

University of Twente
School of Management and Governance
Chair of Technology Management
Prof. Dr. Holger Schiele

Topic: **Investigating Competences and Core Competences of a Leading Dutch Research Organization in Aerospace**

Type of paper: Master's Thesis (Master of Science in Business Administration)

Submitted by: Daniël van der Vegt
Number of pages/words: 54/20.113

Thesis supervisor: Prof. Dr. habil. Holger Schiele

2nd supervisor: Dr. Hans Heerkens

Enschede, 24th of July, 2017

MANAGEMENT SUMMARY

This research paper investigates the competences and core competences of a leading Dutch research organisation in the aerospace industry, namely COMPANY X. An extensive literature research has been performed to get familiar with this topic. In the end, the research is based on several existing theories related to the competences and core competences. Examples of these theories are the Resource-Based View and the Relational View. Next to this, the research towards the core competence is also executed based on a scoring model, which integrates all the assessments of a core competence and can therefore be classified as an overarching model for measuring core competences.

The research in this paper is performed in three ways: 1) Via a data research to establish the outside perspective of the author on the competences of COMPANY X. 2) Feedback sessions. The combined results of these two methods served as a basis for the input of the third analysing method: the survey. 3) A survey with 19 experts of COMPANY X, which have in general a good idea of the company, to identify via the scoring model the core competences of COMPANY X.

The first two analysing methods resulted into fifteen identified competences. The survey resulted into eight identified core competences of COMPANY X.

This research identified fifteen competences and eight core competences of COMPANY X. However, it is recommended to COMPANY X to invest more time in making competences relevant to other markets, as this gives them more opportunities and possible related profits. Besides this, it is recommended that COMPANY X starts up relationships in some of the competences where external resources are lacking. Next to this, it is useful and recommended to do a next-step research to get more detail and validation on the identified (core) competences, leaving opportunities for other students or authors.

CONTENT TABLE

Management Summary	3
Index of tables	7
1. Introduction of the (core) competence topic and the research paper	8
2. Theory	10
2.1 The History of Competences: Resource-based View, Relational View and the Competences Itself	10
2.1.1 Resource-based View: Competences as Resources of the Firm	10
2.1.2 Relational View: Cooperative Relationships can Lead to Unique Competences	11
2.1.3 Resources and Skills as Main Concepts of Competences & Learning Competences by Routines	12
2.2 Types of Competences: Competency Framework and Many Other Competences...	13
2.2.1 Competency Framework: Four Key Components and One Overarching Component	14
2.2.2 Other Types of Competences: Technical, Foresight, Relational, Market, Alliance and Entrepreneurial	15
2.3 The Concept of Core Competences: Definitions, Competitive Advantage, Assessment and the Scoring Model	17
2.3.1 Definitions of Core Competences: a Broader Range of Concepts.....	17
2.3.2 Competitive Advantage of the Core Competences and its Assessment via Three Tests and the VRIN-Framework	18
2.3.3 The Scoring Model: Six Questions Related to the Theory Discussed	21
3. Methods: Research Design & Data Collection	23
3.1 Data Research and Feedback Sessions Performed for Analysing the Competences	23
3.2 Design of the survey: Introduction, Core and End Question(s) Based on the Scoring Model	23
3.3 Respondent Characteristics of the Survey: 37 Selected Experts, 19 Filled-In Surveys & High Average Working Experience	24

3.4 Data Analysis: Potential Biases, Representativeness, Validity and Reliability	25
4. Empirical Findings	28
4.1 COMPANY X: An Introduction	28
4.2 Data Research on COMPANY X.....	28
4.3 Results of the Feedback Sessions.....	28
4.4 Survey Results of the Core Questions and End Question	28
5. Discussion of findings.....	31
5.1 Discussing the Fifteen Identified Competences	31
5.1.1 Combining Data Research and Feedback Sessions Leads to New Input and Validation.....	31
5.1.2 Results of Data Research and Feedback Sessions are in Line with the Discussed Theory 31	
5.2 Identified Eight Core Competences According to the Scoring Model and Respondents' Thoughts are in Line with the Outcome of the Survey	32
6. Conclusion on the findings	36
6.1 Answering the research questions: Fifteen Competences and Eight Core Competences Present at COMPANY X	36
6.2 Research Contributions: Opportunity for Follow-Up Research, Useful Literature Review & Validation of the Theory and the Scoring Model	36
6.3 Recommendations to COMPANY X: Invest Time in Relevance to Markets, Relationships, Next-Step Research and Training.....	37
6.4 Several Limitations and Future Research is Possible	39
7. Acknowledgements	39
8. References	40
9. Appendix	45

INDEX OF TABLES

Table 1: Scores of the survey on the six aspects of all fifteen competences	28
Table 2: Scores of end question survey ‘thoughts of the respondents on core competences’	29

1. INTRODUCTION OF THE (CORE) COMPETENCE TOPIC AND THE RESEARCH PAPER

In the past, the most powerful way to prevail in global competition was invisible to many companies. It is in the 1990s that managers exploited the core competences which make growth possible (Prahalad & Hamel, 1990, p. 79). Also, the management literature increasingly acknowledges the importance of competency development in enhancing the competitiveness and performance of an organization. As such, competency development becomes a crucial strategic management tool in today's work environment (De Vos, De Hauw, & Willemase, 2011, p. 4). This prominent role of competency development in enhancing the success of employees and organizations has drawn the attention of practitioners leading them to introduce competency development as a central part of their human resource practices (Lawler, 1994, p. 17 & 20; Le Deist & Winterton, 2005, p. 28 & 41). Therefore, in this paper the competences and core competences of COMPANY X will be researched to examine if there is growth - and/or competitive advantage possibilities for COMPANY X now and in the future.

In this paper two research questions will be answered. First, the general competences of COMPANY X will be researched to lay the foundation for the second part of the paper. In this second part, the identified competences will be researched to indicate which of the competences can be classified as the core competences of COMPANY X. The following two research questions are therefore:

- 1) What are the competences of COMPANY X?*
- 2) What are the core competences of COMPANY X?*

This paper contributes to the practical relevance in the following ways: 1) It helps COMPANY X identifying and understanding their (core) competences. 2) It helps COMPANY X identifying in which competences and / or core competences time and resources need to be invested and on which aspects. 3) It helps COMPANY X understanding in which ways these time and resources should be deployed. 4) The results can be of practical use for further research within COMPANY X or for research of students or authors regarding this researched topic.

The theoretical relevance of this paper is that the different types of competences from the theory are validated with the research performed, as these types matched the types of competences discovered at COMPANY X. This means that the theory is nowadays still applicable. Next to this, the scoring model used in this paper is validated. This scoring model

captures all the assessments of a core competence and can be classified as an overarching model for measuring core competences. Besides this, one adjustment was made to this scoring model, namely in the scoring range. This range was originally from 1 to 20, but in general, this scoring range is not familiar to people. Therefore, in this paper it was chosen to use a scoring range from 1 to 10 to improve the accessibility of the scoring model.

To give answers on the mentioned research questions, this paper is structured in the following way. After this introduction section, the paper will explain the theory related to the (core) competences. First the history of the competence concept will be addressed, before discussing the competence theory itself. After this, the types of competences will be described. Then the core competences theory will be explained. The theory section will conclude with an explanation of the scoring model, which is developed to identify which competences are the core competences of COMPANY X. The theory section will be followed by the methods section. This method section is divided into several sections. First, the available data from COMPANY X itself is researched to identify the competences of the firm. This data research is combined with two feedback sessions. These two parts together are the analysis of the competences. After this, a survey is held with several representatives of COMPANY X to identify which competences are the core competences of COMPANY X. The methods section concludes with describing the respondent characteristics and the bias analyses of the survey. After the methods section of this study the empirical findings will be described. Here the results of the data research, feedback sessions and survey can be found. From there on the findings will be discussed and multiple competences schemes are developed to give a good overview of these competences. Also, the results of the core competences will be discussed in this section. In the final chapter, the research questions are answered and the research contributions are described. This chapter also describes the recommendations given to COMPANY X. This paper ends with a small section describing the limitations and future research implications and a small section of acknowledgements.

As mentioned before, the theory related to the (core) competences will be explained in the next section.

2. THEORY

2.1 The History of Competences: Resource-based View, Relational View and the Competences Itself

Before going directly to the competence concept, this paper will first introduce the Resource-based view and the Relational view in relation to the competence concept, to see where the competence concept stems from.

2.1.1 *Resource-based View: Competences as Resources of the Firm*

The Resource-based theory (view) emphasizes the importance of firm resources, which are defined as “any tangible or intangible entity available to the firm that enables it to produce efficiently and/or effectively a market offering that has value for some market segment(s)” (Hunt & Morgan, 1995, p. 11). The Resource-based view of the firm suggests also that the differences in the resources of the firm (tangible or intangible) are accumulated and learnt over time and the heterogeneity of these resources is the source of competitive advantage (Dierickx & Cool, 1989, p. 1506; Mahoney & Pandian, 1992, p. 365 & 374; Srivastava, 2005, p. 50). In RBV, these firm’s resources or competencies are generally defined as all the assets, capabilities, processes and knowledge that reside in the firm (Coates & McDermott, 2002, p. 436; Grant, 1991, p. 118 & 119).

Because competences enable firms to use their resources efficiently and/or effectively, competences are a logical extension of the Resource-based view (Wittmann, Hunt, & Arnett, 2009, p. 745). The same is argued by Coates & McDermott (2002), which stated that by extension, the RBV lens implies that a given resource or competence can in turn satisfy multiple priorities over time. E.g. Toyota’s production system (a resource) can, thus, be applied differently to focus on low costs, flexibility, or quality (Coates & McDermott, 2002, p. 438). These competences are affected by the firm’s history, as the Resource-based theory explicitly acknowledges a firm’s history as an antecedent to its current capabilities (Danneels, 2002, p. 1097; Priem & Butler, 2001, p. 35). The Resource-based perspective implies also that when a firm is using this perspective, it examines how it should utilize and develop the competencies in the face of possibilities in the long term (Coates & McDermott, 2002, p. 438).

