven in a follow-up research. The fact that no statistical analysis was part of the research decreases the validity of the framework. A statistical analysis could be performed where the relationship between the micro-foundations and the dynamic capabilities has to be proved. Possible statistical analysis that could be executed can be are a multiple regression analysis, structural equation modeling or an MANOVA.

The current micro-foundations are, as mentioned earlier, based on an extensive literature study and the usage of the framework. However, this does not implicate that these eight micro-foundations are the only important micro-foundations in order to internationalize successfully. Consequently, other micro-foundations could have been added to the framework as well, but are left out. A micro-foundation of the dynamic capabilities theory that is linked to sustainable competitive advantage often is ‘research and development’ (Teece, 2007). However, this micro-foundation is not of significant importance when it comes to the internationalization process which is about counteracting the drawbacks an entering organization endures. Another possible micro-foundations that could be of importance to the framework is ‘internally focused learning’ (Weerawardena & O’Cass, 2004). ‘Internally focused learning’ is not solely focused on internal research and development but focuses also on the ability to learn from information gathered in the organization in order to spot opportunities. While the current framework primarily focuses on the external environment in order to spot opportunities, the ability to learn from internally gained information could also be of importance. An investigation on this possible micro-foundation can be for future research. Another dynamic capability that can be important for internationalization is acquisition. Acquisition is regarded as a dynamic capability in literature (Helfat et al., 2007). In case an organization is not able to develop new capabilities internally, a firm may acquire
an organization in order to acquire new skills. In case an organization is acquired in new geographic markets, the acquisition can part of the internationalization process. In what ways the ability to perform successful acquisition is of importance to internationalization can be a future research direction.

The absorptive capacity is a factor that seems of great importance for the sensing and seizing capabilities of an organization that has the intention to internationalize. Although discussed during the design phase of the framework, a thorough analysis of the construct is lacking from this research project. This research mostly focused on the absorptive capacity in terms of seizing opportunities, the ability to recognize valuable information and transform it into business ideas and projects. The absorptive capacity of ARCADIS also not became vivid via the interviews or the survey conducted at multiple departments of ARCADIS. The subject of absorptive capacity in relation to internationalization and dynamic capabilities calls for future research. The impact of the absorptive capacity on the internationalization process of firms, particularly during the sensing phase can be further explored.

The developed model is only tested at a single company, although at multiple departments, this decreases the generalizability. However, the framework is developed through an extensive literature review independent from ARCADIS. This increases the generalizability of the framework i.e. the framework can be used by other organizations too. Nevertheless, in order to increase the external validity and the generalization of the results even further, the model could be used at multiple organizations. The internal validity of this research is limited. The internal validity regards conclusion about the relationship between phenomena (van Aken, Berends, & van der Bij, 2007). Therefore, the internal validity is mostly important for causal research and less for exploratory research. In case future research aims to statically validate the relationships between the constructs and the dynamic capabilities, internal validity will be of importance.

Even though the model can be used by multiple organization in many industries, some organization will not be able to use the model effectively. A limitation of the framework regards namely the type of organization that can use the framework and measuring device. In order to establish a comprehensive overview of the capabilities of an organization or department, enough respondents should be involved that can ensure valid results. This creates problems in organizations with less than approximately 5 employees per department. Therefore, this framework can best be used in a large organization with at least 5 employees per department. Since the framework is designed for middle to large organization, this limitation did not cause any difficulties.
10 Conclusion

The aim of this research is to provide a management tool that can assist organizations in their internationalization process. A thorough literature review on sustained competitive advantage resulted in a theoretical framework that combines the dynamic capabilities model developed by Teece (2007) with important aspects of the internationalization process. This initial model contained six micro-foundations: market scanning capabilities, networking capabilities, marketing capabilities, business model mindset, culture and knowledge management. This model has been used at the ARCADIS rail signaling department in order to identify challenges regarding their internationalization process. A survey based on the framework and interviews among employees have been used to spot challenges for the rail signaling department. The usage and the design of a change program for the ARCADIS rail signaling department also led to improvements of the initial framework. The improvements not only include slight improvements to the initial micro-foundations but also two additional micro-foundations: facilitative leadership and unlearning abilities. The enhanced framework is a tool for managers in large organizations who can use the tool to identify the bottlenecks in their internationalizing process.
11 Bibliography


12 Appendix A: Survey Questions

Market Learning Capability

1. Our market research department (division) is known for its excessive international market studies (Day 1994)
2. I monitor markets where my department is involved continuously (Zahra and George)
3. The department monitors markets continuously (Zahra and George)
4. I interact with customers and market players regularly (Zahra and George)
   a. I want to interact with customers and market players
5. The department stays close to the market and customers through meetings, conferences etc. (Zahra and George)
6. We recognize early on technological changes that may have an effect on our business. (Jantunen 2005)
7. Our department has significant knowledge of the international market (Day 1994)
   a. It is important to have knowledge of international markets
8. Our department has significant knowledge on our international competitors (Knight & Cavusgil, 2004)
9. I understand how the market learning process works (Day 1994)
10. My rewards systems are focused on short term success (Enkel et al., 2012)
11. I keep track of long term technological trends (Enkel et al., 2012)
12. I keep track of long term customer demand and competitor trends
13. My rewards systems are partly based on customer satisfaction (Day, 2011)

