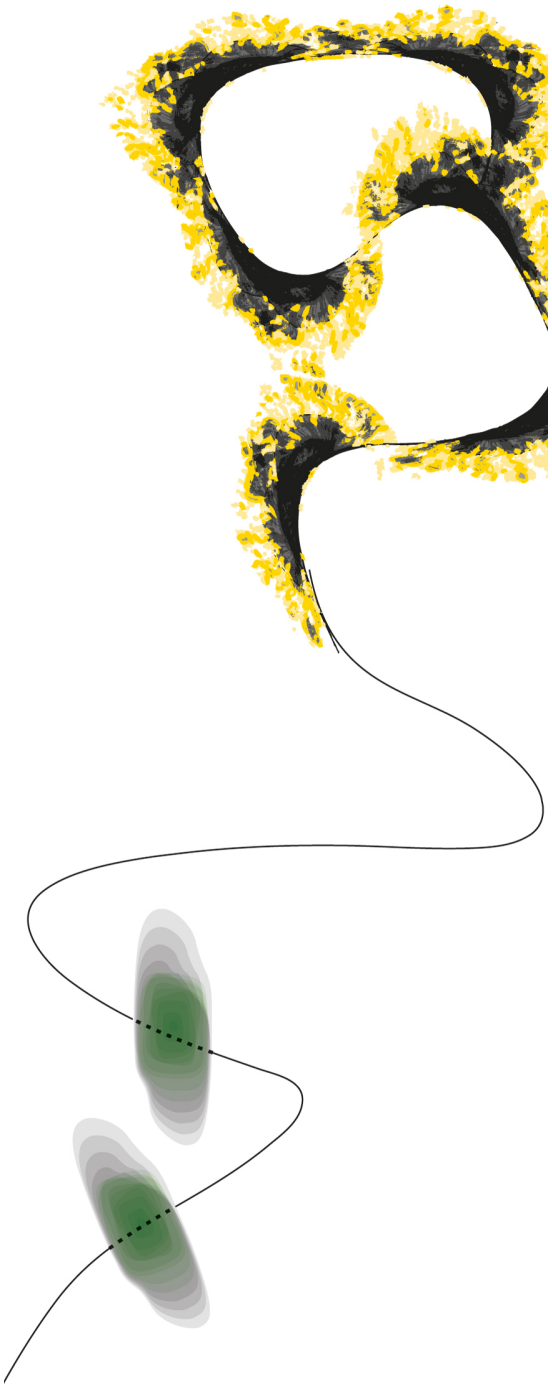
MASTER THESIS



ANALYSIS OF MARKET ENGAGEMENT ACTIVITIES - TOWARDS A SCALE DEVELOPMENT FOR START-UP ENTREPRENEURS

Theresa Kreimer
S1026720

FACULTY OF MANAGENENT AND GOVERNANCE
BUSINESS ADMINISTRATION, INTERNATIONAL MANAGEMENT

EXAMINATION COMMITTEE
Dr. K. Zalewska-Kurek
Dr. B.G. Englis

UNIVERSITY OF TWENTE.

19/06/2014

Analysis of Market Engagement Activities – Towards a Scale Development for Start-up Entrepreneurs

Research Article
Master Thesis: Theresa Kreimer
University of Twente, School of Management and Governance
Business Administration, International Management
First Supervisor: Dr. K. Zalewska-Kurek, Second supervisor: Dr. B.G. Englis

Abstract

This paper explores the role of market engagement activities for entrepreneurs in the process of starting a business. It develops a theoretical scheme of the customer engagement concept that functions as an initial step in the development of a market engagement scale for start-up entrepreneurs. The main finding of this research is that entrepreneurs are concerned with the market, customers, competitors and technologies in the process of starting their business. They go beyond what is defined as market orientation by actively integrating the customer into the product development processes.

Keywords: market engagement, market orientation, scale development, entrepreneurship, technological orientation, entrepreneurial orientation

Introduction

Over the past decade managers shifted the customer more in the focus and realized the importance of directing their efforts increasingly towards satisfying customer needs and wants (Appiah-Adu & Singh, 1998). Consequently, the value of market orientation received a lot of attention in the past, resulting in companies investing heavily to become more market oriented (Narver, Slater, & MacLachlan, 2004). A market-oriented approach directs the company to constantly gather information about competitors as well as the needs of target customers and to apply this information to create superior customer value. (Slater & Narver, 1995). This enables companies to anticipate future customer needs and serve them through the development of innovative products and services as well as providing a competitive advantage to react fast and effective to opportunities and threats (Slater & Narver, 1995). The development (i.e. the recognition, evaluation and exploitation) of opportunities, while dealing with a high level of uncertainty, particularly concerns entrepreneurs in the process of creating new ventures. Research in the field of entrepreneurship often addresses the question why some individuals are more likely than others to develop an opportunity. Two main reasons are identified in the literature: (1) Better access to information and the (2) cognition necessary to value that information (Shane, 2003). This seems to suggest, that information plays a central role in the development of entrepreneurial opportunities. Further, entrepreneurs are often confronted with a high level of uncertainty, as they cannot make predictions about a future market that does not yet exist. To overcome such uncertainty, management theory suggests the collection of information, because what is considered uncertain and therefore unpredictable becomes predictable because of new information and thus turns into a calculable risk (Stinchcombe, 1999 as cited in Shane 2003). However, the question remains what kind of information entrepreneurs use to develop opportunities and overcome

uncertainties. Just how important is information about customer needs and wants, the market and competitors in the new venture development process? While research on the relationship between market orientation and entrepreneurship exist (Zhou, Kin, & Tse, 2005), little can be found about studying the market engagement activities of start-up entrepreneurs. The lack of research in this area is also reflected in the absence of appropriate measurement tools.

The research contributes to the literature in two important ways. First, it is one of few analyses of market engagement activities of start-up entrepreneurs. It will provide information about whether start-up entrepreneurs are concerned with the market and in what ways they carry out market engagement activities. Second it provides input not only to measure market engagement, but also for researching market orientation of start-up companies. It is questionable whether the existing measurement scales to study market orientation are suitable for the research of start-up entrepreneurs, as these were developed for researching mature companies at the firm level. The main issues with the measurement scales are that they require a certain level of marketing expertise (Roersen, Kraaijenbrink, & Groen, 2013) and involve questions about interfunctional coordination or intelligence generation, which are both intended to find out how knowledge is distributed within the organization. In summary, the lack of literature concerned with market engagement activities of start-up entrepreneurs as well as the absence of suitable scales to measure market orientation prompted this research. Therefore, the primary aim of this study is to find out how start-up entrepreneurs engage the market and work towards a scale development that is suitable to measure market engagement.

The remainder of this article is organized as follows. The first section will provide a review of the literature on market engagement and how it relates to technology orientation, entrepreneurial orientation and entrepreneurship as well as an overview of the prominent scales available to measure market orientation. The subsequent section is concerned with the scale development process and includes a detailed description of the qualitative inquiry and the qualitative results and domain definitions, which result in a theoretical scheme for the market orientation construct. It further contains the results of the scale refinement including an item analysis, a factor analysis as well as the assessment of unidimensionality, reliability and validity. Finally, the findings are discussed and limitations as well as future research suggestions are examined.

Theoretical Background

Market Engagement Activities

This study focuses on market engagement activities of start-up entrepreneurs. Market engagement goes beyond the well-established market orientation concept by integrating the customer in the product development process.

Market orientation has its roots in the development of the marketing concept; a business philosophy that views the satisfaction of customer needs as the ultimate goal to maximize profits (Appiah-Adu & Singh, 1998). Drucker (1954) was one of the first to mention the marketing concept as a business philosophy stating that:

> *"Because it is its purpose to create a customer, any business enterprise has two - and only these two - basic functions: marketing and innovation." (p. 37)*

For more than two decades, the marketing concept and the associated market orientation construct have been important aspects for both researchers and managers (Hult & Ketchen, 2001). Over the years, the marketing concept prompted managerial efforts to shift from being focused on products, production or sales to being more customer oriented (Appiah-Adu & Singh, 1998). Extensive attention has since been given to the value of being market

orientated and numerous companies have devoted extensive efforts into increasing their level of market orientation (Narver, Slater, & MacLachlan, 2004). This comes to no surprise when considering the large number of studies, which conclude that market orientation leads to superior performance in at least one of the following three disciplines: profitability, sales growth and new-product success (Narver et al., 2004).

Kohli and Jaworski (1990) and Narver and Slater (1990) were the first of many to study the antecedents and effects of a company increasing its market orientation activities (Narver et al., 2004). The publications introduced two approaches, a behavioral and a cultural one, on the phenomenon of market orientation that are still paramount today, more than two decades later (Roersen et al. 2013; Homburg & Pflesser, 2000). According to Kohli & Jaworski (1990), market orientation is composed of three sets of activities and thus "refers to the organization-wide generation of market intelligence, dissemination of intelligence across departments, and organization-wide responsiveness to it" (p. 6). While market intelligence relates to current and future customer needs, additional forces (e.g. competition, technology, regulation) are also part of the market orientation construct (Jaworski & Kohli, 1993). Narver and Slater (1990) define market orientation as "the organizational culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business." (p. 21). They differentiate the concept into three behavioral components, namely customer orientation, competition orientation and interfunctional coordination (Narver & Slater, 1990).

There are a number of other views on market orientation, resulting in disagreement about a common definition. Yet, most agree that "market orientation revolves around a focus on customer needs and wants, on competitor strategies and capabilities, and on information processing for internal and external coordination of market management activities" (Roersen et al., 2013, p. 3).

However promising the concept of market orientation may be, it is not without criticism. A concern that is often voiced is that it may impede innovations. Some researchers (e.g. Bennett, & Cooper, 1979) argue that companies with a strong focus on their customer may lose the ability of innovating creatively, as customers are short sided in nature and do not know what they really want and are thus incapable of foreseeing future needs (Zhou et al. 2005).

Narver et al. (2004) contribute to the ongoing debate by distinguishing two sets of behaviors of market orientation. While responsive market orientation is concerned with determining, understanding and fulfilling customers' expressed needs, proactive market orientation is concerned with customers' latent needs[1]. They argue that the varying views about the relationship between market orientation and innovation are the result of a too narrow definition of the market orientation concept, as it is oftentimes only focusing on customers' expressed needs. In order to create successful new products and gain sustainable competitive advantage, it is important to address the customer's latent needs, i.e. customers' unspoken needs (Narver & Slater, 2004). While more traditional reactive market research methods such as surveys, in-depth interviews and focus groups are used to determine customers' spoken or expressed needs (Witell, Kristensson, Gustafsson, & Löfgren, 2011), latent needs can for example be discovered by carefully observing customers, monitoring internal customer data, or working with lead users[2] (Narver et al., 2004).

However, Füller and Matzler (2007) argue that whether a new product really fulfills latent needs can only be established by actively

[1] Needs and solutions of which the customer is unaware (Narver & Slater, 2004)

2 Lead users can be defined as trendsetter whose current need will forecast the need of the general marketplace in the future (Von Hippel, 1986).

engaging the customer into the product development process. Thus, while proactive market orientation approach of Narver et al. (2004) is a step in the right direction they do not address the active involvement of the customer, which can be considered a crucial factor in ensuring (radical) product innovations.

Kaulio (1998) distinguish three categories depicting the depth of customer involvement: "design for", "design with" and "design by". The "design for" strategy is concerned with designing products "on behalf of the customers" (p. 143) It considers customers more as objects providing necessary information that is used in the design process. This strategy is more in line with the reactive market orientation approach, i.e. considering customers' expressed needs through e.g. interviews and focus groups. The second strategy, "design with", builds on the "design for" approach, but in addition, presents the respective design solution to the customer so these can react and provide feedback to the designers. This strategy is more in line with the proactive market orientation approach, as it is concerned with customers' latent needs through for example prototype testing (Kaulio 1998). The last strategy "design by" is actively involving the customer in the product development process.