The Resource-based view indicated the competences as resources of the firm. However, there is also a part of the competences which can be related to the relationships between firms. Therefore, the Relational view will be discussed next.

2.1.2 Relational View: Cooperative Relationships can Lead to Unique Competences

By introducing the Relational view as a complement to the Industry structure view and Resource-based view, Dyer and Singh (1998) offer a theory that explains competitive advantage by focusing on dyads and networks of companies as units of analysis. The theory proposes that the greater the partners' investment is in (1) inter-firm knowledge-sharing routines and (2) relation-specific assets, the greater the potential will be for relational rents (Dyer & Singh, 1998, pp. 664, 665 & 676; Töyli, Lauri Ojala, Wieland, & Marcus Wallenburg, 2013, p. 303). Relational rents are defined as a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners (Dyer & Singh, 1998, p. 662).

These specific alliance partners and relation-specific assets come back in the article of Shan & Hamilton (1991), who argued that relation-specific assets can lead to complementarity of both firm- and country-specific resources between domestic and foreign firms which is a key factor in the formation of (cross-border) strategic alliances (Shan & Hamilton, 1991, p. 420 & 421). Strategic alliances allow firms to procure assets, competencies, or capabilities not readily available in competitive factor markets, particularly specialized expertise and intangible assets, such as reputation (Oliver, 1997, p. 707). This is in line with Hodgson (1998), who argued that firm competences have limits of scale and scope. More fluid market and exchange relationships may stimulate the firm to develop new capabilities. Furthermore, while organizational integration may be advantageous for an individual productive unit, exchange and market links may provide a looser overall framework in which a variety of organizations and competences co-exist (Hodgson, 1998, p. 192).

The cooperative relationship between Nestle and Coca-Cola to distribute hot canned drinks through vending machines (a business largely unknown outside of Japan) is an example of an alliance in which complementary resource endowments are a source of relational rents. This alliance combines Nestle's brand names (Nescafe and Nestea) and competence in developing and producing soluble coffee and tea products with Coca-Cola's powerful international distribution and vending machine network (Hamel & Prahalad, 1994, p. 187). The alliance creates advantages over Japanese competitors (e.g., Suntory), who are better than Coca-Cola at soluble coffee and tea and have a larger distribution and vending machine network than Nestle, but cannot match the Coca-Cola-Nestle combination of capabilities

(Dyer & Singh, 1998, p. 667). So, strategic alliances can lead to competences which are not available to a firm when they are operating alone.

The resources and relationship part of the competences have been examined. This forms a basis of the competence concept. The last part of this section will be used to give an overview of the competence concept in terms of its definitions and relations to other aspects apart from resources and relationships.

2.1.3 Resources and Skills as Main Concepts of Competences & Learning Competences by Routines

The term competence is often used similarly to the way it is used in our daily speech; to code a broad range of our experiences related to craftsmanship, specialization, intelligence, and problem solving. As such, competence remains an experience-near concept which needs further conceptual clarification if it is to serve the purpose of theory building (Von Krogh & Roos, 1995, p. 62). This conceptual clarification is accessed by several authors. Drejer (2002) argued that competences seem by nature to be the result of a creative blending of 'hard' technologies, that is, tangible resources such as equipment and skills/knowledge under the influence of the culture of the corporation (Drejer, 2002, p. 66). Edgar & Lockwood (2007) argue that (organizational) competence is viewed as an organizational-level phenomenon - a meta construct encompassing multiple, individual member-held bodies of knowledge and skills (Edgar & Lockwood, 2007, p. 3). Teece, Rumelt, Dosi & Winter (1994) are relating the concept of competence more to a set of differentiated technological skills, complementary assets, and organizational routines and capacities that provide the basis for a firm's competitive capacities in one or more businesses (Teece, Rumelt, Dosi, & Winter, 1994, p. 18).

So, including the previous sections and these definitions, competences have something to do with knowledge, skills, equipment/assets, routines and could be influenced by organisational culture and the history of the company. This seems a wide range of concepts, however, it needs to be considered that the essence is that you need both resources and skills as Coates & McDermott (2002) already argued: 'A factory, brand, or patent itself is not a competence as they are not skills or abilities. It is important to distinguish the difference as firms can easily rest on asset or infrastructure based advantages and under-invest in the management and building of specific competencies' (Coates & McDermott, 2002, p. 438). The same was

argued by Teece (1998), who stated that a competence is not product specific, but a measure of a firm's ability to both solve technical and organizational problems (Teece, 1998, p. 204). This indicates that the skills in relation to the competences are important. According to several authors, these skills can be learned by training. McClelland (1998) and Le Deist & Winterton (2005) stated that competencies are fundamentally behavioural and, unlike personality and intelligence, may be learned through training and development (Le Deist & Winterton, 2005, p. 31; McClelland, 1998, p. 336 & 338). Next to this, Helfat & Peteraf (2003) stated that while some capabilities may deal specifically with adaptation, learning, and change processes, all capabilities have the potential to accommodate change (Helfat & Peteraf, 2003, p. 998). Besides this, Coates & McDermott (2002) reasoned that their study highlights and supports the concept that competencies are complex skill sets, which are acquired through learning (Coates & McDermott, 2002, p. 448). To learn these capabilities or competences is not simply a matter of assembling a team of resources. Capabilities involve complex patterns of coordination between people and between people and other resources. Perfecting such coordination requires learning through repetition (Grant, 1991, p. 122; Nelson, 1991, p. 68).

Therefore, organizational routines are important as they are regular and predictable patterns of activity which are made up of a sequence of coordinated actions by individuals. A capability is in essence a routine, whether the organization itself is a huge network of routines. This network includes a sequence of routines, such as production process and top management routines (Grant, 1991, p. 122).

So, as mentioned before, competences exist of several concepts, but the main concepts are resources and skills. In the next section, the types of competences will be described to identify the wide range of types of competences present in the theory.

2.2 Types of Competences: Competency Framework and Many Other Competences

Many authors have argued and classified different types of competences. This paper starts with a competency framework developed by Cheetham & Chivers (1996, 1998, 1999)¹ as an introduction to a couple of these types. Next to this, other types of competences argued by several authors will be discussed.

¹ Cheetham & Chivers developed this framework in 1996 and improved it in 1998. Cheetham alone published the framework in 1999. This latest framework is seen as the most up-to-date one and therefore used in the rest of the paper

2.2.1 Competency Framework: Four Key Components and One Overarching Component

A competency framework is typically viewed as a mechanism to link Human Resource Development with organizational strategy: ‘a descriptive tool that identifies the skills, knowledge, personal characteristics, and behaviors needed to effectively perform a role in the organization and help the business meet its strategic objectives’ (Le Deist & Winterton, 2005, p. 33; Lucia & Lepsinger, 1999, p. 5). The competency framework of Cheetham (1999) exists of four key components (knowledge/cognitive competence, functional competence, personal/behaviour competence and values/ethical competence) and one overarching component (meta-competence) (Cheetham, 1999, pp. 179-182). The mentioned competences are defined as follows:

- Knowledge/cognitive competence: the possession of appropriate work-related knowledge and the ability to put this to effective use (Cheetham, 1999, p. 180). For example, the qualifications of staff, recruitment of skilled labor, and the nature of company activities (Tödtling & Grillitsch, 2014, p. 333).
- Functional competence: the ability to perform a range of work based tasks effectively to produce required outcomes (Cheetham, 1999, p. 180). In other words, functional competences are those things that ‘a person who works in a given occupational area should be able to do. . .[and] able to demonstrate’ (Le Deist & Winterton, 2005, p. 35).
- Personal/behaviour competence: the ability to adopt appropriate, observable behaviours in work-related situations (Cheetham, 1999, p. 181). Simply stated: ‘know how to behave’ (Le Deist & Winterton, 2005, p. 35).
- Values/ethical competence: the possession of appropriate personal and professional values and the ability to make sound judgements based upon these in work-related situations.

The linkage of ethical competence with values was intended to emphasise the point that values, like knowledge, are of little use unless they are applied. For example, a young doctor might have a well-developed set of values, but may freeze when faced with making a difficult ethical judgement (Cheetham, 1999, p. 181).

- Meta-competence: a competency that assists in developing other competencies or is capable of enhancing or mediating other competencies (Cheetham, 1999, p. 182). This competency is concerned with the ability to cope with uncertainty, as well as with learning and reflection (Le Deist & Winterton, 2005, p. 35).

This competency framework emphasizes the skills part of competences. E.g. in the functional competence, it was recognised that this included, and indeed required, the possession of discrete skills or competencies (Cheetham, 1999, p. 180). There are also types of competences not only related to skills. Therefore, in the next section a wide range of other types of competences will be discussed.

2.2.2 Other Types of Competences: Technical, Foresight, Relational, Market, Alliance and Entrepreneurial

Teece et al. (1994) described three competences which are not related to skills: 1) allocative competence; deciding what to produce and how to price it, 2) transactional competence; deciding whether to make or buy, and whether to do so alone or in partnership and 3) administrative competence; how to design organizational structures and policies to enable efficient performance (Teece et al., 1994, p. 18 & 19). However, one competence did relate to skills, namely the technical competence. This includes the ability to develop and design new products and processes, to operate facilities effectively and it involves the ability to learn (Teece et al., 1994, p. 19).

