Servitization
The impact of organizational culture on service orientation

Master Thesis

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Abstract

This thesis is written in order to finalize the Master of Business Administration at the University of Twente. The topic of this research is the impact of organizational culture on service orientation and the research is executed at the Dutch subsidiary of a large IT company. The findings of this study are that the organizational cultures clan and adhocracy have a positive relation to service orientation.

Keywords: Servitization, Product-service systems, IT, Product vs. service orientation, Organizational culture, Cultural change.

Preface

This report is the result of my graduation project for the Master Business Administration - Innovation and Entrepreneurship. A combination of the knowledge and skills acquired during my studies are shown in this report. Conducting the research at a subsidiary of an international IT company gave me the opportunity to write my thesis and get practical experience at an international environment. This combination made it a fun and challenging project in which I learned a lot.

Writing my thesis would not have been possible without the help of others therefore I would like to use this part to thank some persons in particular.

First, I would like to thank my supervisors from the University of Twente, Jann van Benthem and Michel Ehrenhard, for their guidance, support and critical view and constructive criticism during this project.

In addition I would like to thank the international IT company for the opportunity of being part of the internship program. Working and writing my thesis at a company made me experience an international and dynamic working environment and confirms that I want to work in an environment which is dynamic and offers challenges.

In particular, I would like to thank my manager Pam Baauw, who supported me and always had a critical view at the things I did. Besides I would like to thank my buddy Pieter Schouten for his support, interesting conversations and sharing his working experience.

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Eline Wijbenga, Utrecht

Management Summary

Traditional products alone cannot make the difference anymore in the changing competitive environment. Increasing complexity, because of specialization, and dynamic value networks require new approaches. Servitization is seen as an outcome. But there are also challenges in the execution of a service strategy. This research focuses on the challenge of cultural mindset among employees when shifting from a product-oriented organization to a service-oriented organization.

Ceschin (2012) argues that in order to support a more service oriented business it is needed to implement changes in the corporate culture and organization. This research focuses on the relationship between organizational culture and service orientation. The following research question is the starting point of the research:

"What is the effect of organizational culture on service orientation?"

Organizational culture is divided into clan, adhocracy, market, and hierarchy culture based on the Organizational Culture Assessment Instrument of Cameron and Quinn (1999). A service culture is needed to support servitization. Therefore a change is required from a product-oriented organization to a service-oriented organization. This can be viewed as a transformation from an old product-oriented core task to more customer- and service-oriented core task (Nuutinen & Lappalainen 2012). According to Nuutinen and Lappalainen (2012) organizations need to make a change in de following dimensions, namely understanding service business, management practices, development practices and customer relationship.

To answer the research question a literature study is executed and empirical data is obtained from an online survey at the Dutch subsidiary of an international IT company. Afterwards the hypotheses are tested with the use of a linear regression analysis. Based on the tested hypotheses it can be concluded that the *clan culture* and *adhocracy culture* both have a positive relationship with service orientation. The *market culture* has shown to have a negative relationship with service orientation. The *hierarchy culture* did not show a significant relationship with service orientation.

As clan culture has the most positive effect on service orientation it is necessary to further develop or change the organizational culture into a clan culture. Some practical implications to change or develop clan culture are: design a career development program which focuses on mobility and cross-functional communication, develop programs to increase teambuilding, change incentive to make middle manager more innovative and independent, and make an assessment of the training needs in each unit.

Content

1. Introduction

This introduction describes the concept of servitization and introduces the challenge of organizational (service) culture within servitization. The first paragraph starts with the background of this research. Paragraph two presents the research goal. The third paragraph includes the research questions and the fourth paragraph describes the relevance of this research. This first chapter ends with paragraph five and shows the outline of this research report.