According to Witell et al. (2011), the use of proactive market research methods that involve the customer fosters co-creation and thus allows customers to be creative. It will result in more innovative ideas and more successful product development projects than the use of reactive market research methods (Witell et al., 2011). That is why companies move from simply understanding user needs in detail, to "transferring need-related aspects of product and service development to users" (Von Hippel & Katz, 2002, p. 821).

Finally, market engagement can be understood as a market orientation approach extended with the concept of customer involvement.

Technology and Entrepreneurial Orientation

In the debate about the negative influence of market orientation activities on innovation, researchers argue that it would be best to exclude the customer completely from the product development process. Bennett, and Cooper (1979) for example reason that in the past, major innovative breakthroughs were not the result of a "market pull approach" (i.e. market orientation and considering customers' needs and wants), but the result of "technological push" (i.e. being technology oriented). Consequently, companies should simply ignore costumers when pursuing breakthrough innovations (Martin, 1995) and instead pursue a technology orientation. This strategic orientation suggests that customers prefer technologically superior products and companies with a technology orientation are therefore committed to R&D and the acquisition and application of the newest technologies (Gatignon & Xuereb, 1997).

However, authors such as Lewrick, Omar, and Williams (2011) realize the need for both the push (market orientation) and the pull approach (technology orientation) in order to be innovative, as sometimes opportunities arise from gathering market intelligence and other times the market may call for something entirely new and groundbreaking. This can also be seen in the work of Zhou et al. (2005), who found that while market orientation has a positive impact on tech-based innovations "which address the need of mainstream customers", they impede marked-based innovation "that target emerging market segments " (p.42).

The same study did however reveal that an entrepreneurial orientation has a positive relationship on both tech-based and market based innovations and the authors suggest complementing a market orientation approach with an entrepreneurial orientation (Zhou et al., 2005).

According to Slater and Narver (1995), a market orientation is only a start for a company, as it can only achieve its full potential if accompanied with a spirit of

entrepreneurship. An entrepreneurial orientation does not only focus on creating products ahead of the competition, but even before customers are aware of such needs (Slater & Naver, 1995). Thus, combining market engagement activities with entrepreneurial values enables a company to achieve the full potential of the market orientation construct (Matsuno, Mentzer & Özsomer, 2002).

Given the positive results of combining market orientation with either technology orientation or entrepreneurial orientation the question arises how a mixture of all three orientations would affect businesses. However, studies researching all three strategic orientations (i.e. market orientation, technology orientation, entrepreneurial orientation) together are scarce, in particularly with regard to innovation. The few that exist look promising (Hakala, & Kohtamäki, 2011), indicating a positive relationship between the three strategic orientations and firm performance (e.g. Hakala, & Kohtamäki, 2011; Spanjol, Qualls, & Rosa, 2011).

Market Engagement and Entrepreneurship

Market orientation plays an important role for entrepreneurship (Hougaard, 2004). An entrepreneur can be defined as someone that is innovative, proactive and risk taking. This is, among others, based on the work of Miller (1983), who defined an entrepreneurial firm as one that "engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with "proactive" innovation, beating competitors to the punch." (p. 771). For entrepreneurs a market orientation can be considered an efficient protection against unjustified risk-taking (Matsuno, et al., 2002). According to Shane (2003) entrepreneurial strategies have the purpose of assisting entrepreneurs to deal with the level of uncertainty that they face. Amit et al. (1990) distinguishes between three types of uncertainties: (1) technical uncertainty - it is not known whether the product or service will work and whether it can be produced at a profit, (2) market uncertainty - it is not known whether actual demand exist for the product or service and whether high enough quantities can be sold quickly enough at a high enough price, (3) competitive uncertainty - it is not known whether the exploitation of the opportunity will result in profits for the entrepreneur or whether it will benefit competitors (Amit et al., 1990 as cited in Shane, 2003). With a more market-orientated approach, something that is considered uncertain and thus unpredictable becomes predictable because of new information and thus turns into a calculable risk (Stinchcombe, 1999 as cited in Shane 2003). Therefore, to reduce the level of uncertainty entrepreneurs need to acquire information about technological developments, markets and competitors as base for their actions (Daft & Weik, 1984). According to Matsuno et al. (2002), "entrepreneurs distinguish themselves from those fixated on the technology and science by attempting to manage the risk through learning the market, executing actions quickly enough to distance themselves from the competition, and maintaining the high reward potential." (p. 21).

Considering customer involvement, entrepreneurs have several advantages compared to larger companies. Generally close relationships exist between the entrepreneur and the customer, which that makes an involvement into the product development process easier. The lack of formal structures also simplifies reacting to customer needs and wants as well as customer inquiries (Carson et al. 1995 as cited in Jones & Rowley, 2011).

Despite the advantages of market engagement for entrepreneurs, researchers have noticed a lack of market engagement measures in small and medium enterprises (SMEs) (Jones & Rowley, 2011).

Market Orientation Measures and the Applicability to Entrepreneurship Research

In the past, several different measurements have been developed to study market

orientation. The works of Narver and Slater (1990), Jaworski and Kohli (1993) as well as Deshpandé, Farley, and Webster (1993) can be considered leading among them.

To measure market orientation, Narver and Slater (1990) developed a 15-item factor weighted scale (MKTOR) that questions respondents on the three behavioral components customer orientation, competitor orientation and interfunctional coordination. The two components customer orientation and competitor orientation are concerned with the activities involved in the acquisition and dissemination of information about customers and competitors (Narver & Slater, 1990). Interfunctional coordination is defined as the companies' coordinated efforts to create superior value for the customers based on the customer and competitor information (Narver & Slater, 1990). They consider all three components as being equally important and thus the score is the average of the sum of scores (Narver & Slater, 1990).

Jaworski and Kohli (1993) developed a 32-item scale (MARKOR) to measure market orientation. Ten of the 32 items question respondents about market intelligence generation; eight items are concerned with intelligence dissemination and fourteen question respondents about responsiveness at the business unit level (Jaworski & Kohli, 1993). The item intelligence generation is concerned with the organization-wide acquisition of information concerning current and future customer needs. The item dissemination and responsiveness refer to the dissemination of the acquired information across departments and the organization-wide responsiveness to it (Jaworski & Kohli, 1993). Responsiveness is further divided into the intention to use the acquired information to develop plans (response design) and the action of actually developing such plans (response implementation).

Deshpandé et al. (1993) developed a nine-item customer orientation scale. Later this scale was synthesized with elements from the scales of Narver and Slater (1990) and Kohli et al. (1993), resulting in the 10-item market orientation scale MORTN (Deshpandé, & Farley 1998). The ten items are all concerned with customer focus elements of market orientation, excluding elements dealing with for example competitor information (Deshpandé, & Farley 1998)).

In particular the MKTOR scale and the MAKOR scale can be considered the two dominant measures of market orientation and have often been tested for both reliability and validity (Roersen et al., 2013). They were however developed for managers of mature companies in relatively stable environments, which raises the questions whether these scales are even applicable for start-up companies.

Considering that SMEs and especially start-up companies usually have relatively simple or no organizational structures, questions addressing components such as interfuncional coordination in the MKTOR scale and dissemination and responsiveness in the MAKOR scale might not be applicable to star-up or SMEs. Examples of such questions include:

> *The activities of the different departments in this business unit are well coordinated (MAKOR).*
>
> *We freely communicate information about our successful and unsuccessful customer experiences across all business functions (MKTOR & MORTN).*

Moreover, in their research about the validity of the MKTOR scale in high-tech Russian firms Roersen et al. (2013) found that a minimum amount of marketing knowledge is needed for the scale to function properly. They argue that the marketing knowledge may be too low for managers in high-tech sectors as they pay less attention to marketing. Given that entrepreneurs or small business owners are oftentimes more generalists than experts that possess any management or marketing skills (Jones and Rowley, 2011) this issue may also apply to them.

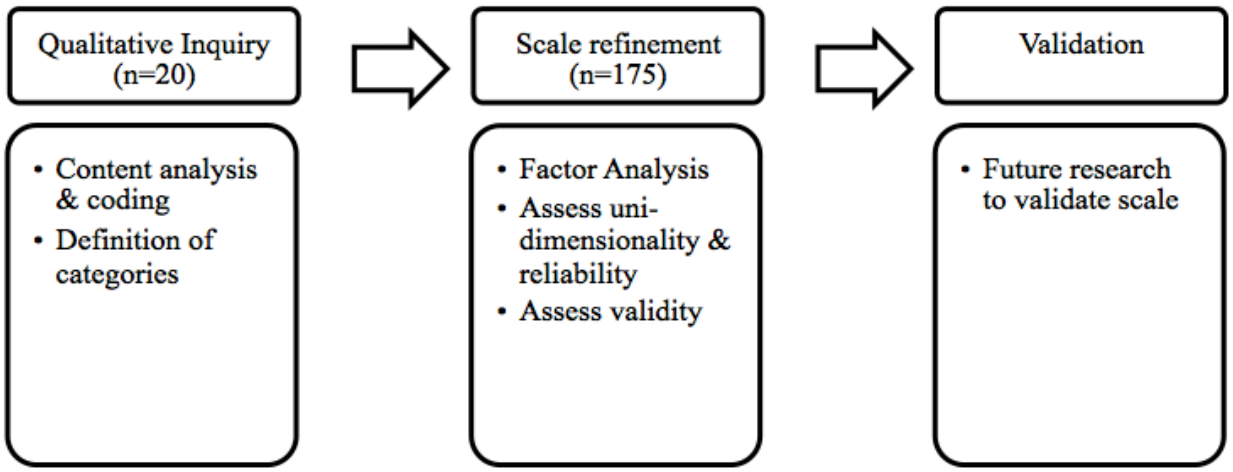


Figure 1 - Scale development process

Finally, considering that this study is concerned with market engagement rather than only market orientation, the above-mentioned scales are not appropriate, as they do not include the customer involvement concept. While the proactive market orientation scale of Narver et al. (2004) is a step in the right direction, asking questions about participants' concern with latent (unspoken) needs, it does not focus on the full integration of customers into the product development process.

The above mentioned findings suggest that established marketing orientation scales are not suitable to measure market engagement activities of start-up entrepreneurs and consequently, a new scale needs to be developed. In the following this will be done by studying surveys of 175 entrepreneurs of the VentureLab Twente.

The scale development process

As the aim of this research is to find out how start-up entrepreneurs engage the market and work towards a scale development that is suitable for the study of start-up entrepreneurs, a qualitative analysis of secondary data was carried out. This qualitative inquiry is the first step in the scale development process summarized in Figure 1, which is based on Churchill's (1979) paradigm and other scale development studies (e.g. Homburg & Pflesser, 2000; Arnold & Reynolds, 2003). Even though the qualitative inquiry is the main focus of this study, the resulting categories were further refined by conducting an item analysis and a factor analysis followed by the assessment of unidimensionality, reliability and validity.

Qualitative Inquiry

To research how start-up entrepreneurs engage the market, it was decided to analyze existing data of surveys carried out among members of the VentureLab Twente (VLT). The VLT is an incubator program that offers technology-based start-ups, both from the Netherlands and from abroad, support with the development of their business. The program provides personalized coaching and training in form of workshops, lectures, and interactions with fellow participants, experts and venture capitalists. In the course of their one-year participation, the entrepreneurs were asked to fill in three questionnaires every four months, measuring the same concepts. The questionnaires focused on the entrepreneur's learnings during their membership, their business results, team development, ambitions, entrepreneurial processes, satisfactions and expectations as well as potential issues and future steps. While the questionnaire also

Figure 2 Coding process

included closed questions, only the open-ended questions were considered for the research (see Appendix A for a detailed list of the open-ended questions reviewed).