According to Slaughter (1995) and Major, Asch & Cordey-Hayes (2001) foresight is also a competence; it is a process that attempts to broaden the boundaries of perception in four ways:

- By assessing the implications of present actions, decisions, etc. (consequent assessment);
- By detecting and avoiding problems before they occur (early warning and guidance);
- By considering the present implications of possible future events (pro-active strategy formulation);
- By envisioning aspects of desired futures (normative scenarios) (Major, Asch, & Cordey-Hayes, 2001, p. 93; Slaughter, 1995, p. 48).

Next to this, there are three types of relational competences (e.g. communication, cooperation and integration) whose importance has been highlighted in prior research (Chen, Paulraj, & Lado, 2004, p. 517 & 518; Omar, Davis-Sramek, Myers, & Mentzer, 2012, p. 131; Paulraj, Lado, & Chen, 2008, p. 57 & 59; Swink, Narasimhan, & Wang, 2007, p. 161). For example, Paulraj et al. (2008) argued that the empirical findings in support of the hypothesized relationships corroborate the main theoretical assertion that inter-

organizational communication can be viewed as a relational competency that yields strategic advantage for the collaborating firms (Paulraj et al., 2008, p. 59).

Anderson, Cleveland & Schroeder (1989) investigated the relationship of specific manufacturing skills to business performance (Anderson, Cleveland, & Schroeder, 1989, p. 139 & 142). Coates & McDermott (2002) built on this work and emphasized the concept that a production competence exists and that it has a relationship with business performance (Coates & McDermott, 2002, p. 437). However, as mentioned before, production alone is not enough for a competence and it should be combined with other competences or skills. Coates & McDermott (2002) also identified market as a competence. Market exploration, as well as relationship and reputation management are all market competencies viewed as critical to current and continued success. The competencies involve managing the perceptions of current and potential customers, as well as choosing the right customers and building relationships with them. These competencies are important to both formulating and solving problems in the marketing realm and identifying possibilities (Coates & McDermott, 2002, p. 445 & 446).

Meta-competences were already introduced as competences which can develop other competences. According to Lado, Boyd & Wright (1992), there is another competence which can develop other competences, namely the managerial competences. They argued that “the contention that strategy and performance are ultimately a reflection of top managers or the dominant coalition underscores the importance of managerial competences as a source of sustainable competitive advantage.” In addition, they emphasized that managerial competences are crucial because they enable firms to develop other competences (Lado, Boyd, & Wright, 1992, p. 83).

Another competence is the alliance competence. As to business alliances, competence researchers suggest that alliance success is influenced significantly by a firm's ability to develop an alliance competence, which is defined as “an organizational ability for finding, developing, and managing alliances” (Lambe, Spekman, & Hunt, 2002, p. 145).

The last type of competence discussed is the entrepreneurial competence. Entrepreneurial competences provide the ability to build a set of resources to effect new venture emergence (Danneels, 2002, p. 1110). Clearly such competencies are not fully formed at new venture creation but have to evolve to allow the venture to emerge and grow (Rasmussen, Mosey, & Wright, 2011, p. 1316). Although many conceptualizations of entrepreneurial competencies can be made, key aspects concern the discovery and development of opportunities, the role

of individual characteristics, and the acquisition of resources to exploit the opportunity (Bruyat & Julien, 2001, p. 171; Rasmussen, Mosey, & Wright, 2014, p. 94; Stevenson & Jarillo, 1990, p. 25).

As can be noticed, a wide range of types (e.g. entrepreneurial, foresight, market, relational) of competences are present in the theory, which confirms the earlier mentioned remark that competences include a wide-range of concepts. This needs to be considered when researching the competences of COMPANY X, as this 'wide-range' can also be present there. In the next section, the paper will focus on the core competences, as these are the competences which can contribute to (competitive) advantages.

2.3 The Concept of Core Competences: Definitions, Competitive Advantage, Assessment and the Scoring Model

In this section, the core competences concept will be discussed. First, multiple definitions of the core competence concept will be given as an introduction. Next to this, the advantages of the core competence and how to access these advantages will be discussed. This chapter ends with the explanation of the scoring model used in this paper for identifying the core competences.

2.3.1 Definitions of Core Competences: a Broader Range of Concepts

As in the competence concept, also in the core competence it was the case that there was in the beginning trouble in defining the concept, as argued by Duysters & Hagedoorn (2000): 'In the literature the frequent use of the concept of core competences has not always run parallel to the further development of a clear definition' (Duysters & Hagedoorn, 2000, p. 76). However, there are some definitions which makes the concept of core competences clearer and more open to operational constructs for empirical research (Duysters & Hagedoorn, 2000, p. 76). Namely, Hamel & Prahalad (1994) argued that core competencies are described as a bundle of skills and technologies (Hamel & Prahalad, 1994, p. 202). Next to this, Nelson (1991) stated that core capabilities can be linked to a set of skills and search routines developed within firms (Nelson, 1991, p. 68). Markides and Williamson (1994) defined core competences as a pool of experiences, knowledge, and systems that together can act as catalysts that create and accumulate new strategic assets, where at the end these assets, which are perfectly imitable, constitute a firm's competitive advantage (Markides & Williamson, 1994, p. 149 & 150). One of the latest definitions is quite the same as the

definitions above as it is argued that a core competence is a set of knowledge, skills, collective learning and other attributes, that help to build core process and maintain it as a core process (Boguslauskas & Kvedaraviciene, 2015, p. 78 & 79).

So, the core competence, like the competence concept, is related to a broader range of concepts. However, the core competence has a bit more emphasis on the skills and knowledge aspect. Next to this, the core competence is also related to aspects concerning competitive advantage. It was already addressed that imitability is one of these aspects in the concept of core competence. This aspect, together with other aspects, will be addressed next to assess the core competence concept. Here will also the competitive advantage of the core competence concept be explained.

2.3.2 Competitive Advantage of the Core Competences and its Assessment via Three Tests and the VRIN-Framework

According to Prahalad & Hamel (1990) there are three tests to identify if a competence is a core competence. First, a core competence provides potential access to a wide variety of markets, e.g. a competence in display systems enables a company to participate in such diverse businesses as calculators, miniature TV sets and monitors for laptop computers. Second, a core competence should make a significant contribution to the perceived customer benefits of the end product. Finally, a core competence should, as mentioned before, be difficult for competitors to imitate. This will be more difficult if it is a complex harmonization of individual technologies and production skills. A rival might acquire some of the technologies that comprise the core competence, but it will find it more difficult to duplicate the more or less comprehensive pattern of internal coordination and learning (Prahalad & Hamel, 1990, p. 83).

These three tests come partly back in the so-called VRIN Framework (Barney, 1991, p. 112). It is argued by Barney (1991) that firm resources hold the potential of sustained competitive advantage if it has four attributes: Valuable, Rare, Imitable and Non-substitutable (Barney, 1991, p. 105 & 106). Before defining these four attributes, it is important to define the concept of sustained competitive advantage, as this concept can be interpreted differently. Sustained competitive advantage in this setting here does not depend upon the period of calendar time during which a firm enjoys a competitive advantage. Rather, whether or not a competitive advantage is sustained depends upon the possibility of competitive duplication (Barney, 1991, p. 102). A competitive advantage is sustained only if it continues to exist

after efforts of duplicate that advantage have ceased (Barney, 1991, p. 102; Contractor, 2001, p. 338).

Now coming back to the four attributes, according to Barney (1991) the firm resources 1) must be valuable (V), in the sense that it exploits opportunities and/or neutralizes threats in a firm's environment, 2) it must be rare (R) among a firm's current and potential competition, 3) it must be imperfectly imitable (I), and 4) there cannot be strategically equivalent substitutes for this resource that are valuable but neither rare or imperfectly imitable. In other words, the resource should be non-substitutable (N) (Barney, 1991, p. 105 & 106).

The valuable and imitable aspects are also discussed by Hamel & Prahalad (1994). The other two are not and therefore some clarification regarding these two aspects is given. Rare resources are firm's valuable resources which are absolutely unique among a set of competing and potentially competing firms (Barney, 1991, p. 107). Since cognitive ability is normally distributed in the population, human resources with high ability levels are, by definition, rare. Thus, it is safe to say that firms with high average levels of cognitive ability relative to their competitors possess more valuable human capital resources than those of competitors (Wright, McMahan, & McWilliams, 1994, p. 309). For example, in demonstrating how the use of the programmer aptitude test could increase productivity in the national economy, Schmidt et al. (1979) noted that "Since the total talent pool is not unlimited, gains due to selection in one job are partially offset by losses in other jobs," (Schmidt, Hunter, McKenzie, & Muldrow, 1979, p. 624). Similarly, because the total talent pool is not unlimited, firms which have a high level of human capital resources (in terms of cognitive ability), are gaining this capital at the expense of other firms (Wright et al., 1994, p. 309).

Regarding the (non) sustainability aspect, it can take at least two forms. First, a firm may be able to substitute a similar resource that enables it to conceive of and implement the same strategies. Second, very different firm resources can also be seen as strategic substitutes. For example, managers in one firm may have a very clear vision of the future of their company because of a charismatic leader in their firm. Managers in competing firms may also have a very clear vision of the future of their companies, but this common vision may reflect these firms' systematic, company-wide strategic planning process. From the point of view of managers having a clear vision of the future of their company, the firm resource of a charismatic leader and the firm resource of a formal planning system may be strategically

equivalent, and thus substitutes for one another (Barney, 1991, p. 111; De Wit & Meyer, 2010, p. 297).

Next to the VRIN-Framework and the three tests, there is another assessment of the core competences. This assessment of Major et al. (2001) integrates partly the VRIN-Framework, the tests and the definitions of the core competence concept together in six characteristics: 1) Integration of skills and technologies, 2) Knowledge based, 3) Customer Value, 4) Competitively unique, 5) Difficult to imitate, 6) Gateway to new markets (Major et al., 2001, p. 103).