Network Capability

1. We have the ability to expand our international business networks (Ojala & Tyrvainen, 2008)
2. The international Arcadis network, relevant for our department, is used to its fullest potential.
3. I manage relationships intensively (Agndal & Chetty, 2007)
4. My department management has a global mindset (Weerawardena et al., 2007)
Marketing capability

1. Our marketing department is known of its useful strategy recommendations. (Day 1994)
2. The department has processes for analyzing market information (Zahra and George)
3. I will be rewarded for creative thinking (Teece 2007)
4. I will be rewarded for risk-seeking and proactive behavior (Weerawardena & O’Cass, 2004)
   a. I am rewarded through time and money to explore and exploit my ideas
5. I am able to recognize the value of new market information (Cohen & Levinthal, 1990)
6. I am able to apply new information for business creation. (Cohen & Levinthal, 1990)
   a. I know who to contact when I have an idea

Business model mindset

1. My department manager of our company supports the projects that are associated with high risks in order to expand internationally (Jantunen 2005)
2. My department management tries to exploit international opportunities. (Teece 2007)
3. I do not feel reluctant to provide your honest opinion when it comes to business opportunities decisions. (Teece 2007)
4. My department management has an entrepreneurial attitude (Jantunen 2005)
5. Our department has a disciplined approaches for decision making in order to minimize agency problems. (Day, 1994)
6. When making a decision my manager collects information and takes on multiple viewpoints (Teece 2007)

Knowledge management

1. Sharing of market information happens within our department (Day 1994)
2. Sharing of market information happens between functions (Day 1994)
3. Sharing of department relevant market information take place between countries (Day 1994)
4. Sharing of market information takes place between different level of the organization (Day 1994)
5. I can easily access market information (Day 1994)
6. We have a database for information sharing (Day 1994)
7. When something important happens to a major customer or market, the whole business unit knows about it in a short time (Day 1994)

**Culture**

1. My department manager has communicated the internationalization strategy and associated goals (McShane and Traviglione, 2010) (Knight & Cavusgil, 2004)
2. Management involves employees in formulating the department internationalization strategy (Day 1994)
   a. I want to be involved in the internationalization strategy
4. I value results over having an ethical attitude (Jantunen 2005)
5. Most important is the result, not the procedures used (Hofstede 1990)
6. I feel comfortable in unfamiliar situations (Hofstede 1990)
7. My supervisors are interested in my personal life (Hofstede 1990)
8. Most of the employees in my department are cost-consciousness (Hofstede 1990)
9. Risk-taking is part of my daily business (Jantunen 2005)
10. If I perform well, I will be praised (Teece 2007)
11. I am very focused on the long term (Hofstede 1990)
12. Only special people fit our department (Hofstede)
13. New employees need more than a year to feel welcome (Teece 2007, Hofstede)
14. ARCADIS and its employees are very closed and secretive. (Hofstede 1990)
15. In general, I accept management decisions easily (Teece 2007, Hofstede)
16. I feel a strong identification with ARCADIS (Teece 2007, Hofstede)
17. There is a willingness to perform post-audits of unsuccessful programs and the results are spread widely through the organization.(Day 1994)
## 13 Appendix B: Market Scanning Results

We recognize early on technological changes that may have an effect on our business. Our department has significant knowledge of our international competitors. I understand how the market learning process works. I keep track of long-term customer demand and competitive trends. I keep track of long-term technological trends. I interact with customers and market players regularly. I want to interact with customers and market players. Our department has significant knowledge of the international market. It is important to have knowledge of international markets. Our market research department (division) is known for its excessive international market studies. I monitor markets where my department is involved continuously. I gladly solve customer problems. The department monitors markets continuously. The department stays close to the market and customers through meetings, conferences, etc. My rewards systems are partly based on customer satisfaction. My rewards systems are focused on short-term success.

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## 14 Appendix C: Networking Capabilities Results

The international Arcadis network, relevant for our department, is used to its fullest potential. The department management has a global mindset. My department management has a global mindset. We have the ability to expand our international business networks. Manage relationships intensively.

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### 15 Appendix D: Marketing Capabilities Results

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<th>I know who to contact when I have an idea</th>
<th>I will be rewarded for risk-seeking and proactive behavior</th>
<th>The department has processes for analyzing market information</th>
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### 16 Appendix E: Business Model Mindset Results

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<th>My department manager of our company supports the international opportunities the project is engaged with</th>
<th>My department management tries to exploit international opportunities</th>
<th>My department management does not feel reluctant to provide your board opinion when it comes to business-critical decisions</th>
<th>My department management takes an entrepreneurial attitude</th>
<th>My department management has a disciplined approach for decision-making in order to minimize agency problems</th>
<th>When making a decision, my manager collects information and takes on multiple viewpoints</th>
<th>Our department has a well-thought-out plan for each problem</th>
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### APPENDIX F: CULTURE RESULTS

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<td>I want to be involved in the international strategy.</td>
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<td>Management involves employees in formulating the department internationalization.</td>
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<td>New employees need less than a year to feel welcome.</td>
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<td>Sharing of market information happens between functions.</td>
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<td>I value results over having an ethical attitude.</td>
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<td>I feel a strong identification with ARCADIS.</td>
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### APPENDIX G: KNOWLEDGE MANAGEMENT RESULTS

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17 APPENDIX F: CULTURE RESULTS

18 APPENDIX G: KNOWLEDGE MANAGEMENT RESULTS