A qualitative secondary analysis was considered appropriate for this research, as this method is used to re-explore existing data, a process referred to by Thorne (1994) as retrospective interpretation (as cited in du Plessis & Human, 2009). The open-ended questions offered a good indication of what the respondent's issues and concerns were at the time of the questionnaire. The survey was carried out between the years 2009 and 2013, questioning around 210 entrepreneurs of mostly tech-based start-ups. Unfortunately, some of the collected data was missing or incomplete, which reduced the data to 32 entrepreneurs that filled in at least one questionnaire after four months of being in the program, 62 that filled in two and 81 that filled in all three questionnaires. In order to receive as much information as possible, the decision was made to include all the entrepreneurs for whom at least one questionnaire was available. If more than one questionnaire existed for a participant, all the data from the different questionnaires was treated as data coming from one information pool.

Before the qualitative inquiry could take place, the available survey data had to be sorted. Thus, all responses of the open-ended questions for each questionnaire were combined into one excel document. In the course of this process the data was read through thoroughly and questionnaires of approximately 38 respondents answered in Dutch were translated into English. As a next step, 20 cases were chosen for the qualitative inquiry based on the amount of text that was provided in their answers and the respective data was imported into the qualitative analysis and research software Atlas.ti for analysis.

Content analysis was used for this research and the about 16 open-ended questions were analyzed asking the question *"How do start-up entrepreneurs engage the market?"*. To bring forth new theories by conceptualizing, reducing, elaborating and relating data and categories, the process of coding as outlined by Strauss (1987) was followed (Mäkelä & Turcan, 2007). The coding process is displayed in Figure 2 and a detailed overview van be found in Appendix B – E). This process started with open coding, i.e. finding and labeling categories in the data (Strauss & Corbin, 1997). It was read through the data several times and all quotes that seemed to describe content relevant to market engagement activities were highlighted and labeled, resulting in a list of several categories and their respective quotes. Subsequently, axial coding was used to relate categories to their subcategories (Strauss & Corbin, 1997). For this, the list of categories was reviewed several times and similarities and patterns among the categories were identified. Similar categories were then grouped together under higher-order headings (sub-categories), thus reducing the total number of categories. Finally, selective coding was used to unify sub-categories in order to find core categories (Corbin & Strauss, 1997). For this the list of sub-categories and their respective categories with quotes were reviewed to identify central themes. Similar cub-categories were then grouped together to form core categories.

What is described here as a sequential process was really an iterative and ongoing process, as categories, subcategories and core categories were constantly reviewed, merged, omitted and re-arranged. Also, results were repeatedly analyzed against relevant literature. In particular, the three well-established market orientation scales (Deshpande & Farley, 1998; Jaworski & Kohli, 1993; as well as Narver & Slater, 1990) and scales to measure technology orientation (Zhou et al. 2005 and Gatignon & Xuereb, 1997) were analyzed and compared

Table 1 – Example quotes for market focus compared to similar items in literature

Sub-category	Example quotes from qualitative analysis	Similar item in literature
Analyze Market	*We also might need someone who's helping us with communications (website etc.) and maybe an extra student for market research. (Id# 80010)* *[Acquired] more knowledge in social media for gaining market insight (Id# 80030)* *I have seen market studies that show a change in the market already from 'fun' applications to the more serious business applications. (Id# 20220)*	Jaworski & Kohli (1990): – In this business unit, we do a lot of in-house market research – We collect industry information through informal means (e.g. lunch with industry friends, talks with trade partners – We often talk with or survey those who can influence our end user's purchases (e.g. retailers, distributors) – We are slow to detect fundamental shifts in our industry (e.g. competition, technology, regulation) (R) – We periodically review the likely effect of changes in our business environment (e.g. regulation) on customers
Define Market	*My first question would be: is there really a market in the Netherlands (in Enschede) that could be served by us? (Id#10130)* *We are even more sure there is a market. We've changed and are still changing the segments we work in. (Id# 20220)*	
PD based on MI	*Value of market research - led to discovering TinyEYE. (Id# 10040)* *It is a prototype with a lot of experience, feedback from the market, world wide, with wishes, expectations and so on. (Id# 30070)* *Focus is now on developing a market for the licensed software TinyEYE. This is a off-the shelf proven product that only requires a "Dutch flavor" (translations, user interface adjustments) to make it suitable for the Netherlands / Belgian markets. (Id# 10040)*	Deshpandé & Farley (1993): – Our product and service development is based on good market and customer information.

with the established coding scheme to ensure that all relevant aspects of market engagement were included. Following discussions with other researchers, an initial codebook was developed listing the core-categories, sub-categories, categories and quotes.

Based on this codebook, the remaining 155 cases were coded using the Atlas.ti software. This resulted in a further refinement of the coding scheme, in particularly the addition of three new categories. After further revision for internal consistency, comparison with existing literature and discussion with other researchers, a final theoretical scheme was developed (see Appendix F)

Qualitative Results and Domain Definitions

The qualitative analysis resulted in four core categories of market engagement: "market focus", "customer focus", "competitor focus" and "technological focus". In the following, these categories and their respective sub-categories will be described and discussed in light of prior research findings. An overview, illustrating the entire market engagement construct can be found in Appendix F.

Market Focus

The first core category of market engagement, "market focus", refers to an

emphasis on analyzing and defining markets as well as applying acquired market information to the product development process. A significant number of respondents indicated such a market focus in their responses, which is overall an interesting finding, as this concept is not considered in Narver & Slater's (1990) prominent market orientation scale. Even though the name would suggest a focus on market intelligence, their scale is, like many others, solely concerned with "customer needs and wants, competitor strategies and capabilities and external coordination of market management activities" (Roersen et al., 2013, p.3). However, the decision to include this concept was strengthened by Kohli & Jaworski (1990), who argue that while the main focus of market orientation is the customer, other factors also play a role (Kohli & Jaworski, 1990). Consequently, one of their three categories to measure market orientation, market intelligence, also includes an analysis of how customer needs and preferences may be affected by external factors (Kohli & Jaworski, 1990). Market focus is derived of the three sub-categories "analyze market", "define market" and "product development based on market information".

The first sub-category of market focus is "analyze market". It refers to the acquisition of general market information, the involvement in market research/analysis activities as well as the consideration of market trends. As the example quotes from the data depicted in Table 1 illustrate, respondents indicated that they are currently carrying out or have the intention of carrying out market research activities. Others simply mentioned the acquisition of general market information, or implied a concern with market trends and changes in the business environment. This is in line with the market orientation scale of Jaworski & Kohli (1990), which includes items concerned with market research, the collection of industry information, contacting other shareholders (e.g. retailers, distributors) as well as shifts in the industry and changes in the business environment (see Table 1).

"Define market" is the second sub-category of market focus and refers to an overall concern with defining and segmenting markets. Even though none of the well-established market orientation scales include items pertaining to this sub-category, Jaworski and Kohli (1996) argue that a lot of the work on market orientation included the selection and segmentation of markets. That is what strengthened the decision to include this sub-category in the market engagement concept.

The third sub-category of market focus is "product development based on market information". It pertains to the application of market information to discover and develop products and product ideas as well as the adjustment of products according to market requirements. As the example quotes from the data in Table 1 show, respondents specifically mentioned that their market research or general market information assisted them in the development of products. Others described the adjustment of a product according to specific market requirements:

> *"Focus is now on developing a market for the licensed software TinyEYE. This is a off-the shelf proven product that only requires a "Dutch flavor" (translations, user interface adjustments) to make it suitable for the Netherlands / Belgian markets." (Id# 10040)*

Similarly to this sub-category, Deshpandé et al. (1993) ask respondents whether their products and services are based on good market information (See Table 1).

Customer Focus

The second core category of market engagement, *"*customer focus*"*, refers to the emphasis on acquiring general customer information, integrating customers into the product development process, providing added value to customers as well as the importance of the customer. A lot of responses indicated a customer focus. As mentioned before, a key focus of prior marketing orientation scales is the customer, in particular developing and

Table 2 – Example quotes for customer focus compared to similar items in literature

Sub-category	Example quotes from qualitative analysis	Similar item in literature
Gather customer information	*Developing a list of potential customers' to find out the size of my initial market and prepare approaching them. (Id# 10130)* *While marketing our products we were too much focused to show potential customers who we are and what we offer. Now we try to assess the needs of our clients and how we can solve these with our products. (Id# 80040)* *I'm spending a lot of time talking to other people: potential clients, partners, suppliers. How to cooperate, what to deliver, what not, pricing etc. (Id# 40120)* *Having personal meetings with DMU's …is making it difficult for me (time-wise) to focus completely on marketing/ sales. (Id# 10160)*	Narver & Slater (1990): – Our strategy for competitive advantage is based on our understanding of customers needs. – We constantly monitor our level of commitment an orientation to serving customers needs. Jaworski & Kohli (1990): – In this business unit we meet with customers at least once a year to find out what products or services they will need in the future – We are slow to detect changes in our customer's product preferences (R) – We poll end users at least once a year to assess the quality of our products and services
Customer integration	*… I treated potential customers more as partners as opposed to only making them commercial quotes." (Id# 20220)* *The prototypes need to be tested for functionality by customers and experts. Id# 30010)* *Upon which industries/sectors we should concentrate and offer our services of customized software development. (Id# 10130)*	Jaworski & Kohli (1990): – Individuals from our manufacturing department interact directly with customers to learn how to serve them better
Added value to customers	*I have acquired/outlined insights in the benefits of my innovation for the various roles of customers… I did the exercise as part of making plans to understand/determine the market/value proposition. (Id# 30020)* *The question remains how I can make the value that I think I can add tangible for my customers. (Id# 40060)* *The value proposition in combination with market information helps to define a roadmap of the LCS system. (Id# 30150)*	Narver & Slater (1990): – Our business strategies are driven by our beliefs about how we can create greater value for our customers. Deshpandé & Farley (1993): – We have a good sense of how our customers value our products and services.
Customer importance	*Decided to include a customer complaint system in our business plan and filter out api problems (Id# 50170)* *Create more satisfied customers and find a broader customer base. (Id# 50230)* *We turned the plan into experimenting with new prospects into concentrating fully our major key customer (Id# 50110)* *Upgrade the current definition of the product roadmap; beside quality of service the innovation of the product-group is important. (Id# 30150)*	Narver & Slater (1990): – We measure customer satisfaction systematically and frequently. – We give close attention to after-sales service. – Our business objectives are driven primarily by customer satisfaction. Jaworski & Kohli (1990): – Data on customer satisfaction are disseminated at all levels in the business unit on a regular basis. – When we find out that customers are unhappy with the quality of our service, we take corrective action immediately Deshpandé & Farley (1993): – We have routine or regular measures of customer service. – The customer's interest should always come first, ahead of the owners. – I believe this business exists primarily to serve customers.

enhancing value to customers. However, while some literature only refers to reactive market orientation the data showed that respondents are also concerned with proactive market orientation, i.e. the latent needs of the customers. The data even indicated that entrepreneurs go a step further and actively integrate the customers into the product development process.

Customer focus is defined by the four subcategories: "gather customer information", "customer integration", "added value to customers", as well as "customer importance".

"Gather customer information" is the first sub-category of customer focus and refers to the acquisition of general customer information, the determination of customers' needs, wants and acceptance as well as the involvement of the customer by gathering feedback and talking to the decision making unit and lead users. As the example quotes from the data in Table 2 illustrate, respondents indicated that they gathered information about the customer internally and tried to assess the need of the customers. They further mentioned to collect information from the customers themselves, simply by talking to people and gathering feedback. Some respondents even mentioned their involvement with decision-making units and lead users. As the lead user method is a proactive market research method (Witell et al., 2011), this finding shows that respondents are not only concerned with expressed needs, but also consider latent needs. The sub-category "gather customer information" is in line other prominent market orientation scales. The measurements of both Kohli and Jaworski (1990) and Narver and Slater (1990) include items concerned with understanding and committing to customer needs and Kohli and Jaworski (1990) moreover include items relating to the collection of customer feedback and general information about customers in their scale (See Table 2)

The second sub-category of customer focus is customer integration, which refers to the active involvement of the customer. It goes beyond the mere assessment of customers' latent needs by talking to them and states:

> *...treat[ing] potential customers more as partners as opposed to only making them commercial quotes. (Id# 20220)*

As other example quotes in table 2 indicate, respondents further described the integration of the customer in the prototype testing process or the development of customized products. This sub-category, together with the previously defined focus on customer's latent needs, differentiates the market engagement concept from existing market orientation concepts. Consequently, none of the items used in established market orientation scales apply to this sub-category. While "gather customer information" is more in line with the "design for" customer involvement category defined by Kaulio (1998), "integrate customers" is more of a combination of the "design with" and "design by" categories. Respondents mentioned prototype testing ("designed with"), but the data is not clear on the depth of customer involvement concerning the development of customized products and treating customers as partners.