Now the assessment of the core competence concept is clear, a turn is made to the competitive advantage of this concept. This was already addressed a bit in this section, but it is important to emphasize that in the theory the core competence is seen as a key organizational resource that could be exploited to gain competitive advantage (Barney, 1995, pp. 53, 56 & 60; Le Deist & Winterton, 2005, p. 27; Nadler & Tushman, 1999, p. 50; Winterton & Winterton, 2002, p. 150). Irvin, Michaels & Rouse (1995) and Tampoe (1994) suggest that organizations have core skills which enable them to develop the products and services which give them their revenue and profit streams. According to Irvin et al. (1995), core skills are ‘the critical capabilities that an organization as a whole has-as distinct from the capabilities of individuals in the organization’ (Irvin, Michaels, & Rouse, 1995, p. 31). They argue further that core skills are the bridges that link strategy and implementation and are therefore vital to corporate success. To them a core skill is the collective capability of the organization to execute its strategic vision (Irvin et al., 1995, pp. 33, 35 & 40; Tampoe, 1994, p. 66 & 67). So, core skills can lead to revenue streams and corporate success. One of these abilities is cognition, which is according to Nobre (2010) a strategic ability in the organization which contributes to the development of core competencies and, consequently, that provides the basis for the creation of the organization’s sustainable competitive advantage (Nobre, 2010, p. 4). Another important aspect for competitive advantage and success is a sound strategy. Industries change and require management to adjust its core competencies. Sound strategy involves understanding in which core competences to invest in order to maintain competitive advantage and when to acquire and develop different core competencies for setting up future competitive advantage (Boguslauskas & Kvedaraviciene, 2015, p. 78). This is in line with Prahalad & Hamel (1990), who argued that the real sources of advantage are to be found in management’s ability to consolidate corporate wide

technologies and production skills into competencies that empower individual business to adapt quickly to changing opportunities (Prahalad & Hamel, 1990, p. 83).

Before ending this section, it is worthwhile to stress out two things. First, that outsourcing is not a substitute for acquiring or developing core competences. It helps to free up resources, which can concentrate on core competence development and work on core processes (Boguslauskas & Kvedaraviciene, 2015, p. 79). Next to this, it is important that if a company cannot identify any of its core competences, it is a sign, that it is time to close the business before bankruptcy will do that. Then it is time to start something new by clearly identifying, what the core competence in new activity are (Boguslauskas & Kvedaraviciene, 2015, p. 79).

All the mentioned assessments of the core competences are integrated into a scoring model. As this scoring model is an overarching model of all assessments, this model will be used in this paper to investigate the core competences of COMPANY X. In the next section, the outline of this scoring model will be given.

2.3.3 The Scoring Model: Six Questions Related to the Theory Discussed

This scoring model is assessing the competences on six aspects / questions: 1) Does the competence consist of a unique bundle of resources and skills? 2) Does the competence generate competitive advantage? 3) Does the competence generate value customers appreciate? 4) Is it difficult to imitate and / or to substitute the competence? 5) Does it rely on internal and external resources? 6) Can it be transferred into different markets? On each question, a score from 0-20 is applied. If the competence in total scores higher than 80 points, the competence can be considered as a core competence. This scoring model can be found in appendix 9.1.

As can be seen, all the six questions capture the theory underlying the core competences. The first question is related to the 'Rare' part of the VRIN-Framework. Next to this, it is related to the general characteristics of (core) competences, namely resources and skills. Question three and four are related to the 'Valuable', 'Imitable' and Non-substitutable' part of the framework. Next to this, these questions also relate to the second and third test of Hamel & Prahalad (1994), which has been discussed in the beginning of chapter 2.3.2. Question two is related to the consequence of a core competence, namely that a core competence leads to competitive advantage according to the theory. Question five captures the theory of Dyer and Singh (1998), Oliver (1997) and Hodgson (1998), which all argued

that alliances partners (external resources) can lead to specific assets or competences which are not available when working on your own (see chapter 2.1.2). The last question, question six, is related to the first test of Hamel & Prahalad (1994), namely that a core competence provides potential access to a wide variety of markets (see beginning chapter 2.3.2).

In this chapter, the theory of the core competences has been discussed. Next to this, the build-up of the scoring model has been discussed here. In the next section, the methods part of this paper will be described, including the use of a survey and the discussed scoring model.

3. METHODS: RESEARCH DESIGN & DATA COLLECTION

3.1 Data Research and Feedback Sessions Performed for Analysing the Competences

Investigation in the company should discover the combinations of knowledge, skills, technologies, operating methods, and information that are embedded in successful products or services. Then an analysis should be done to see how these are integrated to develop a core competency (Boguslauskas & Kvedaraviciene, 2015, p. 79). Therefore, first a data research was performed to indicate which competences were present within COMPANY X. The results of this data research will be described in chapter 4.2. Second, after the data research was completed, the results were discussed two times. The first discussion lasted around two hours and a lot of feedback was given to all the competences. This feedback will be described later in chapter 4.3.1. The second feedback round was more to tie up a few loose ends. This feedback can be found later in chapter 4.3.2. These feedback rounds were useful for eliminating different interpretations on certain subjects. The data research and feedback sessions combined are the investigation in the company to discover the competences. After this was completed, the survey was set out to the representatives of COMPANY X. This survey acts as an analysis to see how these competences are integrated into a core competency. The design of this survey will therefore be discussed next.

3.2 Design of the survey: Introduction, Core and End Question(s) Based on the Scoring Model

“One of the real advantages of quantitative methods is their ability to use smaller groups of people to make inferences about larger groups that would be prohibitively expensive to study” (Holton & Burnett, 1997, p. 71). This is in line with Barlett, Kotrlik & Higgins (2001), who stated that a common goal of survey research is to collect data representative of a population. The researcher uses information gathered from the survey to generalize findings from a drawn sample back to a population, within the limits of random error (Barlett, Kotrlik, & Higgins, 2001, p. 43). Interviews do not have these advantages, as using this method is expensive, time consuming, and physically demanding, because of the need to travel (Bewley, 2002, p. 349). Therefore, a survey was chosen as method to analyse the core competences of COMPANY X.

The survey started with a couple of introduction questions to get demographic data of the respondents. These introduction questions served also the purpose of identifying the

department distribution among the respondents. This in case of possible non-representativeness of the sample. The justification for this is provided in chapter 3.4.

After the introduction questions, the core questions of the survey were asked to the respondents. These core questions were related to the identified competences of the data research and the feedback sessions. For each block of questions on the particular competence, the competence scheme and the definition of this competence was given at the top of the block, so that every respondent knew what the competence was about (definitions are left out due to confidentiality). The survey design of the core questions was also related to the scoring model discussed in chapter 2.3, as per competence the six questions of this model were asked. A range from 1 to 10 was used for each question, whether a higher value indicated a better fit of the (core) competence with COMPANY X and a lower value indicated less fit with COMPANY X. At the end, the mean score per question will be multiplied by two as the scoring model, as mentioned before, indicates the scores in the category from 1 to 20. The range from 1 to 10 was chosen here due to that in general this scoring is more familiar to people.

The survey ended with a question regarding the respondents' thoughts about the core competences of COMPANY X. This question was asked to see if the thoughts of the respondents match the outcome of the survey or that there were some core competences which were not in line with the respondents' thoughts.

The survey was pre-tested before distributing it to the respondents. The justification for this is provided in chapter 3.4. Next to the mentioned reasons there, the pre-test was also done to measure the expected time to fill in this survey. This was around 20-25 minutes.

As mentioned before, the outline of the whole survey can be found in appendix 9.2. The respondent characteristics of this survey will be discussed in the next section.

3.3 Respondent Characteristics of the Survey: 37 Selected Experts, 19 Filled-In Surveys & High Average Working Experience

In total 37 people were selected to fill in this survey. These people were considered as experts to the topics discussed in the survey. In the end, 29 of the 37 selected experts responded. From these 29, one did not want to participate. Three other people did want to participate, but did not complete the survey beyond the accepting terms. Another six people filled in only their personal information and were therefore also omitted for the end results. All this resulted in 19 collected survey responses, which is a response rate of 51.4%.

Within the collected survey responses, thirteen departments were present. Regarding gender, 94.7% of the respondents was male, and 5.3% of the respondents was female. The average age of the respondents was 50.47 years. The distribution of the age can be found in appendix 9.4. The years of working experience in the company was on average 19.95 years. The mood of the participants was between 6 and 8, with an average of 7.42, which can be considered as high.

Here the respondent characteristics of the survey were described. In the next section, the data analysis of this survey will be discussed.

3.4 Data Analysis: Potential Biases, Representativeness, Validity and Reliability

In this section, the potential biases and representativeness of the survey will be discussed. Next to this, for the survey also the validity and reliability will be assessed.

No survey succeeds in getting responses from everyone. The problem is that those who do not respond may differ from those who do. And they may differ on just the variables we care about. The lack of response will bias the results. One of the problems with nonresponse bias is that it is usually impossible to tell what the non-respondents might have said (De Veaux, Velleman, & Bock, 2014, p. 326 & 327). To try to avoid nonresponse bias the respondents got three weeks to fill in the survey, so that at least not filling in the survey due to time-constraints was limited.

Response bias refers to anything in the survey design that influences the responses. Response biases include the tendency of respondents to tailor their responses to try to please the interviewer, the natural unwillingness of respondents to reveal personal facts or admit to illegal or unapproved behaviour, and the ways in which the wording of the questions can influence responses (De Veaux et al., 2014, p. 327). Therefore, it was chosen to pre-test the survey, before distributing the survey to the respondents. In this pre-test it was found that, next to the competences schemes, also definitions of the competences should be added to the block questions regarding the competences. This due to that, as mentioned before, every respondent knew what the competence was about. Next to this, some small changes were made to the questions, like changes in wording. This all was adjusted in the survey before distributing it to the respondents. As the answers should also be as honest as possible, it was made clear beforehand that there were no wrong answers and that the answers could not be traced back to the respondents.