1.1. Background

The trend of adding value to the core corporate offerings by services is pervading in a lot of corporations, including almost all industries, throughout the world. This customer demand-driven trend is perceived by corporations as sharpening their competitive edges. Launching services involve more than the traditional product-based financial benefits as market share, sales and profits. Improving the competitive standing of the company as a whole is an additional benefit of services (Storey & Easingwood, 1998). More and more organizations are increasingly offering fuller market packages or "bundles" of customer-focused combinations of goods, services, support, self-service, and knowledge. Within this movement services are beginning to dominate and this is known as the "servitization of business". Servitization[1] is a powerful new feature of total market strategy (Vandermerwe & Rada, 1988).

Although the servitization strategy is increasingly popular with policy makers and academics there is limited empirical evidence to explore the extent to which it is being adopted in practice and what the impact of servitization is (Neely, 2008). According to Vandermerwe and Rada (1988), servitization has a critical impact on the way managers think, act, and do business in the future. Companies face the challenge of changing mindsets within the company but even in its supplier en customer network (Vladimirova et al. 2011). This paper will only focus on the internal shift of organizational culture from a technology-led to service-oriented and from features-lead to value-based culture. In a more detailed sense this research investigates the relationship between organizational culture and servitization.

This research is conducted at a leading global IT company which is shifting along the servitization continuum. During this investigating the effect of organizational culture on service orientation is measured.

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[1] As the research on servitization developed across various disciplines, alternative terms have been advanced to refer to the same phenomenon (e.g. service orientation, service transition, industrial services, service strategy in manufacturing, product-related services, product-services, total solutions, hybrid solutions, integrated solutions, service maneuvers, product-service systems, servicizing, servitisation, servicisation).

1.2. Research goal

The goal of this research is to investigate the relationship between organizational culture and the challenge of servitization, service culture. As companies are more and more selling en promoting to sell services and bundles of products and services it is important to understand the impact of organizational culture on servitization. The way employees think, act and make decisions underlies the success of a service strategy.

This research provides empirical evidence on organizational culture in a servitization context and is therefore an addition to the literature on servitization. The findings of this research give insight in the relationship between organizational culture and service orientation. In addition insight in the organizational culture will help to implement the service strategy and as a result add more value to the customers business.

1.3. Research questions

As mentioned in the background and research goal this research is about servitization and organizational culture. The aim of this research is to investigate the effect of organizational culture on service orientation. This paragraph presents the research questions which are designed to gain insight to the research objective. The central research question is a relationship-based quantitative research question and is formulated as follows:

"What is the effect of organizational culture on service orientation?"

To answer this central research question the next research questions are formulated. Answering the more specific research questions below leads to the answer of the central research question.

> 1. What is service orientation?
> 2. What is organizational culture?

These sub-questions help to identify service orientation and organizational culture. Prior theory will be used to provide an answer on these sub-questions.

1.4. Theoretical and Practical Contribution

This paragraph discusses the theoretical and managerial relevance of the research.

In the last couple of years a lot is written and there are more articles to be published on servitization. As there is a lot of attention for this concept it is an interesting and "hot topic" to investigate. This research makes several contributions to the literature on servitization.

First of all, the research focuses on one of the challenges of servitization. In more detail this research investigates the effect of organizational culture on service orientation, which has not been empirically tested before.

This study provides empirical evidence for the relationship between organizational culture and service orientation. The effect of organizational culture on service orientation deepens existing knowledge.

Besides, servitization is interesting for practitioners, because servitization has an impact on the way business is executed. According to Vandermerwe and Rada (1988), servitization has a critical impact on the way managers think, act, and do business in the future. Different authors (Deshpandé, Farley, and Webster 1993; Vargo and Lusch 2004) mention that service and product/manufacturing businesses require different organizational processes, cultures, leadership, and structures. One other aspect that differs between the performance of services and products success is the culture which is focused respectively on people or depends on technology innovation and product value (Bharadwaj, Varadarajan & Fahy, 1993).

This research also makes some practical contributions. In order to implement a service strategy, organizations must change their culture from technology and product focused to a focus on service and people. This research gives insight in the organizational cultures that have a positive effect on service orientation. When there is insight in which culture has a positive effect on service orientation, organizations can create the appropriate culture when they want to implement a service strategy. This research is executed at a subsidiary of an international IT company and therefore the results are interesting for companies in this sector, the IT sector.