The third subcategory of customer focus "added value to customers" refers to the emphasis on identifying, understanding, formulating and explaining the added value to customers. As the example quotes from the data in Table 2 illustrate, respondents indicated that they try to identify and understand the value the product has for customers and make the value tangible for them. Respondents further talked about the formulation of value propositions. In particular Narver and Slater (1990) as well as Deshpandé and Farley (1998) mention the importance of creating customer value in measuring market orientation (See Table 2).

The fourth sub-category of customer focus is "customer importance", which refers to an emphasis on a customer complaint system, general customer satisfaction, key customers

Table 3 – Example quotes for competitor focus compared to similar items in literature

Sub-category	Example quotes from qualitative analysis	Similar item in literature
Gather competitor information	*I have knowledge of the competitive landscape concerning the product itself but also concerning a broad field of applications, industries and manufacturing companies. (Id# 80030)*	Narver & Slater (1990): – Our salespeople regularly share information within our business concerning competitors' strategies. – Top management regularly discusses competitors' strengths and strategies Jaworski & Kohli (1990): – In our business unit, intelligence on our competitors is generated independently by several departments – A lot of information "hall talk" in this business unit concerns out competitors' tactics or strategies. Deshpandé & Farley (1998): – We know our competitors well.
Be competitive	*Mostly our market exists for rapid prototypes, but more competition of suppliers occurs in this market...we should aim more at non existing markets, for example rapid manufacturing and customized manufacturing. (Id# 10160)* *We intend to do research to create faster end cheaper processes in order to be more competitive and serve the existing and new markets. (Id# 10160)* *Approaching more cities: the concept has to be released unexpectedly and with maximum impact to assure a headstart against big players. (Id# 40010)* *Finding the niche is important to be found and set yourself apart when you're a small company - triggered by feedback from customers, other companies. (Id# 40120)*	Narver & Slater (1990): – We target customers where we have an opportunity for competitive advantage. – We rapidly respond to competitive actions that threaten us. Jaworski & Kohli (1990): – We are quick to respond to significant changes in our competitors' pricing structures Narver & Slater (1990): – We are more customer focused than our competitors. – We compete primarily based on product or service differentiation. – Our products/services are the best in the business.

as well as customer service. Narver and Slater (1990), Kohli and Jaworski (1990) as well as Deshpandé and Farley (1998) all consider this sub-category in their market orientation scales as well (see Table 2). Narver and Slater (1990) further include items that are concerned with measuring customer satisfaction, formulating customer satisfaction objectives as well as after-sales services. Kohli and Jaworski (1990) asked respondents about customer satisfaction and argue that market orientation can be fostered by adapting reward systems to being at least partly market based, for example by considering customer satisfaction. Finally Deshpandé and Farley (1998) include items that are concerned with measuring customer service as well as putting the customer's interest ahead of anything else.

Competitor Focus

The third core category of market engagement, "competitor focus", refers to the emphasis on acquiring general competitor information and being competitive. Prior research suggests that competitor orientation is a central part of the market orientation concept (Lewrick et al., 2011). However, according to Kim and Mauborgne (2005), in order to ensure innovation and avoid "me too" products direct competition should be avoided and information should instead be used to create new and untapped market space (as cited in Lewrick et al., 2011). Similarly, the two categories resulting from the qualitative analysis reflect a focus of entrepreneurs on gathering general information about the

Table 4 – Example quotes for technological focus compared to similar items in literature

Sub-category	Quotes	Similar item in literature
Emphasis on high tech	*Research to implant new technologies inside the company in order to extend new market opportunities: (Id# 10160)* *Being a technology person, I have had thought that it is the most important issue in successful business. I have learned to look at the technology as an outsider. (Id# 20010)* *has been mentioned as one of 100 Top High-Tech companies in The Netherlands Our technology I-Sniff was selected by the journalists of De Pers as one of top five technologies of the year. (Id# 30090)* *CTO for further development of the product group (road-map) and technical know-how; now too much dependent on IACS Solutions on daily base. (Id# 30150)*	Zhou et al. (2005): – We use sophisticated technologies in our new product development. – Our new products always use state-of-the-art technology. Gatignon & Xuereb, (1997): – Our SBU uses sophisticated technologies in its new product development – Our new products are always at the state of the art of the technology
Innovation emphasis	*Open innovation and sharing ideas is most important for technology suppliers of layer manufacturing to be able to develop new technologies and bringing them to the market. (Id# 10160)* *My innovation can be applied in a way that there is a much broader audience (of software developers) (Id# 30020)*	– Zhou et al. (2005): – Technological innovation based on research results is readily accepted in our organization. – Technological innovation is readily accepted in our program/project management.
Technology push	*try to get the technology vision more widespread. (e.g. publications); if that happens, chances that people are interested in, and accept, the new technology are much higher; ideally I am not the only in this marketplace! (Id# 30020)* *Our customers do not always have enough background to understand the additional benefits from the use of our devices. That is why there is a need to make use of arguments which are not logical but work at psychology level. (Id# 30090)*	

competition as well as wanting to differentiate themselves from the competition. Thus, competitor focus is defined by the subcategories "gather competitor information" and "be competitive".

The first sub-category of competitor focus, "gather competitor information" refers to the acquisition of general information about the competitor. As the example quote from the data in Table 3 illustrates, respondents indicated e.g. a knowledge of the competitive landscape. As can be seen in Table 3, all three studies (Narver & Slater, 1990; Kohli & Jaworski, 1990; Deshpandé & Farley, 1998) consider the competitors in their market orientation scales. Narver & Slater (1990) question respondents about their concern with their competitor's strength and strategies, in particular if such information is shared and discussed within their company. Kohli & Jaworski, 1990, do not only ask respondents focused questions about their concern with their competitor's strength and strategies, but also about generating and disseminating general information about the competition. An example question would be, if the respondent has sufficient information about the competition to detect a campaign targeted at their customers and respond to it in a timely manner. Deshpandé & Farley (1998),

keep the question broad and simply ask respondents if they know their competitors well.

The second sub-category competitor focus is "be competitive". It refers to the emphasis on searching for new markets due to the high level of competition, differentiating from the competition, entering a market ahead of the competition as well as finding a niche market in order to be competitive. As the example quotes from the data in Table 3 illustrate, respondents e.g. shift the aim from a very competitive market towards a non-existing market:

> *Mostly our market exists for rapid prototypes, but more competition of suppliers occurs in this market...we should aim more at non existing markets, for example rapid manufacturing and customized manufacturing. (Id# 10160)*

They further indicated to develop production processes to be able to be more competitive as well as ensuring head starts against the competition and finding appropriate niche markets to give them a competitive advantage. Narver and Slater (1990) and Kohli and Jaworski (1990) focus more on the participants concern with achieving a general competitive advantage as well as staying competitive. Deshpandé and Farley (1998) want to know if respondents mainly compete on product and service differentiation or on being more customer focused than the competition (See Table 3).

Technological Focus

The fourth and final core category of market engagement " technological focus", refers to an emphasis on high-tech and innovation as well as pushing technologies on the consumer. As mentioned before, in order to create a basis for innovation companies should embrace a combination of both technological orientation and market orientation (Lewrick et al., 2011). A company that is too customer focused may lose the ability to successfully innovate, as it risks overlooking market or technology trends that the customer is not even aware of yet (Hortinha, Lages & Filipe Lages, 2011). Furthermore, the decision to include this finding in the market engagement concept was strengthened by Kohli and Jaworski (1990), who argue that while the main focus of market orientation is the customer, other forces such as competition, technology and regulations are also relevant. The core category "technological focus" is defined by the three sub-categories "high-tech emphasis", "innovation emphasis" and "technology push".

The first sub-category of technological focus was labeled "high-tech emphasis" and refers to a general concern with technological developments, a technological background of the entrepreneur, offering high-tech products as well as the companies' need for technological employees. As the example quotes from the data in Table 4 illustrate, some respondents showed a concern with technological developments. Others described coming from a technological background or being a "technological person" and indicated selling or developing high-tech products by e.g. mentioning:

> *[company name] has been mentioned as one of 100 Top High-Tech companies in The Netherlands Our technology I-Sniff was selected by the journalists of De Pers as one of top five technologies of the year. (Id# 30090)*

Finally, respondents mentioned their need for a technical employee (CTO). In their scale to measure technology orientation Zhou et al. (2005) as well as Gatignon and Xuereb (1997) also asked questions concerning respondents' emphasis on high-tech. They did, however, only ask whether sophisticated technologies are used in the product development process and whether their products are always at the state of the art of technology (See Table 4). Thus items such as the technological background and the need for technical employees are not included in prominent technological orientation scales.

The second sub-category of technological

Table 5 - Constructs and items

Dimension	Items
Market focus	Analyze market
	Define market
	PD based on market information
Customer focus	Gather customer information
	Customer integration
	Added value to customers
	Customer importance
Competitor focus	Gather competitor information
	Be competitive
Technological focus	High-tech Emphasis
	Innovation Emphasis
	Technology push

focus is "innovation emphasis" and refers to operating in an innovative environment that creates innovative, state of the art products. Respondents indicated to operate in an open environment as the following examples shows:

> *Open innovation and sharing ideas is most important for technology suppliers of layer manufacturing to be able to develop new technologies and bringing them to the market. (Id# 10160)*

The other example quote from the data in Table 4 illustrates respondents mentioning the creation of innovative products. Only Zhou et al. (2005) consider the innovation aspect in their measurement scale, asking whether innovative technology is readily accepted in their company (See Table 4).

The third sub-category of technological focus is technology push. It is the opposite of the market pull approach and refers to the push of new high-tech products on the consumer, as consumer benefits, needs, wants and acceptance are not clear prior to product development and technologies are so complex/new that they need to be explained to the consumer. Respondents indicated that consumer benefits are not clear prior to product development as the following example shows:

> *try to get the technology vision more widespread. (e.g. publications); if that happens, chances that people are interested in, and accept, the new technology are much higher; ideally I am not the only in this marketplace! (Id# 30020)*

The other example quote from the data in Table 4 illustrates how new technologies need to be explained to the customer.

Scale Refinement

In order to test the appropriateness of the 12 items capturing the four dimensions of market engagement (summarized in Table 5) and refine the scale, the qualitative data had to be quantified. Consequently, interpretations were converted into binary codes, resulting in an excel database with 175 cases, indicating whether an item was present (1) or absent (0) for the respective participants. Finally, this database was exported to SPSS to carry out the scale refinement, which involves an item analysis, an exploratory factor analysis as well as an evaluation of unidimensionality, reliability and validity.

Item Analysis

As a first step of the scale refinement procedure an item analysis was carried out. At first the corrected item-to-total subscale correlations were examined for each set of items capturing one of the four dimensions of market engagement.