To be distinguished from sampling error is an entire family of non-sampling errors that arise when a sample is selected from a population in such a way that some members of the population are less likely to be included than others. In such cases, the sample is said to be non-random, or non-representative, with respect to the population one intends to study (Berg, 2005, p. 6). The survey was therefore sent out to all the departments of COMPANY X. In the survey, the question was asked from which department they were, to identify if one of the departments was less included or even not present at all. As mentioned before, from the survey results it can be concluded that thirteen departments were present. In total COMPANY X consists of seventeen departments, which means that some departments did not participate in the survey.

Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? (Joppe, 2000, p. 1). The survey is valid in a way that it is pre-tested and examines the core competences concept based on an existing scoring model. However, it needs to be considered that the survey is developed new and therefore not validated over time. The content validity and convergent validity of the survey are also tested. Content validity is established by demonstrating that the items in the test appropriately sample the content domain. If the subject matter experts are generally perceived as true experts, then it is unlikely that there is a higher authority to challenge the purported content validity of the test (Lawshe, 1975, p. 565). As mentioned before, the respondents were considered as experts to the topics discussed in the survey, as they have a lot of working experience within the company and therefore have also a good idea of the company. This can also be found back in the average years of working experience within COMPANY X, which was 19.95 years.

The average variance extracted (AVE) between all the respondents is 0.447. This is according to Batra & Ahtola (1991) not enough as they stated that it should be higher than 0.50 to establish convergent validity (Batra & Ahtola, 1991, p. 163). The calculation of the AVE can be found in appendix 9.6.

Joppe (2000) defines reliability as "The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable" (Joppe, 2000, p. 1). Embodied in this citation is the idea of replicability or repeatability of results or observations (Golafshani, 2003, p. 598).

These observations could be different next time as the competences vary over time, as companies invest in these multiple times and could switch away from their (core) competences over the years. Next to this, employees can switch within COMPANY X, which means that the respondents of this survey could perhaps not work at COMPANY X anymore in the next few years. Regarding the reproducibility of the survey under the same methodology, the survey was tested with the reliability measurement of the Cronbach's Alpha. This calculation was done using the program SPSS. The Cronbach's Alpha of this survey is 0.852 (see appendix 9.7) which is considered as not enough as Nunnally (1978) and Kaplan & Saccuzzo (1982) stated both that the recommended level of the Cronbach's Alpha in applied research is between 0.9 and 0.95 (Kaplan & Saccuzzo, 1982, p. 106; Nunnally, 1978, p. 245 & 246). However, including the years of working experience of the respondents, which was considered as high and the fact that the Cronbach's Alpha is nearly enough, the survey could be considered as reliable.

In this section, the methodology of this paper has been discussed. The analyses used were described and justified and potential biases of the analyses have been discussed. In the next section, the empirical findings of these analyses will be addressed. But before addressing these analyses, the case company COMPANY X will shortly be introduced.

4. EMPIRICAL FINDINGS

4.1 COMPANY X: An Introduction

This is left out due to confidentiality.

4.2 Data Research on COMPANY X

This is left out due to confidentiality.

4.3 Results of the Feedback Sessions

This is left out due to confidentiality.

4.4 Survey Results of the Core Questions and End Question

In this section, the results of the survey will be described. As mentioned before, the survey was based on the scoring model discussed in chapter 2.3. This scoring model consisted of six questions to identify what competences are the core competences. These six questions were: 1) Does the competence consist of a unique bundle of resources and skills? 2) Does the competence generate competitive advantage? 3) Does the competence generate value customers appreciate? 4) Is it difficult to imitate and / or to substitute the competence? 5) Does it rely on internal and external resources? 6) Can it be transferred into different markets? The scores of these questions per competence can be found in table 1. Note here that the mean scores are multiplied by two, as stated earlier in chapter 3.2, that the scoring model indicates the scores in the category from 1 to 20.

Aspects Competences	Unique bundle resources / skills	Generates comp. advantage	Generates customer value	Difficult to imitate / subst.	Rely on internal & external resources	Trans- ferred into diffe- rent markets	Total Score
1.	15.38	15.88	15.12	14.00	13.26	11.62	85.26
2.	14.76	14.76	15.00	13.38	11.46	13.88	83.24
3.	13.12	12.76	14.38	10.00	9.76	12.50	72.52
4.	13.42	12.72	13.58	11.84	12.28	9.86	73.70
5.	16.12	16.36	16.00	13.30	13.52	16.48	91.78
6.	14.34	13.84	14.00	10.84	9.34	7.16	69.52
7.	16.62	17.24	17.34	15.38	11.38	7.70	85.66

8.	15.38	14.76	14.16	13.16	11.84	9.70	79.00
9.	15.64	15.82	16.00	13.10	10.90	15.10	86.56
10.	13.80	12.80	13.80	11.56	9.60	12.00	73.56
11.	16.16	14.50	14.84	13.00	13.84	13.00	85.34
12.	17.38	16.92	16.92	16.76	12.92	10.30	91.20
13.	12.20	12.00	13.00	10.00	8.80	15.60	71.60
14.	14.90	13.82	14.18	12.18	11.20	11.28	77.56
15.	14.50	14.16	15.10	12.84	11.00	12.72	80.32

Table 1: Scores of the survey on the six aspects of all fifteen competences

As mentioned before, at the end of the survey the respondents were asked to fill in three competences they thought were the core competences of COMPANY X. The results of this can be found in table 2.

Competences	Mentioned by respondents (% of total)
1.	7,84%
2.	7,84%
3.	0,00%
4.	1,96%
5.	21,57%
6.	1,96%
7.	21,57%
8.	1,96%
9.	9,80%
10.	0,00%
11.	5,88%
12.	13,73%

13.	0,00%
14.	3,92%
15.	1,96%
Total	100%

Table 2: Scores of end question survey 'thoughts of the respondents on core competences'

In this chapter, the results of the survey were described. In chapter 5.2 these results will be discussed further. In the next chapter, chapter 5.1, the results of the data research and feedback sessions will be discussed.

5. DISCUSSION OF FINDINGS

5.1 Discussing the Fifteen Identified Competences

In this section, the results of the data research and the feedback sessions will be discussed. In the first section, the results of both analyses are combined. In the second section, these results are related to the theory discussed in chapter 2.1 and 2.2.

5.1.1 Combining Data Research and Feedback Sessions Leads to New Input and Validation

From the data research, it became clear that COMPANY X has fourteen competences in different kind of fields. Within these competences there were a lot of different aspects on different levels. For example, competence 2 existed of four part competences, but within these part competences there were again another 4-6 aspects related to this particular part competence. This indicates the complexity of the competences identified. These fourteen identified competences and their related aspects were based on only the perspective of the author. Therefore, as mentioned before, feedback sessions were held to include also the perspective of COMPANY X.

These feedback sessions led to new insights. First, a whole new competence was added, competence 15. This competence had been part of competence 11, but was big enough to be a stand-alone competence. Therefore, together with small parts of other competences this new competence was created. Second, several additions had been made to competences. These additions were ranging from only adding one detailed aspect to adding a whole new (existing) part competence. Third, at all competences changes took place. These changes were small like only changing the wording of the (part) competence or detailed aspect, but also some major changes took place such as transferring or switching detailed aspects and part competences.

The feedback sessions were also useful for the validation of the data research, which led to a good input basis, namely fifteen competences, for the survey. Before the results of this survey will be discussed, the results of the data research and feedback sessions will be, as mentioned before, related to the theory of chapter 2.1 and 2.2.

5.1.2 Results of Data Research and Feedback Sessions are in Line with the Discussed Theory

Relating the competences to the theory which has been discussed in chapter 2.1 and 2.2, the first thing that can be noticed is that the competences are identified based on the resources

and knowledge domains. This identification of competences was argued by several authors and therefore also applied here in this paper. Next to this, it can be noticed that there are at COMPANY X quite some types of competences present. First, there are two types of competences in general applicable to all the competences of COMPANY X, namely the knowledge/cognitive competence and the technical competence.

The knowledge competence is quite clear, as at all the competences different kind of knowledge domains are present. In some cases, there are even only knowledge domains present. The technical competence included the ability to develop and design new products and processes, to operate facilities effectively and it involves the ability to learn (Teece et al., 1994, p. 19). COMPANY X operates different kind of facilities and tries to make these facilities more effectively by learning from the knowledge areas or applying the knowledge from these areas. The development and design of new products and processes is also present, but is more related to the entrepreneurial competence. Besides this, COMPANY X acquires or have acquired also different kind of other resources to exploit and develop opportunities.

Another specific type of competence present is the alliance competence. Competence 13 includes different kinds of collaborations and alliances in order to develop knowledge in different kind of fields. Next to this, a part of competence 12 is also an alliance. Both these competences are also related to the relational competence, as there is a relation between one or more companies / organisations.

The foresight competence is also present within COMPANY X, however, just as a part competence, not as an overarching competence. This part competence can be found in competence 11.

In this chapter, the results of the data research and the feedback sessions were combined. Next to this, these results were related to the theory of competences which has been discussed in chapter 2.1 and 2.2. In the next section, the results of the survey will be discussed to identify the core competences of COMPANY X.

5.2 Identified Eight Core Competences According to the Scoring Model and Respondents' Thoughts are in Line with the Outcome of the Survey

In this section, the results of the survey will be discussed. According to the scoring model, as stated in chapter 2.3, a competence is a core competence when it scores in total 80 points or more over all the six aspects. For each competence, the score will be discussed. At the

end, a short conclusion will be drawn and the respondents' thoughts in relation to the identified core competences will be discussed.