1.5. Outline of the research report

This paragraph gives an overview of the outline of this report. The introduction provides the context and focus of this research. The second chapter presents the theoretical framework which is a basis for answering the research questions. The theoretical framework gives an overview of servitization theory, service strategies, the challenge of servitization and organizational culture. The challenge of service culture and organizational culture are described and linked to each other. Based on these theories several hypotheses will be conducted. Chapter three discusses the methodology used in this study. Regression analyses will be used to test the formulated hypotheses. The main findings of these analyses are presented in chapter four. The last chapter presents the conclusions based on theory and the results from the analyses. Furthermore, the limitations of the research and recommendations for future research are discussed.

Table 1: Outline of the research report

Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5
Introduction	Theoretical Framework	Methodology	Results	Conclusion

2. Theoretical framework

2.1. Why servitization?

Manufacturing firms are increasingly adopting "servitization" - a business model innovation whereby existing product offerings are extended through the provision of related services (Neely, 2008). Servitization, selling a combination of products and services, is not new. "System selling" strategies were already known in the 1960s (Davies et al., 2006). But Vandermerwe and Rada (1988) first introduced the notion of servitization in their study of companies which bundle products and services to add value to their business offering.

Aurich, Mannweiler and Schweitzer (2010) also mention that companies feel the necessity to enhance competitive position by offering comprehensive solutions, because of the changing market environment. As a responds to the pressure of changing market environment a stream of literature has assigned the "product-service system" (PSS) concept as an answer. The main goal of PSS was to reduce consumption through alternative schemes of product use as well as to increase overall resource productivity and dematerialization (Mont, 2000). PSS is defined as "Product(s) and service(s) combined in a system to deliver required user functionality in a way that reduces the impact on the environment" and is based on the first definition by Goedkoop et al. (1999).

Other research papers (Reinartz & Ulaga, 2008) show that moving into the service business is not always profitable and often leads to a "service paradox" (Gebauer et al., 2005). In which substantial investment in extending the service business leads to increased service offerings and higher costs, but does not generate the expected correspondingly higher returns.

There are several positive effects of servitization on organizations. The first thing is that services offer growth opportunities for an organization specifically when the organization has a large base of installed products (Canton, 1984; Sawhney et al., 2004). Secondly, product-related services offer higher margins than products (Anderson & Narus, 1995;

Gadiesh & Gilbert, 1998; Reinartz & Ulaga, 2008; Wise & Baumgartner, 1999). And third, services generate steadier flows of revenue, as services are more resistant to economic cycles (Canton, 1984; Cohen et al., 2006; Cusumano, 2004; Quin et al., 1986).

The best thing is to make a transition to services which are related to the core product business, because services that are not related to the product business may decrease fir m value (Neely, 2008).

2.2. Differences between selling products and services

To understand the concept of servitization it is important to understand the difference between products and services. Table 2 summarizes the differences between products and services based on Gauci and Hill (2003) and Aurich et al. (2010).

Being successful in the PSS business requires a firm-wide initiative; PSS development and sales cannot be delegated to any single function in the organization (Storbacka, 2011). The difference between product business and service business is that services require more collaborative management and the customer is more involved in the business planning. Besides measures used to control the business have to acknowledge its cross-functional nature (Storbacka, 2011). Service is defined by Vargo and Lusch (2004) as "the application of specialized competences (skills and knowledge), through deeds, processes, and performances for the benefit of another entity or the entity itself". This definition suggests considering a service orientation as a fundamental philosophy or strategy of doing business that can be applied to any market offering.