Table 6 - Item-to-total correlation

Item	Cronbach Alpha	Item-to-Total Correlation
Market Focus	.400	
Analyze market		.336
Define market		.233
PD based on market information		.194
Customer Focus	.393	
Added value to customers		.245
Customer importance		.213
Gather customer information		.236
Integrate customer		.177
Competitor Focus	.128	
Gather competitor information		.073
Be competitive		.073
Technological Focus	.439	
High-tech emphasis		.273
Innovation emphasis		.325
Technology push		.273

According to theory, items with corrected item-to-total correlation below .50 are subjects for elimination (Arnold & Reynolds, 2003). As can be seen in Table 6 none of the 12 items fulfilled this limitation. Similarly, the item-to-item correlation matrix depicted in Table 7 shows that all items have a majority of correlations below the defined threshold of .20. Consequently, the item analysis shows that all items are subjects for elimination. However, as important it is to consider these values, it is not a cut in stone rule as theory-driven validity considerations also play a role (Field, 2009). Thus, for items not fulfilling these limitations item content should be carefully inspected for domain representation (Arnold & Reynolds, 2003). Consequently, another comparison with established market/technology orientation scales and theory was carried out to consider the validity of each item. This resulted in the elimination of the item "define market" in the "market focus" category, as it did not find significant support in theory.

Furthermore, Table 6 shows the reliability values for each subscale. According to Burns and Burns (2008) these values show a poor strength of association as they are below .6. Thus, the respective items do not seem to measure the same constructs.

Factor Analysis

Even though the item "define market" was excluded for further analysis, a principal component analysis was carried out on the 12 original items as well as a PCA for each of the four sub-categories see appendix G. It resulted in a five-factor solution that did not load into the pre-defined categories. Also, while the items for three of the four subcategories loaded into one factor, the items for the subcategory customer focus loaded into two factors, thus the four items may not be appropriate to capture the dimension customer focus.

The four-factor solution accounted for 53.54 % of variation and all the items showed factor loadings above 0.40. None of the items showed low communalities (>.30). The analysis did, however, reveal significant cross-loadings (> .40) for one item, making it subject to elimination.

Table 7 - Inter-item correlation matrix

	High-tech Emphasis	Innovation Emphasis	Technology Push	Be competitive	Gather competitor information	Analyze market	Define market	PD based on market information	Added value to customers	Customer importance	Gather customer info	Integrate customer
High-tech Emphasis	1.000	.253	.171	.183	.062	-.039	-.017	.080	.093	.072	.157	.259
Innovation Emphasis	.253	1.000	.274	.072	.068	.126	-.030	.165	.126	.170	.239	.119
Technology Push	.171	.274	1.000	-.075	.084	.143	.144	.235	.051	.060	.139	.036
Be Competitive	.183	.072	-.075	1.000	.073	.059	.025	.088	.137	.039	.205	.188
Gather competitor information	.062	.068	.084	.073	1.000	.096	.035	.197	.218	.039	.100	.016
Analyze Market	-.039	.126	.143	.059	.096	1.000	.258	.242	.110	.095	.142	-.054
Define Market	-.017	-.030	.144	.025	.035	.258	1.000	.050	.099	.122	.205	.072
PD based on market information	.080	.165	.235	.088	.197	.242	.050	1.000	.174	.157	.263	.025
Added value to customers	.093	.126	.051	.137	.218	.110	.099	.174	1.000	.274	.091	.151
Customer importance	.072	.170	.060	.039	.039	.095	.122	.157	.274	1.000	.177	-.086
Gather customer info	.157	.239	.139	.205	.100	.142	.205	.263	.091	.177	1.000	.224
Integrate customer	.259	.119	.036	.188	.016	-.054	.072	.025	.151	-.086	.224	1.000

After thorough consideration, the item "high-tech emphasis" was eliminated and another principal component analysis was conducted for the remaining 10 items.

Removing the above-mentioned item resulted in an improved four-factor solution that accounted for 56.10 % of variation. The sampling adequacy with a KMO value of 0.642 was slightly lower, but still within the appropriate range (Kaiser, 1974). All items showed high communalities (> .30) as well as factor loadings above .40. However, significant cross loadings could again be identified for one item, making it subject for elimination. After careful consideration, the item "gather customer information" was eliminated and another principal component analysis was conducted for the remaining nine items.

Removing the item "gather customer information" further improved the analysis resulting in a four-factor solution that accounted for 59.16 % of variation. The sampling adequacy decreased slightly with a KMO value of 0.614, but it continues to be appropriate. No significant cross loadings on the rotated factors could be identified, and all items showed factor loadings above .40. Moreover, all items had high communalities (> .30), and therefore none of the remaining items was subject to elimination.

Following rotation, the three items "gather competitor information", "product development based on market information" and "analyze market" rotated into factor 1, which accounted for 15.7 % of the variation. Factor 2 loaded on the two items "technological push" and "emphasis on innovation", which accounted for 14.9 % of the variation. The two items "integrate customer" and "be competitive" loaded into factor 3, which accounted for 14.4 % of the variation and finally the two factors customer importance and added value to customers loaded into factor 4, accounting for 14.2 % of the variation. Only two clear categories could be identified for the items that loaded in each factor, thus suggesting that factor 2 represents a technological focus and factor 4 a customer focus.

Finally, carrying out a principal component analysis (PCA) for each of the four factors showed that each of the categories loaded into one factor (see appendix H).

Unidimensionality and Reliability

As already experienced at the beginning of the analysis, the items do not seem to measure the same underlying dimension. The corrected item-total correlations of the subscale were all significantly below the threshold of 0.5.

Internal reliability was assessed by calculating the cronbach alpha for the nine-item scale. The scale produced an alpha of .501, which is significantly below the threshold of 0.7 that is according to Nunnally (1978) considered appropriate for exploratory research (Narver & Slater, 1990).

Validity

Combining all the components (i.e. the four factors defined above) of market orientation into one scale, results in a one-factor solution that explains 36.75% of the variance. Again, the cronbach alpha is too low and all the correlations are below the appropriate value of 0.5, which lets not suggest that convergent validity exists.

Discussion

This study explored how start-up entrepreneurs engage the market. The qualitative analysis of secondary data provided some interesting insides that lay the groundwork for a more complete research in the future. The data showed the concerns and issues that start-up entrepreneurs were facing at three different times in their business development process. Overall, the findings support the argument of Daft and Weik (1984) that entrepreneurs need to acquire information about technological developments, markets as well as competitors as base for their actions. Entrepreneurs' issues and concerns seemed to address the three uncertainties that

entrepreneurs face, which were defined by Amit et. Al, (1990). To overcome technical uncertainties, start-up entrepreneurs employ a technological focus, by e.g., investing in new technologies in order to extend market opportunities. Facing market uncertainties, start-up entrepreneurs engage in a market or customer focus to e.g. determine the demand (needs and wants) of the customers and analyze the market to ensure market possibilities. And finally, to overcome competitive uncertainties entrepreneurs employ a competitive focus by e.g. finding a niche market to ensure a competitive advantage.

These four focuses that were derived from the qualitative data also set this research apart from existing literature on strategic orientations. Researchers oftentimes either study market orientation, technological orientation or entrepreneurial orientation, sometimes combining two out of the three. Studies researching all three strategic orientations together are scarce. However, the few that exist (Hakala & Hohtamäki, 2011), indicate a positive relationship between the three strategic orientations and firm performance (e.g. Hakala & Hohtamäki; Spanjol et al., 2011). Considering that the participants taking part in the study are entrepreneurs (i.e. innovative, proactive and risk-taking) and therefore show characteristics similar to those of an entrepreneurial orientation, the findings suggest that all strategic orientations play a role for start-up entrepreneurs. This underlines the importance for researchers to move away from studying the strategic orientations in isolation, but to relate them to each other to find the best "mix" of applying these strategies to achieve the aspired results. The new construct market engagement, with its four dimensions market focus, customer focus, competitor focus and technological focus may be a good way to approach this.

A new approach has, in particular, implications for the study of entrepreneurship. According to Dyer, Gregersen & Christensen (2008), "one of the central questions addressed in the field of entrepreneurship is *why entrepreneurs recognize opportunities that nonentrepreneurs fail to recognize*" (p. 318). Being able to successfully measure the market engagement construct might be an important step in researching what differentiates entrepreneurs from non-entrepreneurs. Many researchers in the field of entrepreneurship argue that they differ because they gather and process information differently (Ozgen & Baron, 2007). Considering the findings of this study, an explanation could be that entrepreneurs might have a unique way of combining their entrepreneurial orientation with the right market, customer, competitor and technological orientation.

With regard to existing literature on market orientation, the findings of this study were much in line with the well-established market orientation scales of Narver and Slater (1990); Kohli and Jaworski (1990) as well as Deshpandé and Farley (1998). There were, however, some findings that could add to literature. In particular the qualitative analysis revealed a concern of start-up entrepreneurs with the market. Surprisingly, the literature review revealed that the market is not always a factor in measuring market orientation. The prominent market orientation scale by Narver and Slater (1990) does, for example, not include any items relating to the engagement of the market. The findings of this study agree with Kohli and Jaworski (1990), who include the items concerned with the acquisition of general market information and market trends in their scale. A significant number of start-up entrepreneurs mentioned the intention or the action of analyzing the market in the process of developing their business. The data further showed that start-up entrepreneurs not only acquire such information, but also use it in their product development process. This finding is also not properly represented in prominent market orientation scales, even though it indicates that information is not simply gathered, but actually applied by the start-up entrepreneurs.

Another interesting finding that goes beyond the market orientation construct, as it is currently measured, is the customer integration that start-up entrepreneurs described. Even though academics realized the need for a market orientation construct that considers the customers' latent needs (e.g. Narver et al., 2004), it still does not fully capture the customer integration that is, according to Witell (2011) necessary in order to create products that truly serve these latent needs. Start-up entrepreneurs did not only mention the concern with gathering general customer information (e.g. talking to customer), but also indicated a concern with latent needs by engaging with lead users. Furthermore, the data showed a level of customer involvement that is in line with the "designed by" and the "designed for" categories defined by Kaulio (1998). In particular, entrepreneurs mentioned the use or intention of prototype testing development of customized products and treating customers as partners. It could be that this finding is due to the closer relationships between the customer and the entrepreneurs as well as the lack of formal structures that was discussed before. It would, however, be interesting to find out in how far managers of mature companies involve the customer and how this is related to the market orientation construct.

Also, a significant number of entrepreneurs indicated a technological focus. While most consider the technological orientation as another strategic orientation, the decision was made to include this focus in the market engagement construct. According to Kohli and Jaworski (1990), market orientation includes an analysis of how customer needs and wants may be affected by external factors such as technology.

Finally, the data analysis did support the previous assumption that interdepartmental coordination does not play a role for start-up entrepreneurs. Most participants did not, yet, seem to work in structures that would make it necessary to share the information gained about customers and competitors. Thus, the decision to develop a scale more appropriate for the research of start-up companies was warranted.

Following the qualitative inquiry, the initial theoretical scheme of market engagement was analyzed using the principal component analysis. Despite the items not loading into the pre-defined categories, and the very weak reliability and validity values, this study is an important first step in the development of a contemporary scale that has potential to study the market engagement activities of start-up entrepreneurs. The factor analysis did not confirm the proposed four dimensions, "market information", "customer focus", "competitor focus" and "technological focus". Two of the three items that load highly on factor one are concerned with acquisition and application of market information, while the other item was previously sorted into the "competitor focus" dimension. This may be due to the fact that the analysis was based on qualitative data derived from a study that was not concerned with market orientation. Thus, instead of asking respondents directly about their activities, their answers were interpreted according to what the researcher believed to be an indication of market orientation activities. In particular, with regard to gathering market information it was difficult to distinguish what the respondent was really referring to. Respondents mentioned the analysis of the market or carrying out market research, but that could very well include the collection of information on competitors and customers. This could also be the reason why the item "gather customer information" was excluded, as it is also difficult to distinguish from the item "market analysis". Following this logic, Factor 1 could be understood as to include general information about the market (i.e. the market environment, customer and competitors) and using this information for further product development. Thus, the dimension might still be labeled "market focus".