Competence 1. The overall score of this competence is 85.26, which means that this competence is a core competence of COMPANY X. In general, the core competence scored on all six aspects quite high.

Competence 2. The overall score of this competence is 83.24, which means that this competence is a core competence of COMPANY X. Even though it does not rely that much on external resources, the core competence generates customer value and leads to competitive advantage for COMPANY X.

Competence 3. The overall score of this competence is 72.52, which means that this competence is not a core competence of COMPANY X. This competence generates customer value, but is quite easy to imitate or to be substituted by competitors. Also, it does not rely that much on external resources. Improving these external resources could lead to less imitation, as a relationship or partnership can be unique to a certain company and could therefore lead to preferred benefits (Schiele, Calvi, & Gibbert, 2012, p. 1178).

Competence 4. The overall score of this competence is 73.70, which means that this competence is not a core competence of COMPANY X. The competence adds some customer value and consists of some unique bundle of resources and skills, but scored in general not high, especially regarding the relevance to other markets.

Competence 5. The overall score of this competence is 91.78, which means that this competence is definitely a core competence of COMPANY X. This core competence consist of a unique bundle of skills, generates competitive advantage and customer value and has a high relevance in other markets. The imitation / substitution aspect scored the lowest (13.30), but is still high enough to state that this core competence is not easy to imitate by others.

Competence 6. The overall score of this competence is 69.52, which means that this competence is not a core competence of COMPANY X. In fact, this competence scored the lowest of all the competences. This competence is not applicable to other markets and does not rely on many external resources. However, it generates customer value, which means that this competence should not be neglected by COMPANY X, even if it has the lowest score.

Competence 7. The overall score of this competence is 85.66, which means that this competence is a core competence of COMPANY X. It generates competitive advantages and

has a high customer value. This core competence scored quite low on the relevance to other markets aspect.

Competence 8. The overall score of this competence is 79.00, which means that this competence is not a core competence of COMPANY X. However, the competence does exist of a unique bundle of resources and skills and generates also competitive advantage and customer value. The lower score stems from the relevance to other markets, which scored only 9.70. This score influenced the end score properly and therefore this competence should not be neglected by COMPANY X, as it has enough value for the company.

Competence 9. The overall score of this competence is 86.56, which means that this competence is a core competence of COMPANY X. It does not rely much on external resources, but this is compensated with high customer value, competitive advantage and high relevance to other markets. Especially the last point is striking, as not many competences of COMPANY X have relevance to other markets.

Competence 10. The overall score of this competence is 73.56, which means that this competence is not a core competence of COMPANY X. The competence relies most of the time on internal resources. Next to this, even though there are some unique bundles of resources and skills present, the competence could be substituted by other companies. All in all, the scores on every aspect could be improved.

Competence 11. The overall score of this competence is 85.34, which means that this competence is a core competence of COMPANY X. It scored quite good on all six aspects. The lowest score is only 13.00 (on the imitation / substitution and the relevance to other markets aspects), whether the highest score is achieved on the unique bundle of resources and skills (16.16).

Competence 12. The overall score of this competence is 91.20, which means that this competence is definitely a core competence of COMPANY X. It achieved the best score among the competences regarding the unique bundle of resources and skills (17.38). This uniqueness resulted also in a high score regarding imitation / substitution (16.76), as unique resources and skills are hard to imitate or substitute. The only aspect which could be improved is the relevance to other markets (10.30). However, this competence is quite focussed on only one market and could therefore be less relevant to other markets.

Competence 13. The overall score of this competence is 71.60, which means that this competence is not a core competence of COMPANY X. It scored high on relevance to other markets (15.60), but it is easy to imitate and generates not much competitive advantage,

which makes the relevance to other markets less valuable. Next to this, it is striking that the lowest score is achieved on the internal and external resources aspect (8.80).

Competence 14. The overall score of this competence is 77.56, which means that this competence is not a core competence of COMPANY X. However, it does exist of some unique bundle of resources and skills and it does generate customer value. Therefore, this competence should not be neglected by COMPANY X, but it is less important than other (core) competences.

Competence 15. The overall score of this competence is 80.32, which means that this competence is just a core competence of COMPANY X. The internal and external resources aspect scored the lowest with 11.00. However, this seems explainable, as this competence is most of the time done internally, and less relying on external resources or partnerships. All in all, this core competence is important enough for COMPANY X, as it could also be applied to different kind of markets.

In total eight core competences of COMPANY X are identified. These eight core competences scored on different aspects high, but could also be improved in certain aspects. Especially the relevance to other markets and the reliance on internal and external resources scored in general low.

Relating these eight core competences to the thoughts of the respondents, it can be concluded that in general the thoughts are in line with the outcome of the survey. All eight core competences are mentioned at least once by the respondents, whether core competence 15 is the least mentioned (1.96%) and core competence 5 and 7 the most (both 21.57%). Three competences were not mentioned as core competences by the respondents, namely competence 3, 10 and 13. All three are also according to the results of the survey no core competence of COMPANY X, which indicates again that the thoughts of the respondents are in line with the results of the survey. However, it is striking that competence 12 is mentioned only 13.73% as a core competence, compared to the 21.57% of competence 7. Competence 12 achieved a way higher score than competence 7 (resp. 91.20 to 85.66), which indicates that the thoughts of the respondents are not always in line with the results, but in general they are.

In this section, the results of the survey have been discussed. In the next section, the conclusion on the findings will be described.

6. CONCLUSION ON THE FINDINGS

6.1 Answering the research questions: Fifteen Competences and Eight Core Competences Present at COMPANY X

In this paper two research questions have been analysed:

- 1) What are the competences of COMPANY X?*
- 2) What are the core competences of COMPANY X?*

With the data research and feedback sessions, the first research question has been answered. COMPANY X has in total fifteen competences. All these competences exist of resources, skills / knowledge or a mix of both.

The survey answered the second research question. COMPANY X has in total eight core competences. Competence 5 and 12 scored the highest (resp. 91.78 and 91.20), but competence 5 and 7 were perceived as most important according to the respondents (both 21.57%). Some competences were no core competences for COMPANY X from the score it got. However, such competences have still value for COMPANY X and should therefore not be neglected.

6.2 Research Contributions: Opportunity for Follow-Up Research, Useful Literature Review & Validation of the Theory and the Scoring Model

A number of research contributions have been done with the analysis performed within this paper. First, the (core) competences are researched in a quantitative way. This gives for a potential follow-up research the opportunity to see if this type of research is useful enough, or that a qualitative way is perhaps a better solution, as a survey could lead to duration and response problems.

Second, in this paper several opportunities for next-step researches will be given. These researches can be built upon the work in this paper, but can also be applied to other organisations. These opportunities will be discussed more in chapter 6.3.

Third, in this paper the literature about competences and core competences has been extensively reviewed. This literature review indicated what a competence and a core competence is. Next to this, it indicated different types of competences which could be present within in an organisation. This gives students or other authors a starting point for their (follow-up) research and takes away the ‘vague’ field of (core) competences.

Next to this, different kind of types of competences from the theory matched the types of competences discovered at COMPANY X. For example, the alliance competence was present at COMPANY X. This validates the theory used, and means that the theory is nowadays still applicable. Besides this, the scoring model is validated. All the theory available regarding core competences can be traced back into this scoring model. This means that this scoring model is indeed an overarching model of all the assessments of a core competence. However, the scoring model used a scoring range from 1 to 20. In this paper, a scoring range from 1 to 10 was used. As mentioned before, this scoring range from 1 to 10 is more familiar to people in general. Therefore, it would be recommended to use in the future this scoring range for the model.

6.3 Recommendations to COMPANY X: Invest Time in Relevance to Markets, Relationships, Next-Step Research and Training

Several recommendations can be given to COMPANY X based on the research performed. First, in general the relevance to other markets and the reliance on external resources is low among the competences. It is recommended to invest more time in making competences relevant to other markets, as this gives COMPANY X more opportunities and possible related profits. However, for some competences the focussing on just one market is explainable. Therefore, COMPANY X should decide for each competence to what extent they want to expand the competence to other markets, as some competences could lead to more potential profits in other markets compared to others. Next to this, it is recommended that COMPANY X starts up relationships in some of the competences where external resources are lacking. For example, competence 3 generates customer value, but is easy to imitate and does not rely much on external resources. Improving these external resources by starting up or maintaining a (trusting) relationship could lead to less imitation, as a relationship or partnership can be unique to a certain company and could therefore lead to preferred benefits. At the end, these benefits lead to competitive advantage (Schiele et al., 2012, p. 1178).

As mentioned before, the best two core competences of COMPANY X are competence 5 and 12. Due to the high scores, it is easy to neglect these two core competences, as they are already on the desired level. COMPANY X should prevent this attention relaxation and should keep up the good relationships and should also improve these core competences whenever possible.

The research results were at some points conflicting with each other. For example, at competence 13, the survey score on the internal and external aspect was low, namely 8.80. However, this competence could rely on collaborations from outside the company, in combination with supportive tools from inside. Therefore, it is recommended here to get a clear picture of this competence, before investing time and resources into it, which is perhaps not even needed as these external resources could be already present at this competence.

A solution to this is to use the results of this paper in a next-step research. For example, all fifteen competences will be researched by fifteen students in more detail to see if the competences are truly defined and worked out. This could be done via interviews with several managers and other representatives of COMPANY X. Interviews eliminate the possible low sample size problems and face-to-face answers are in general more reliable. Next to this, if one student covers only one competence the time-consuming drawback will be limited. These students should take into account that they include also the outside perspective in the research. Therefore, it is recommended to study first the results of this paper.

An addition / second step in this next-step research is researching how the core competences of COMPANY X are related to other companies and / or institutions. Here the main competitors of COMPANY X will be analysed to identify if the core competences of COMPANY X are also present there. This research would provide COMPANY X a better picture of the competition, which can lead to different and better investments or decisions. However, it is recommended to validate this research first with the interview approach due to that, as mentioned before, otherwise time or resources could be wasted.