Table 2: Differences between product and service

Differences	Product	Service
Intangibility	o Highly tangible o Quality can be measured prior to purchase	o Highly intangible o Difficult to measure quality in advance
Heterogeneity	Highly standardized	More customized
Inseparability	Production without integration of customers	Interaction between supplier and customer represents realization of services
Perish ability	o Easily available o Possible to store	o Need to make appointment o No storage of inventory possible
Ownership	Change of ownership after purchase	No change of ownership after purchase

2.3. Service Strategies: What type of services to offer?

Oliva and Kallenberg (2003) introduced the goods-services continuum in which the extension of service business is conceptualized. This continuum gives an overview of the relative importance of tangible goods vs. services. At the left extreme point of the continuum, firms achieve a competitive position as a product manufacturer. They mainly produce core products, with services purely as add-ons. Profits and revenue are almost only generated through the company's core products and the contribution of services is quite low in terms of revenue, profit, and customer satisfaction. Only in the product marketing strategy are services one of the main differentiating factors. On the other extreme point of the continuum, the right end, services are the core and products are particularly seen as add-on. The result is that at this extreme point products only represent a small part of the value creation.

Product-manufacturing companies moving within this continuum create additional competitive advantage leading to a different competitive position (Gebauer, 2006). According to Gebauer (2008) are companies redefining their position along the Product-service continuum overtime and moving towards increasing service dominance (Gebauer, 2008).

The two perspectives on services from Vargo and Lusch (2006) can be seen in the light of the service continuum. The first one views goods as the primary focus of exchange and services as either a restricted type of intangible good or as an add-on that enhances the value of a good (goods-dominant (G–D) logic). The second perspectives, the service-dominant logic (S-D-logic) considers service (singular) in its own right, and identifies service as the primary focus of exchange.

Considering the goods-services continuum there are several strategies an organization can obtain. According to Neely (2008) there are five options of servitization. The first option is Integration Oriented PSS and involves going downstream by adding services through vertical integration. One way of thinking about integration oriented PSS is by thinking of products plus services. The second option is Product Oriented PSS which transfers the ownership of tangible products to the customer but additional services directly related to the product are provided. One can conceptualize product oriented PSS as products plus services that are integral to the product. The third option is Service Oriented PSS and incorporates services into the product itself. Ownership of the tangible product is still transferred to the customer, but additional value added services are offered as an integral part of the offering. This option involves a coupled product and service, as opposed to product plus service. The fourth option is Use Oriented PSS which shifts focus to the service (which is delivered through product). Often ownership of the tangible product is retained by the service provider, who sells the functions of the product, via modified distribution

and payment systems, such as sharing, pooling, and leasing. The fifth option is result oriented PSS and seeks to replace the product with a service, thereby doing away with the need for the product, or certainly an individually owned product.

Within these five Product-Service Systems identified by Neely (2008) there are twelve different forms of services. Consultancy services, financial services, retail and distribution, transportation and trucking services and property and real estate services are involved in Integration oriented PSS. Service offerings that are directly related to the product, such as design and development services, installation and implementation, maintenance and support services, outsourcing and operating and procurement services are included in the Product Oriented PSS. Service Oriented PSS is about offering solutions and systems. And Use Oriented PSS includes services like leasing. The last category, the Result Oriented PSS includes the complete shift to a service and replaces the need for a product.

Other authors (Raddats & Easingwood, 2010) also made a distinction between different service strategies. Raddats and Easingwood (2010) identified four service strategies based on the difference between product/customer orientation of services and the extent of multi-vendor orientation of services and do have some overlap with the service strategies indicated by Neely (2008).

There is a lot of ambiguity around the concept of professional services firms (PSF). Usually PSFs are undefined or defined indirectly, by providing examples. A constrained body of empirical work and not being able to actually test existing theories about how PSFs are distinctive is the result of the lack of boundary conditions of the term PSF (Von Nordenflycht, 2010). Von Nordenflycht (2010) does not propose a singular definition of professional services firms (PSF). He defines PSF based on three characteristics, knowledge intensity, low capital intensity, and a professionalized workforce.