The two items that loaded highly on factor two both relate to technology and thus the

label "technological focus" can still be applied. The decision to exclude the item "emphasis on high tech" was justified, as it was difficult to distinguish between a company simply describing its technology and a company that really put an emphasis on high-tech development, in the coding of the data. An entrepreneur from a technological background or the expressed need for a technical employee (CTO) might not be strong enough indicators for a technological focus. Furthermore, the category "high-tech company/offers high tech/ state of the art products" may be too similar to the "create innovative/state of the art products included in the "innovation emphasis" sub-category.

In the third factor, the two items "integrate customer" and "be competitive" loaded together. This might also be explained when considering that the market orientation scale of Deshpandé and Farley (1998) questions respondents on whether they are more customer focused than their competitors. Thus, viewing customer focus in itself as a competitive advantage. The sub-category "be competitive" does include a market side, i.e. differentiating by entering markets ahead of the competition and finding niche markets. It could be interesting to include the customer, i.e. the integration of customers to develop products and services that differentiate them from the competition. Future research would have to validate this theory. For now, the label "competitor focus" will remain.

Finally, the two items that loaded highly on the fourth factor both relate to customer focus and thus the respective label can still be applied.

The results of the factor analysis may be explained by the use of dichotomous variables, which are not considered appropriate for factor analysis. But the results can still be considered a good indication that the theoretical scheme is on the right way.

Limitation and Future Research

As mentioned before, this study is only a first step in the scale development process and therefore, it is still necessary for future research to appropriately refine and validate the proposed theoretical scheme. Consequently it is important to develop an independent sample, as the second step of the scale development procedure was only conducted using the same existing database that was used for the qualitative inquiry. Churchill (1979) does however recommend the use of an independent sample for the scale refinement process. Carrying out the scale refinement with an independent sample will answer whether the 12 proposed items really capture the four dimensions of market engagement. For this, the proposed questionnaire based on the theoretical scheme in Appendix I can be used.

Generalizability is an often-mentioned limitation in scale development research (Arnold and Reynolds, 2003). In this case, data for the qualitative analysis was derived from a survey carried out among participants of the VLT. In the course of this incubation program participants received some training on market awareness, which might differentiate them from the general population of entrepreneurs. Thus, the data does not necessarily mirror market orientation activities of "untrained" start-up entrepreneurs and consequently, further proof of generalizability is needed. Once evidence of generalizability is provided through multiple studies with independent samples, the scale can carefully be applied to research the market orientation activities among high-tech entrepreneurs.

An example of such a future research subject is the relationship between market engagement and entrepreneurship with regards to opportunity development (Short, Ketchen, Shook, & Ireland, 2010). Moreover, in accordance with Lewrick et al. (2011), who recommend studying the transformation process of growing companies with regard to market engagement and its influence on

innovation, it is recommended to study the market engagement activities of an entrepreneurial company from a start-up to mature company. Looking at the changes might improve the understanding of the market engagement concept (Lewrick et al., 2011).

Furthermore, with qualitative data analysis there is the issue of verifiability (Burnard et al., 2008). Data is not standardized and thus the analysis is dependent on the interpretation of the analyzer (Pope et.al, 2007). These "multiple coding concerns" are "the equivalent to inter-rater reliability in quantitative studies and are "a response to the charge of subjectivity sometimes leveled at the process of qualitative data analysis" (Barbour, 2001, p. 1116). Only one researcher was involved in coding the of the qualitative data and thus subjectivity, remains an issue. However, other persons have reviewed and discussed the coding framework, which is argued to minimize this issue (Barbour, 2001).

In connection to the issue of subjectivity it is important to note that literature was reviewed simultaneously to the coding process. According to theory, it is not advisable to consider established theory in the process as it bears the risk of influencing the researcher to only see what the theory implies and thus the researcher might be less open to new issues and findings (Walsham, 1991). However, if the researcher is aware of the need to preserve a considerable level of openness towards the data and is prepared to change initial assumptions and theories, an a priori theoretical application is not a limitation (Walsham, 1991).

Finally, as mentioned before, the surveys used for the qualitative analysis were not specifically aimed at the research of market orientation, but asked participants questions about their current issues and experiences, both in starting their new ventures and within the VLT incubator program. Analyzing such secondary data can be an advantage as it shows what the participants really concerns and not what answer the question may imply. However, it requires a lot of interpretation as concepts are not conceptualized prior to data collection. A respondent that refers to market analysis might actually talk about gathering information about customers and competitors. In retrospect it is difficult to distinguish what the term market really entails. To truly be able to differentiate between construct semi-structured interviews would be an appropriate research method.

Finally, the questionnaire was in English and most participants answered the questions in English even though most of them were not native speakers. This and the fact that the researcher is also not a native speaker further increased the risk of misinterpretation.

References

Arnold, M. J., & Reynolds, K. E. (2003). Hedonic shopping motivations. *Journal of retailing*, 79(2), 77-95.

Appiah-Adu, K., & Singh, S. (1998). Customer orientation and performance: a study of SMEs. *Management decision*, *36*(6), 385-394.

Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: a case of the tail wagging the dog?. *BMJ: British Medical Journal*, *322*(7294), 1115.

Bennett, R. C., & Cooper, R. G. (1979). Beyond the marketing concept. *Business Horizons*, *22*(3), 76-83.

Burnard, P., Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Analysing and presenting qualitative data. *British dental journal*, *204*(8), 429-432.

Burns, R. P., & Burns, R. (2008). Business research methods and statistics using SPSS. *Sage*.

Churchill Jr, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research* (JMR), 16(1).

Daft, R. L., & Weick, K. E. (1984). Toward a model of organizations as interpretation systems. *Academy of management review*, 9(2), 284-295.

Deshpandé, R., & Farley, J. U. (1998). Measuring market orientation: generalization and synthesis. *Journal of Market-Focused Management*, 2(3), 213-232.

Deshpandé, R., Farley, J. U., & Webster Jr, F. E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis. *The journal of Marketing*, 23-37.

Drucker, P. F,(1954) The Practice of Management. *New York: Harper and Row*, *252*, 353-364.

Dyer, J. H., Gregersen, H. B., & Christensen, C. (2008). Entrepreneur behaviors, opportunity recognition, and the origins of innovative ventures. *Strategic Entrepreneurship Journal*, *2*(4), 317-338.

Field, A. (2009). *Discovering statistics using SPSS*. Sage publications.

Füller, J., & Matzler, K. (2007). Virtual product experience and customer participation—A chance for customer-centred, really new products. *Technovation*, *27*(6), 378-387.

Gatignon, H., & Xuereb, J. M. (1997). Strategic orientation of the firm and new product performance. *Journal of marketing research*, 77-90.

Hakala, H., & Kohtamäki, M. (2011). Configurations of entrepreneurial-customer-and technology orientation: differences in learning and performance of software companies. *International Journal of Entrepreneurial Behaviour & Research*, 17(1), 64-81.

Von Hippel, E., & Katz, R. (2002). Shifting innovation to users via toolkits. *Management science*, *48*(7), 821-833.

Homburg, C., & Pflesser, C. (2000). A multiple-layer model of market-oriented organizational culture: measurement issues and performance outcomes. *Journal of marketing research*, 37(4), 449-462.

Hortinha, P., Lages, C., & Filipe Lages, L. (2011). The trade-off between customer and technology orientations: impact on innovation capabilities and export performance. *Journal of International Marketing*, *19*(3), 36-58.

Hougaard, S. (2004). The business idea: the early stages of entrepreneurship. *Springer*.

Hult, G. T. M., & Ketchen, D. J. (2001). Does market orientation matter?: A test of the relationship between positional advantage and performance. *Strategic management journal*, *22*(9), 899-906.

Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: antecedents and consequences. *The Journal of marketing,* 53-70.

Jaworski, B. J., & Kohli, A. K. (1996). Market orientation: review, refinement, and roadmap. Journal of Market-Focused Management, 1, 119-135.

Jones, R., & Rowley, J. (2011). Entrepreneurial marketing in small businesses: a conceptual exploration. *International Small Business Journal*, *29*(1), 25-36.

Kaulio, M. A. (1998). Customer, consumer and user involvement in product development: A framework and a review of selected methods. *Total Quality Management*, *9*(1), 141-149.

Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: the construct, research propositions, and managerial implications. *The Journal of Marketing*, 1-18.

Lewrick, M., Omar, M., & Williams Jr, R. L. (2011). Market Orientation and Innovators' Success: an Exploration of the Influence of Customer and Competitor Orientation. *Journal of technology management & innovation*, 6(3), 48-62.

Martin, J., & Faircloth, A. (1995). Ignore your customer. *Fortune*, *131*(8), 121-126.

Matsuno, K., Mentzer, J. T., & Özsomer, A. (2002). The effects of entrepreneurial proclivity and market orientation on business performance. *The Journal of Marketing*, 18-32.

Mäkelä, M. M., & Turcan, R. V. (2007). Building grounded theory in entrepreneurship research. *Handbook of qualitative research methods in entrepreneurship*, 122-143.

Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management science*, 29(7), 770-791.

Narver, J. C., & Slater, S. F. (1990). The effect of a market orientation on business profitability. *The Journal of Marketing*, 20-35.

Narver, J. C., Slater, S. F., & MacLachlan, D. L. (2004). Responsive and Proactive Market Orientation and New Product Success*. *Journal of Product Innovation Management*, 21(5), 334-347.

Ozgen, E., & Baron, R. A. (2007). Social sources of information in opportunity recognition: Effects of mentors, industry networks, and professional forums. *Journal of business venturing*, *22*(2), 174-192.

Du Plessis, E., & Human, S. P. (2009). Reflecting on 'meaningful research': A qualitative secondary analysis. *Curationis*, *32*(3), 72-79.

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761-787.

Roersen, M. J., Kraaijenbrink, J., & Groen, A. J. (2013). Marketing Ignorance and the Validity of Narver and Slater's MKTOR Scale in High-Tech Russian Firms. Journal of Product Innovation *Management*, 30(3), 545-559.

Shane, S. A. (2003). A general theory of entrepreneurship: The individual-opportunity nexus. *Edward Elgar Publishing*.

Short, J. C., Ketchen, D. J., Shook, C. L., & Ireland, R. D. (2009). The concept of" opportunity" in entrepreneurship research: Past accomplishments and future challenges. *Journal of Management*.

Slater, S. F., & Narver, J. C. (1995). Market orientation and the learning organization. *The Journal of Marketing*, 63-74.

Spanjol, J., Qualls, W. J., & Rosa, J. A. (2011). How Many and What Kind? The Role of Strategic Orientation in New Product Ideation*. *Journal of Product Innovation Management*, *28*(2), 236-250.

Strauss, A., & Corbin, J. M. (Eds.). (1997). *Grounded theory in practice*. Sage.

Walsham, G. (1991). Organizational metaphors and information systems research. *European Journal of Information Systems*, *1*(2), 83-94.

Witell, L., Kristensson, P., Gustafsson, A., & Löfgren, M. (2011). Idea generation: customer co-creation versus traditional market research techniques. *Journal of Service Management*, *22*(2), 140-159.

Zhou, K. Z., Kin, C., & Tse, D. K. (2005). The effects of strategic orientations on technology-and market-based breakthrough innovations. *Journal of marketing*, 42-60.

Appendix A – Open-ended questions asked

Learnings
- What were the most important things that you have learned in the past four months?
- Which of these had the most impact on your business development? How?
- Which trainer/training made the most impact on you? Why?

Results
- What are the most important results that you have made in the past four months?
- When you started in VentureLab, we asked you which business start-up activities you have been involved in

Partners
- Is your team complete? If you believe your team is incomplete, what type of member(s) would complete the team? Please provide the role of this member (e.g., CEO, CFO, etc.) and the concrete contribution he or she should make to the business, e.g. somebody who knows the German market very well.
- If you believe your team is incomplete, what actions will you take to complete the team, if any?