So, validating the identified competences would be the first step for further research. The second step is comparing the core competences to those of the main competitors. Together with this second step, another option is possible for COMPANY X. This option is to research the reasons behind the scores given to the core competences. For example, competence 12 got the highest score on uniqueness (17.38). What are the reasons that this competence scored so high and is therefore so unique? Knowing these reasons would give COMPANY X more focussing points on where and how to improve.

In the end, all competences could in general be improved. It is recommended to do this via training (Le Deist & Winterton, 2005, p. 31; McClelland, 1998, p. 336 & 338). This training is not simply a matter of assembling a team of resources. This training involves perfecting coordination through repetition (Grant, 1991, p. 122; Nelson, 1991, p. 68). So, COMPANY

X should repeat certain activities over time to learn from it regarding communication and coordination, but also to increase their skills in it and to make efficient use of certain resources. Next to this, before rushing into this training, it is recommended to develop a sound strategy. A sound strategy involves understanding in which core competences to invest in order to maintain competitive advantage and when to acquire and develop different core competencies for setting up future competitive advantage (Boguslauskas & Kvedaraviciene, 2015, p. 78).

To conclude on the recommendations, COMPANY X has to take into account that only a few companies are likely to build world leadership in more than five of six fundamental competences (Prahalad & Hamel, 1990, p. 83) and that for this reason it could be that not all the competences will work out as they would like to.

6.4 Several Limitations and Future Research is Possible

The research conducted in this paper had some limitations. First, not all the departments of COMPANY X participated into the survey, which means the representativeness of the sample cannot be guaranteed. Next to this, the sample size of the survey was low. However, the survey respondents were experts in the topics discussed, which covers this shortcoming to some extent. Besides this, the Average Variance Extracted (AVE) scored 0.447, which means that no convergent validity for the survey could be established. Also, the Cronbach's Alpha scored not high enough (0.852). However, as mentioned before, including the years of working experience of the respondents, which was considered as high and the fact that the Cronbach's Alpha is nearly enough, the survey could be considered as reliable. The research itself was only conducted for one case company, namely for COMPANY X. Therefore, the findings and conclusions regarding the examined topics cannot be generalized. However, these findings and conclusions can be used for research in the near future. As mentioned before, it is recommended to COMPANY X to perform further research based on the results of this paper.

7. ACKNOWLEDGEMENTS

Many thanks to the case company COMPANY X who gave permission to do this research on behalf of them. I would also like to thank all the participants of the survey for all the great input and insights they delivered.

8. REFERENCES

- Anderson, J. C., Cleveland, G., & Schroeder, R. G. (1989). Operations strategy: a literature review. *Journal of Operations Management*, 8(2), 133-158.
- Barlett, J. E., Kotrlik, J. W., & Higgins, C. C. (2001). Organizational research: Determining appropriate sample size in survey research. *Information technology, learning, and performance journal*, 19(1), 43-50.
- Barney. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120.
- Barney. (1995). Looking inside for competitive advantage. *The Academy of Management Executive*, 9(4), 49-61.
- Batra, R., & Ahtola, O. T. (1991). Measuring the hedonic and utilitarian sources of consumer attitudes. *Marketing letters*, 2(2), 159-170.
- Berg, N. (2005). Non-response bias. *Munich Personal RePEc Archive*, 1-34.
- Bewley, T. (2002). Interviews as a valid empirical tool in economics. *The Journal of Socio-Economics*, 31(4), 343-353.
- Boguslauskas, V., & Kvedaraviciene, G. (2015). Difficulties in identifying Company's Core Competencies and Core Processes. *Engineering Economics*, 62(2), 75-81.
- Bruyat, C., & Julien, P.-A. (2001). Defining the field of research in entrepreneurship. *Journal of business venturing*, 16(2), 165-180.
- Cheetham, G. (1999). *The acquisition of professional competence*. University of Sheffield, Division of Adult Continuing Education.
- Chen, I. J., Paulraj, A., & Lado, A. A. (2004). Strategic purchasing, supply management, and firm performance. *Journal of Operations Management*, 22(5), 505-523.
- Coates, T. T., & McDermott, C. M. (2002). An exploratory analysis of new competencies: a resource based view perspective. *Journal of Operations Management*, 20(5), 435-450.
- Contractor, F. J. (2001). *Valuation of intangible assets in global operations*. Westport: Greenwood Publishing Group.
- Danneels, E. (2002). The dynamics of product innovation and firm competences. *Strategic Management Journal*, 23(12), 1095-1121.
- De Veaux, R., Velleman, P., & Bock, D. (2014). *Stats: Data and models with statistical methods for the social sciences*. Boston: Pearson Learning Solutions.

- De Vos, A., De Hauw, S., & Willemase, I. (2011). Competency development in organizations: building an integrative model through a qualitative study - working paper. 1-38.
- De Wit, B., & Meyer, R. (2010). *Strategy: Process, content, context* (4th ed.). Andover: Cengage Learning EMEA.
- Dierickx, I., & Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management science*, 35(12), 1504-1511.
- Drejer, A. (2002). *Strategic management and core competencies: Theory and application*. Westport: Greenwood Publishing Group.
- Duysters, G., & Hagedoorn, J. (2000). Core competences and company performance in the world-wide computer industry. *The Journal of High Technology Management Research*, 11(1), 75-91.
- Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of management review*, 23(4), 660-679.
- Edgar, W., & Lockwood, C. (2007). Organizational Competencies: A Content Analysis - working paper. 1-13.
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The qualitative report*, 8(4), 597-606.
- Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California management review*, 33(3), 114-135.
- Hamel, G., & Prahalad, C. (1994). *Competing for the Future* Harvard Business School Press. Boston, MA.
- Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, 24(10), 997-1010.
- Hodgson, G. M. (1998). Competence and contract in the theory of the firm. *Journal of Economic Behavior & Organization*, 35(2), 179-201.
- Holton, E., & Burnett, M. (1997). Qualitative Research Methods. In R.A. Swanson, & E.F. Holton Ed, *Human Resource Development Research Handbook: Linking Research and Practice*: San Francisco: Berrett-Koehler Publishers.
- Hunt, S. D., & Morgan, R. M. (1995). The comparative advantage theory of competition. *The Journal of Marketing*, 1-15.
- Irvin, R. A., Michaels, E. G., & Rouse, M. (1995). Core skills: Doing the right things right. *DG Shaw, CE Schneier, RW Beatty, LS Baird: Performance, measurement,*

- management and appraisal sourcebook. Human Resource Development Press, Mass, 31-40.*
- Joppe, M. (2000). *The research process*. Toronto: Ryerson University
- Kaplan, R. W., & Saccuzzo, D. P. (1982). *Psychological Testing: Principles, Applications, and Issues*: Monterey, CA: Brooks/Cole.
- Lado, A. A., Boyd, N. G., & Wright, P. (1992). A competency-based model of sustainable competitive advantage: Toward a conceptual integration. *Journal of management*, 18(1), 77-91.
- Lambe, C. J., Spekman, R. E., & Hunt, S. D. (2002). Alliance competence, resources, and alliance success: conceptualization, measurement, and initial test. *Journal of the academy of Marketing Science*, 30(2), 141-158.
- Lawler, E. E. (1994). From job-based to competency-based organizations. *Journal of organizational behavior*, 15(1), 1-23.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel psychology*, 28(4), 563-575.
- Le Deist, F. D., & Winterton, J. (2005). What is competence? *Human resource development international*, 8(1), 27-46.
- Lucia, A. D., & Lepsinger, R. (1999). *Art & science of competency models*. San Francisco, CA: Jossey-Bass
- Mahoney, J. T., & Pandian, J. R. (1992). The resource-based view within the conversation of strategic management. *Strategic Management Journal*, 13(5), 363-380.
- Major, E., Asch, D., & Cordey-Hayes, M. (2001). Foresight as a core competence. *Futures*, 33(2), 91-107.
- Markides, C. C., & Williamson, P. J. (1994). Related diversification, core competences and corporate performance. *Strategic Management Journal*, 15(S2), 149-165.
- McClelland, D. C. (1998). Identifying competencies with behavioral-event interviews. *Psychological science*, 9(5), 331-339.
- Nadler, D. A., & Tushman, M. L. (1999). The organization of the future: Strategic imperatives and core competencies for the 21st century. *Organizational Dynamics*, 28(1), 45-60.
- Nelson, R. R. (1991). Why do firms differ, and how does it matter? *Strategic Management Journal*, 12(S2), 61-74.
- Nobre, F. S. M. (2010). Core Abilities: The Source of Core Competencies of the Organization. *Organizational Studies Division ANPAD*, 1-10.