Knowledge intensity implies that the firm relies on an intellectually skilled workforce, not just among its executive or support functions (e.g.,R&D) but also among its "frontline workers"(Alvesson, 2000; Starbuck, 1992). Low capital intensity shows that a firm's production does not involve significant amounts of nonhuman assets. But this does not mean that low capital intensity is a necessary implication of knowledge intensity (Von Nordenflycht, 2010). Professionalized workforce involves three key features (Torres, 1991). The first is a particular *knowledge* base. The second is *regulation and control* of that knowledge base and its application. The third feature is an *ideology*. The definition of Von Nordenflycht (2010) helps to identify PSFs and gives a concrete measure for future research.

2.4.   Challenges of Servitization

Although the growing importance of service strategies due to financial, marketing, and strategic considerations acknowledged in literature (Salonen, 2011), there are also challenges in shifting to a service strategy.

Salonen (2011) formulates organizational challenges related to the service transition. New types of capabilities are needed to offer advanced services and the traditional advantage of manufacturer diminish rapidly once they move beyond basic services tied to the product. This results in more competition from professional services organizations. According to Neely (2008) the challenge of servitization can be categorized in three parts, shifting mindsets, timescale and business model and customer offering.

Servitization involves a shift in mindset within marketing (Neely, 2008), the sales department and customers (Gebrauer et al., 2005), management (Brady et al., 2005) and even within the suppliers (Kumar, 2004). From transactional to relational and instead of only selling products, long term contracts are entered. This means that the nature and length of the relationship between the supplier and customer are changing. The article of Kumar (2004) and the cases studied by Salonen (2011) show that the mindset of the supplier has to be changed from a product-centric approach, where it is all about the existing core product, to a customer-centric approach, where the starting point is based on the customer's problem.

Not only the development of new capabilities but also the cultural shift required is important. Vargo and Lusch (2004) view the changes in culture and attitude in terms of a shift from goods to service dominant logic. Transforming the orientation within the servitization process is a way to complement existing core capabilities in product excellence and technological leadership rather than to replace them or to compensate for lack of such capabilities.

In order to support a more service oriented business it is needed to implement changes in the corporate culture and organization (Ceschin, 2012). Because servitization is about customization of solutions and PSS a customer focus is needed. Brady et al. (2005) state: "Becoming solutions-focused means that providers have to understand how value is created through the eyes of the customer."

The challenges about timescale are about changing contractual relationships. To provide complex services long term partnerships are engaged. Other challenges on timescale are risk and understanding costs and profitability on the long term.

The last challenges within the business model and customer offerings are about what is value for the customer, developing capabilities and a service culture. There is not much known about the design and delivery of complex services and this is linked to the challenge of understanding the capabilities needed in an organization for service design and delivery.

At the same time this does influence the challenge of developing a service culture inside a product-oriented organization (Neely, 2008). Next to the change in thinking and knowing customers' business context, Brax (2005) also indicates motivating the customer for service co-production and effective information management as challenges involved in servitization.

2.5. Organizational culture

"Culture" refers to the underlying values, beliefs and principles that serve as a foundation for an organization's management system as well as the set of management practices and behaviors that both exemplify and reinforce those basic principles (Denison, 1990).

George and Jones (2008) define culture as a set of shared values, beliefs, and norms that influence the way employees think, feel, and behave toward each other and toward people outside the organization.

According to Van Muijen et al. (1996) does organizational culture not only play an important role in acquisitions and joint ventures, but also in organization diagnosis, organizational development and personnel selection and HRM. In the anthropology there are two ways of looking at culture. In the first way of thinking, related to "variable", is organizational culture a characteristic of the organization; something that an organization *has*. In the second way of thinking, the "metaphor, *is* an organization a culture, which is meaningful for its members.

The "variable" way of thinking is searching for relationships between organizational variables. Organizational culture is besides other organizational variables like leadership, structure and efficiency, object of investigation. The "metaphor" sees an organization as meanly cooperation between different people.