Ambitions
- Have your ambitions changed since you joined VentureLab?
- If your ambitions have changed, please explain what has changed and why:

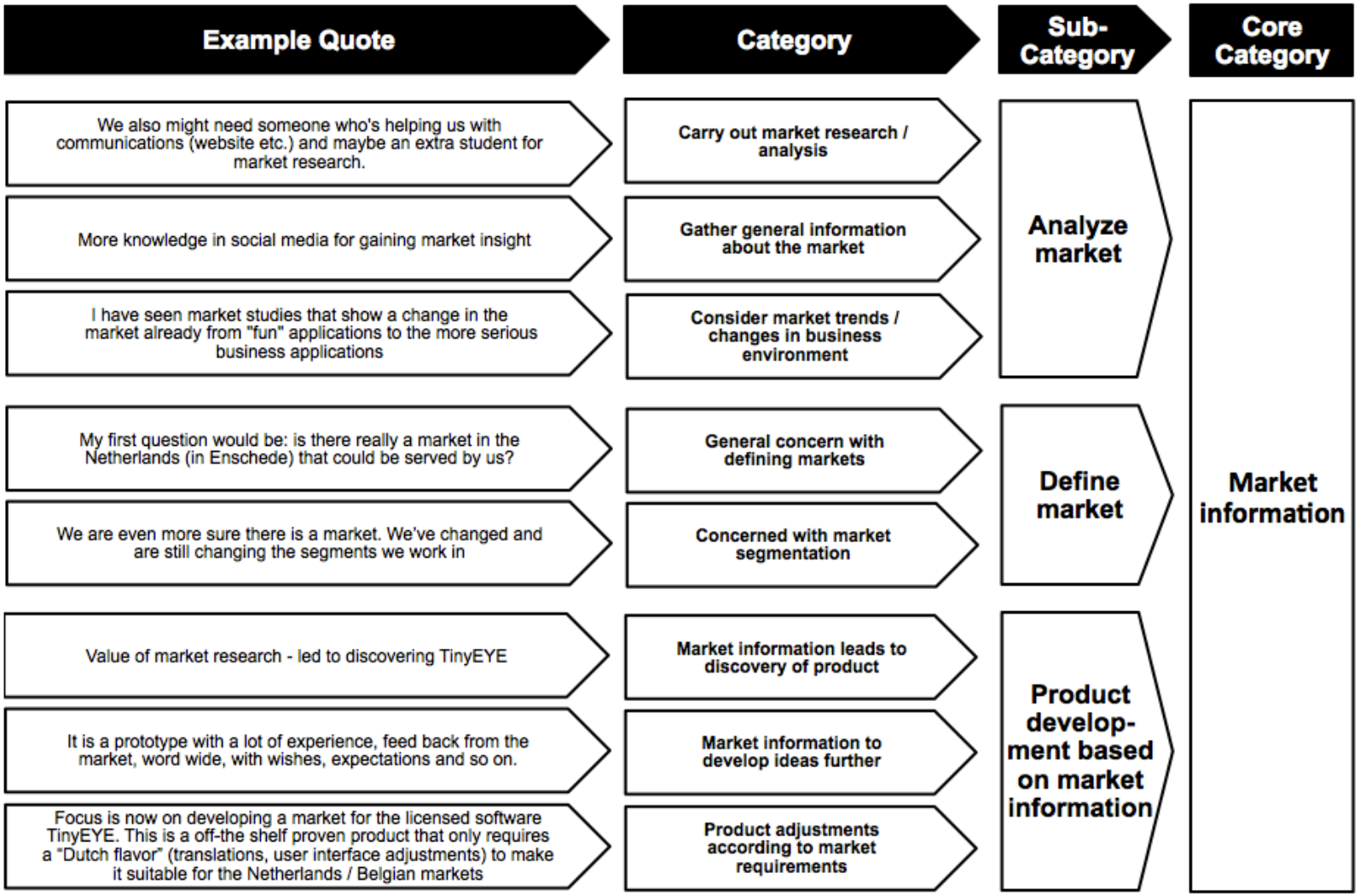
Satisfaction and expectations
- Please give details about your satisfaction and expectations:
- What were the three most important contributions of your coach in the last 4 months?

Issues
- What issues did you work on in the past four months? Please summarize each issue in a couple of sentences and explain why it was important.
- ‡ What were the three most important issues you faced in the past year?
- * Who or what has been most helpful in dealing with the issues mentioned in 8.2?

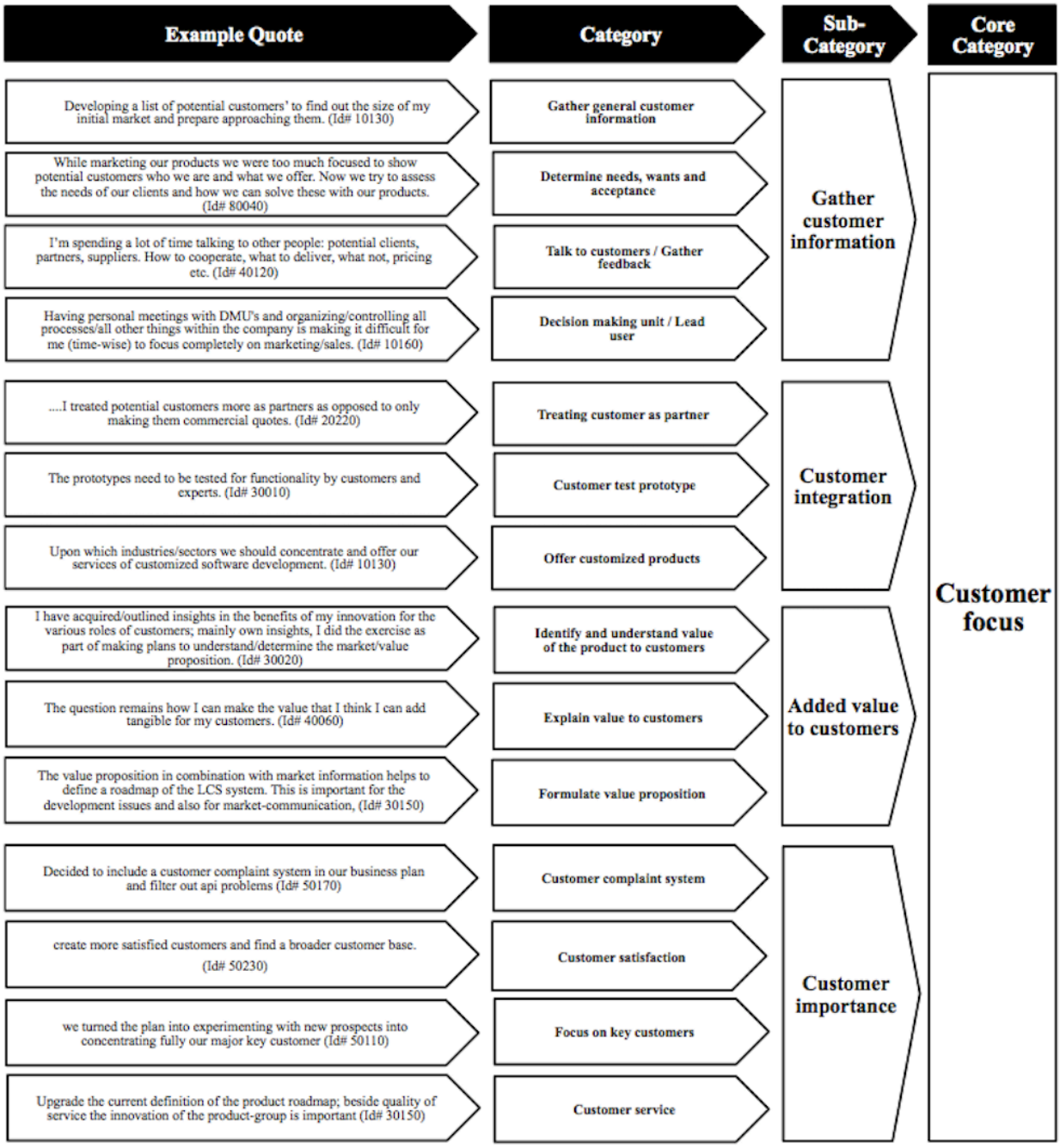
Next Steps
- What are the issues/questions you currently have? Please describe each issue/question in a couple of sentences and indicate why it is important.
- What are the next steps that you are going to take in the coming four months? Please describe each step in a couple of sentences and indicate why you chose to take these steps.

* only asked in the third questionnaire END

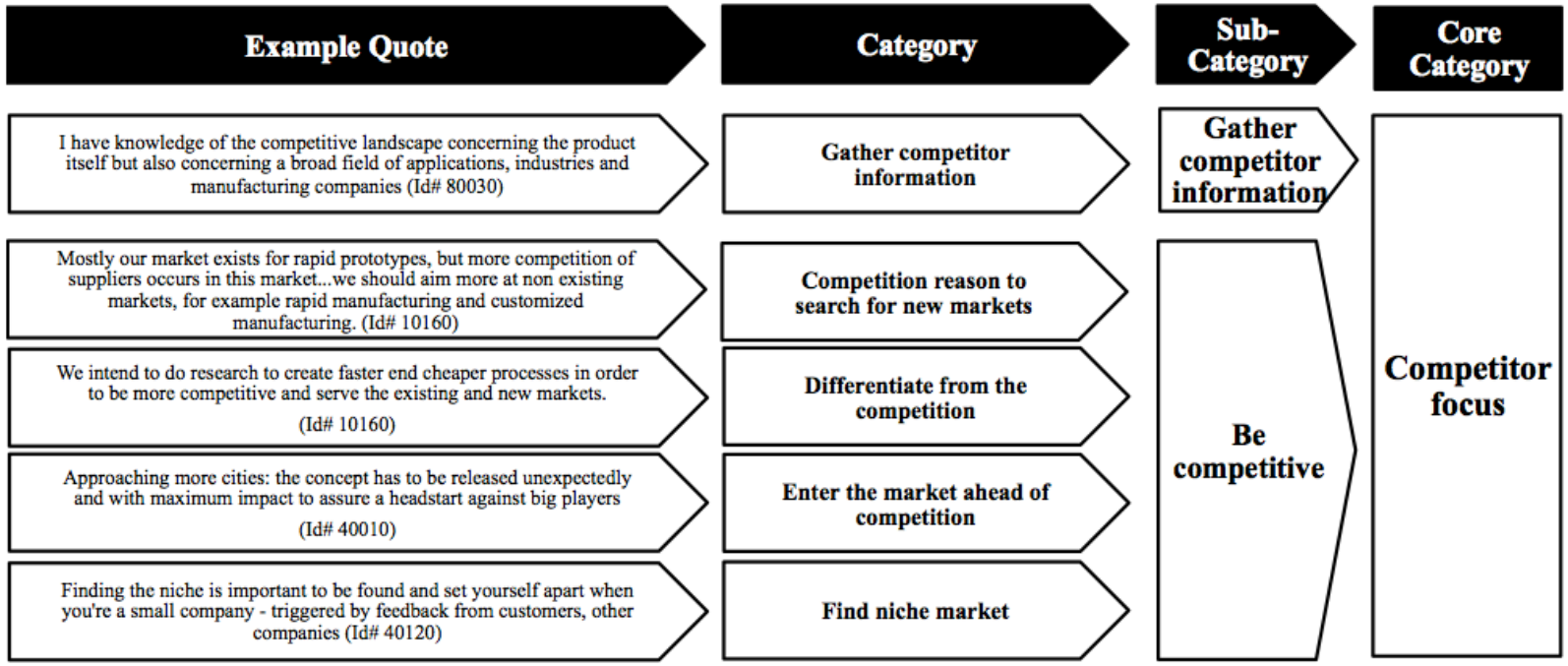
Appendix B – Coding Process – Market information