- Nunnally, J. C. (1978). *Psychometric Theory* (2d ed.): New York: McGraw-Hill.
- Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views. *Strategic Management Journal*, 697-713.
- Omar, A., Davis-Sramek, B., Myers, M. B., & Mentzer, J. T. (2012). A global analysis of orientation, coordination, and flexibility in supply chains. *Journal of Business Logistics*, 33(2), 128-144.
- Paulraj, A., Lado, A. A., & Chen, I. J. (2008). Inter-organizational communication as a relational competency: Antecedents and performance outcomes in collaborative buyer–supplier relationships. *Journal of Operations Management*, 26(1), 45-64.
- Prahalad, C., & Hamel, G. (1990). The Core competencies of the corporation. *The Harvard Business Review*, 79-91.
- Priem, R. L., & Butler, J. E. (2001). Is the resource-based “view” a useful perspective for strategic management research? *Academy of management review*, 26(1), 22-40.
- Rasmussen, E., Mosey, S., & Wright, M. (2011). The evolution of entrepreneurial competencies: A longitudinal study of university spin-off venture emergence. *Journal of Management Studies*, 48(6), 1314-1345.
- Rasmussen, E., Mosey, S., & Wright, M. (2014). The influence of university departments on the evolution of entrepreneurial competencies in spin-off ventures. *Research Policy*, 43(1), 92-106.
- Schiele, H., Calvi, R., & Gibbert, M. (2012). Customer attractiveness, supplier satisfaction and preferred customer status: Introduction, definitions and an overarching framework. *Industrial Marketing Management*, 41(8), 1178-1185.
- Schmidt, F. L., Hunter, J. E., McKenzie, R. C., & Muldrow, T. W. (1979). Impact of valid selection procedures on work-force productivity. *Journal of Applied Psychology*, 64(6), 609.
- Shan, W., & Hamilton, W. (1991). Country—Specific advantage and international cooperation. *Strategic Management Journal*, 12(6), 419-432.
- Slaughter, R. (1995). *The foresight principle: Cultural recovery in the 21st century*. London: Adamantine.
- Srivastava, S. C. (2005). Managing core competence of the organization. *Vikalpa*, 30(4), 49-64.
- Stevenson, H. H., & Jarillo, J. C. (1990). A paradigm of entrepreneurship: Entrepreneurial management. *Strategic Management Journal*, 11(1), 17-27.

- Swink, M., Narasimhan, R., & Wang, C. (2007). Managing beyond the factory walls: effects of four types of strategic integration on manufacturing plant performance. *Journal of Operations Management*, 25(1), 148-164.
- Tampoe, M. (1994). Exploiting the core competences of your organization. *Long range planning*, 27(4), 66-77.
- Teece, D. J. (1998). *Economic Performance and the Theory of the Firm* (Vol. 1). Cheltenham: Edward Elgar Publishing.
- Teece, D. J., Rumelt, R., Dosi, G., & Winter, S. (1994). Understanding corporate coherence: Theory and evidence. *Journal of Economic Behavior & Organization*, 23(1), 1-30.
- Tödtling, F., & Grillitsch, M. (2014). Types of innovation, competencies of firms, and external knowledge sourcing—Findings from selected sectors and regions of Europe. *Journal of the Knowledge Economy*, 5(2), 330-356.
- Töyli, H. L., Lauri Ojala, J., Wieland, A., & Marcus Wallenburg, C. (2013). The influence of relational competencies on supply chain resilience: a relational view. *International Journal of Physical Distribution & Logistics Management*, 43(4), 300-320.
- Von Krogh, G., & Roos, J. (1995). A perspective on knowledge, competence and strategy. *Personnel review*, 24(3), 56-76.
- Winterton, J., & Winterton, R. (2002). Evaluating the impact of management development on performance *UNDERSTANDING HUMAN RESOURCE DEVELOPMENT* (pp. 146-165).
- Wittmann, C. M., Hunt, S. D., & Arnett, D. B. (2009). Explaining alliance success: Competences, resources, relational factors, and resource-advantage theory. *Industrial Marketing Management*, 38(7), 743-756.
- Wright, P. M., McMahan, G. C., & McWilliams, A. (1994). Human resources and sustained competitive advantage: a resource-based perspective. *International journal of human resource management*, 5(2), 301-326.

9. APPENDIX

Appendix 9.1: The scoring model

	<i>0-5 points</i>	<i>6-10 points</i>	<i>11-15 points</i>	<i>16-20 points</i>
1) Does the competence consist of a unique bundle of resources and skills?	Few, widely available resources	Partially spread resource / skills bundle	Seldom availability of all resources and skills	Unique combination of many unique resources / skills
2) Does the competence generate competitive advantage?	Weaker than competitors	At the level of competition	Superior to competitors	World unique
3) Does the competence generate value customers appreciate?	No value to customer	Weak value to customer (cost / innovation)	Visible cost and innovation value to customer	Substantial and growing cost and innovation value
4) Is it difficult to imitate and to substitute?	Easy to imitate / substitute in a short term	Imitable / substitutable on medium term	Difficult to imitate / substitute on medium term	Hardly imitable / substitutable on long term
5) Does it rely on internal and external resources?	Only internal resources	Few internal and commonly accessible external resources	Combination of many internal and external resources	Complex combination of internal and uniquely bond external resources
6) Can it be transferred into different markets?	Can only be applied to existing market	Applicable to other markets, but with limited relevance there	High relevance in an additional market	Can be applied to many markets and is of high relevance there

Appendix 9.2: Outline of the survey

(Introvragen)

1. Wat is uw geslacht?

2. Wat is uw leeftijd?

3. Op welke afdeling binnen COMPANY X bent u werkzaam?

4. Hoeveel jaar bent u in dienst bij COMPANY X?

5. Op een schaal van 1-10, hoe is uw humeur bij het invullen van deze enquête?

(Kernvragen)

Competentie 1

Definitie

Competentie Schema

Vragen

Vraag 1: Op een schaal van 1-10, in hoeverre bestaat deze competentie uit een unieke combinatie van middelen (resources) en kennis?

Vraag 2: Op een schaal van 1-10, in hoeverre genereert deze competentie concurrentie voordeel (competitive advantage) ten opzichte van andere bedrijven?

Vraag 3: Op een schaal van 1-10, in hoeverre genereert deze competentie waarde die gewaardeerd wordt door klanten? (Value for customers)

Vraag 4: Op een schaal van 1-10, in hoeverre is deze competentie moeilijk te imiteren door andere bedrijven en te vervangen door andere bedrijven (wereldwijd) met een soortgelijk iets?

Vraag 5: Op een schaal van 1-10, in hoeverre is deze competentie afhankelijk van interne en externe (bijv. partnerships) middelen? (resources)

Vraag 6: Op een schaal van 1-10, in hoeverre kan deze competentie ook gebruikt worden in anderen markten? (Bijv. een competentie in beeldschermen is ook toepasbaar in de tv, computer en rekenmachine-wereld)

Competentie 2

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 3

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 4

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 5

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 6

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 7

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 8

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 9

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 10

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 11

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 12

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 13

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 14

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

Competentie 15

Definitie

Competentie Schema

Vragen: Vraag 1-6: Zie competentie 1

(Eindvraag)

X. Van alle competenties die besproken zijn in deze enquête (lijst van competenties zichtbaar). Welke denkt u dat de echte kerncompetenties van COMPANY X zijn? Selecteer er 3.

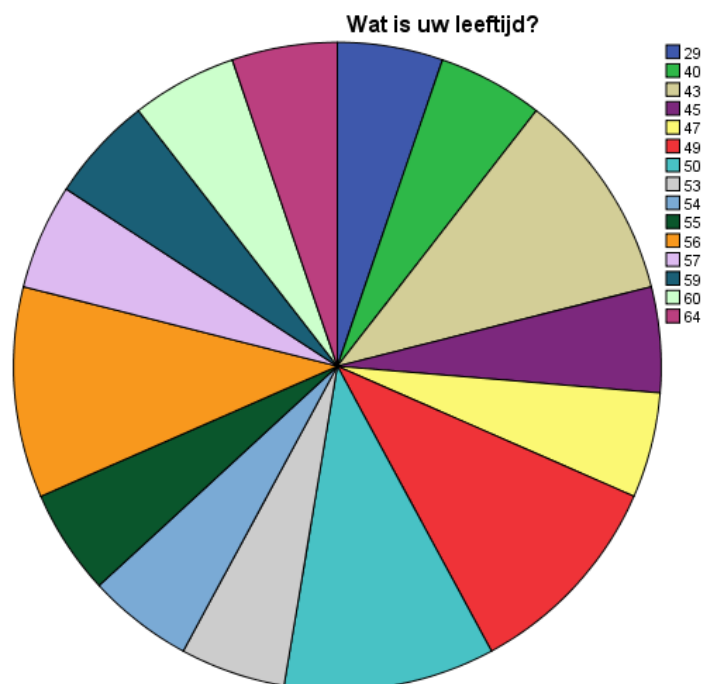
Appendix 9.4: Distribution of age under the respondents of the survey

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Wat is uw leeftijd?	19	29	64	50,47	8,228
Valid N (listwise)	19				

Wat is uw leeftijd?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	29	1	5,3	5,3	5,3
	40	1	5,3	5,3	10,5
	43	2	10,5	10,5	21,1
	45	1	5,3	5,3	26,3
	47	1	5,3	5,3	31,6
	49	2	10,5	10,5	42,1
	50	2	10,5	10,5	52,6
	53	1	5,3	5,3	57,9
	54	1	5,3	5,3	63,2
	55	1	5,3	5,3	68,4
	56	2	10,5	10,5	78,9
	57	1	5,3	5,3	84,2
	59	1	5,3	5,3	89,5
	60	1	5,3	5,3	94,7
	64	1	5,3	5,3	100,0
	Total	19	100,0	100,0	



Appendix 9.6: The calculation of the AVE for assessing convergent validity

Formula: $\frac{\sum \lambda^2}{n}$

	λ (Factor Loadings)	λ^2
	0,716	0,512656
	0,602	0,362404
	0,624	0,389376
	0,699	0,488601
	0,645	0,416025
	0,601	0,361201
	0,563	0,316969
	0,613	0,375769
	0,519	0,269361
	0,688	0,473344
	0,81	0,6561
	0,583	0,339889
	0,58	0,3364
	0,752	0,565504
	0,85	0,7225
	0,682	0,465124
	0,73	0,5329
	0,531	0,281961
	0,67	0,4489
	0,587	0,344569
	0,696	0,484416
	0,724	0,524176
	0,715	0,511225
	0,733	0,537289
Sum	15,913	10,71666
N	24	
AVE	0,446527458	

Appendix 9.7: Cronbach's alpha

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,852	,908	88