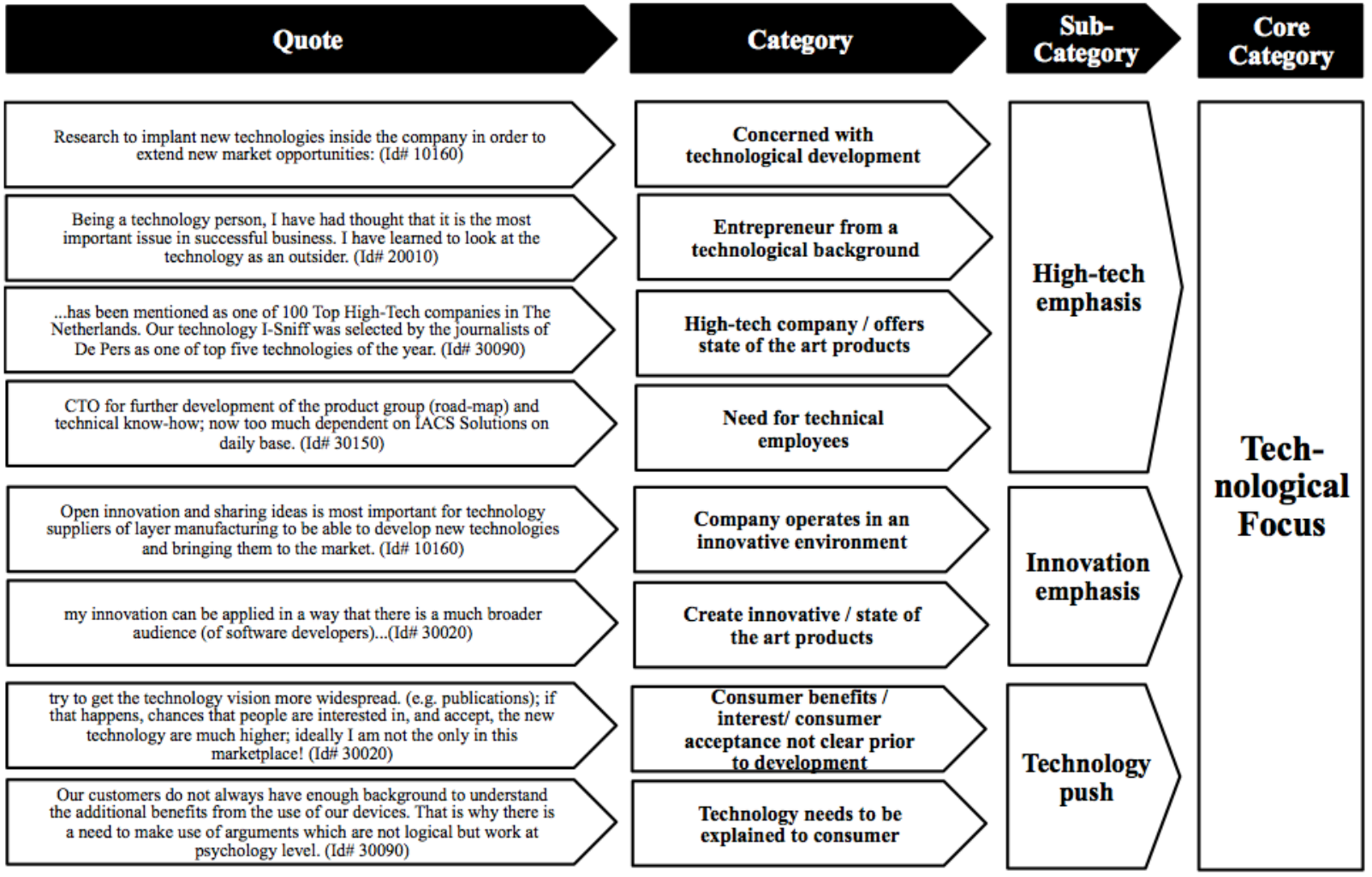
Appendix C – Coding process – Customer focus



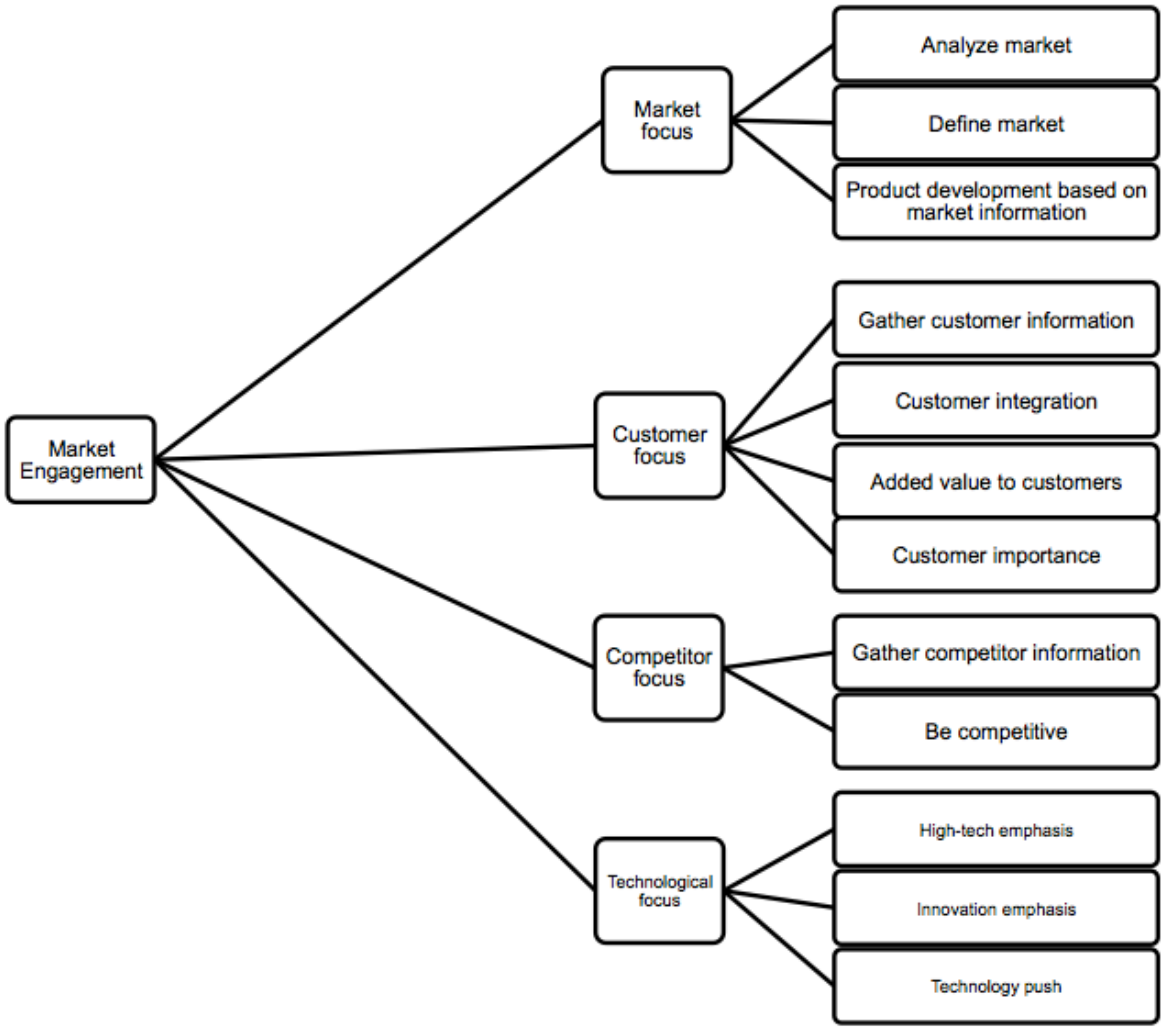
Appendix D – Coding process – Competitor focus



Appendix E – Coding process – Technology focus



Appendix F – Theoretical Scheme



Appendix G – Principal component analysis for original theory scheme, including PCA of subscales

Table 8– Principle component analysis for 12 originally proposed variables

	Rotated Factor Loadings				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Technology push	.726	-.127	.230	-.133	.134
Innovation emphasis	.714	.129	-.052	.220	.031
Integrate customer	.109	.750	.020	-.129	-.049
Be competitive	-.162	.654	.048	.139	.160
High-tech emphasis	.492	.499	-.213	.067	-.027
Gather customer info	.290	.444	.418	.143	.047
Define market	-.059	.111	.800	.070	-.124
Analyze market	.098	-.105	.656	.033	.277
Customer importance	.158	-.101	.126	.869	-.083
Added value to customers	-.046	.215	.018	.621	.379
Gather competitor information	-.015	.068	-.036	.023	.828
PD based on market information	.339	.000	.250	.109	.551
Eigenvalues	1.55	1.55	1.43	1.29	1.28
% of variance	12.958	12.941	11.904	10.723	10.681
Cronbach Alpha	.388	.492	.427	.400	.328

Table 9 - Component matrix market focus

Item	Market focus
Analyze market	.801
Define market	.622
PD based on market information	.593
Eigenvalues	1.379
% of variance	45.973
Cronbach Alpha	.400

Table 10 - rotated factor loadings: customer focus

Item	Factor 1	Factor 2
NEW Customer importance	.863	-.107
NEW Added value to customers	.678	.242
NEW Integrate customer	-.124	.870
NEW Gather customer info	.291	.642
Eigenvalues	1,306	1,240
% of variance	32,646	30,991
Cronbach Alpha	.400	.355

Table 11 - Component matrix competitor focus

Item	Market focus
Be competitve	.733
Gather competitor information	.733
Eigenvalues	1.073
% of variance	53.662
Cronbach Alpha	.128

Table 12 - Component matrix technological focus

Item	Market focus
Innovation Emphasis	.755
Technology push	.683
High-tech Emphasis	.657
Eigenvalues	1.468
% of variance	48.931
Cronbach Alpha	.439

Appendix H - PCA for subcategories

Table - Component matrix factor 1

Item	Factor 1
PD based on market information	.761
Analyze Market	.663
Gather competitor information	.588
Eigenvalues	1.363
% of variance	45.436
Cronbach Alpha	.332

Table - Component matrix factor 2

Item	Factor
Innovation emphasis	.798
Technological push	.798
Eigenvalues	1.274
% of variance	63.722
Cronbach Alpha	.388

Table - Component matrix factor 3

Item	Factor
Be competitive	.771
Integrate customer	.771
Eigenvalues	1.188
% of variance	59.396
Cronbach Alpha	.314

Table - Component matrix factor 4

Item	Factor
Added value to customers	.798
Customer importance	.798
Eigenvalues	.1274
% of variance	63.691
Cronbach Alpha	.400

Appendix I – Questionnaire for future research on qualitatively defined dimensions

Item	Question
Analyze market	I continuously collect a lot of information about the market and/or industry.
	I continuously try to detect market trends / changes in the business environment.
Product development based on market information	The market information that I gather is used to discover new product and/or develop ideas further.
	I adjust products according to market requirement.
Gather customer information	I continuously talk to my (potential) customers to gather feedback.
	I continuously try to determine my customer's needs, wants and acceptance.
Customer integration	I continuously involve (potential) customer in the product development process.
	I work together with decision making units (DMUs) and lead users.
Added value to customers	I continuously try to identify and understand the value of my product to the (potential) customer.
	I have formulated and communicated a value proposition.
Customer importance	I have (plan to) established a customer complaint system.
	I give close attention to after-sales service. (Narver & Slater, 1990)
	My business objectives are driven primarily by customer satisfaction. (Narver & Slater, 1990)
Gather competitor information	I continuously collect information about my (potential) competitors.
	I have gathered a lot of information on my (potential) competitor's strength and weaknesses.
Be competitive	I put continuous effort in differentiating myself from the competition.
	I search for new markets in order to have fewer competitors.
Emphasis on high-tech	I am continuously concerned with technological developments in order to stay competitive.
Emphasis on innovation	I make sure that products are always at the state of the art of the technology. (Gatignon & Xuereb, 1997)
Technology push	I am not aware if the technology will be accepted by the consumer prior to development.