According to Edvardsson and Enquist (2002) culture is about shared values and shared meanings, both internal (relationship with employees) and external (relationship with customers and suppliers). They also argue that the creation of shared values and shared meanings is an element of the strategy-making process. As strategy is about the positioning of an organization in the market niches and in a broader sense it refers to how the collective resources, structure, and culture establish and when necessary change its basic orientation. This has to do with collective intentions and how managers and employees make up their minds (Edvardsson & Equist, 2002). Cameron and Quinn (1999) define organization culture, in a broader sense, as "values that are taken for granted, to underlying assumptions, refer to expectations, collective memories and definitions used in the present organization".

2.5.1. Competing Values Framework

Quinn and Rohrbaugh (1981) developed the competing values framework in the early 1980s as a result of studies of organizational effectiveness (Quinn & Rohrbaugh, 1981), followed by studies of culture, leadership, structure, and information processing (Cameron, 1986; Cameron & Quinn, 1999).

This competing values framework consists of two opposite dimensions. One dimension differentiates criteria that emphasize flexibility, discretion, and dynamism from criteria that emphasize stability, order, and control. The other dimension involves criteria that emphasize an internal orientation, integration, and unity from criteria that emphasize an external orientation, differentiation, and rivalry. These dimensions form four quadrants which correspond with four types of organizational culture (figure 1). Based on this model, every organization has its own mix of four types of organizational culture.

The Organizational Culture Assessment Instrument (OCAI) from Cameron and Quinn (1999) is based upon the Competing Values Framework. The competing value framework provides a validated and focused method to analyze the central values of an organization (Cameron & Quinn, 1999). The competing values framework distinguishes four types of organizational culture (clan, hierarchy, adhocracy and market).
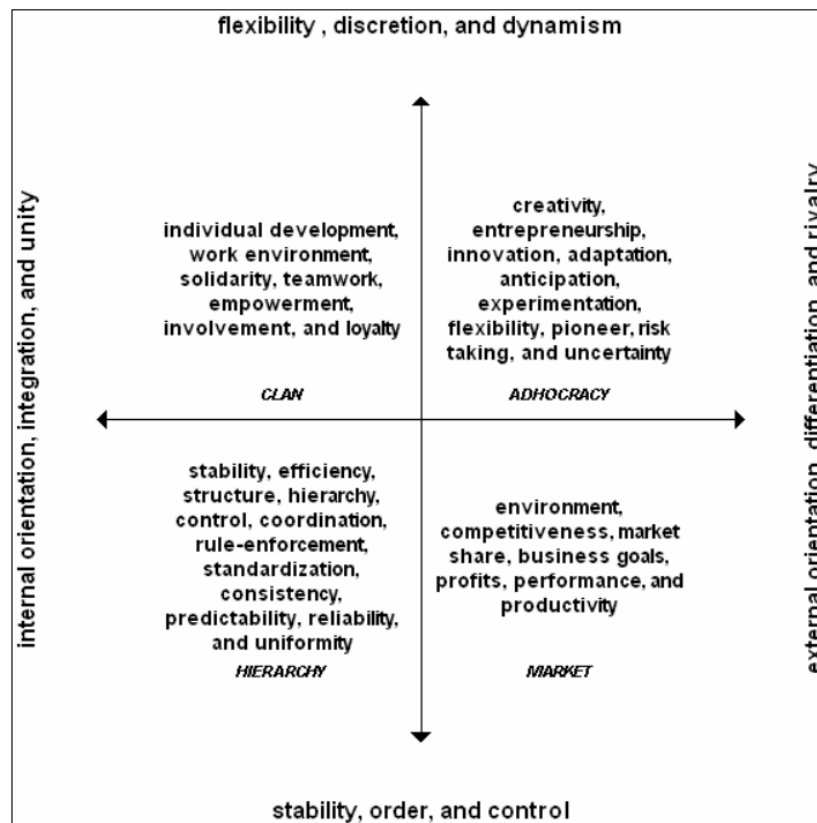

Figure 1. Competing values framework adapted from Cameron and Quinn (1999)

According to Cameron and Quinn (1999) is an organization's culture reflected by what is valued, the dominant leadership styles, the language and symbols, the procedures and routines, and the definitions of success that make an organization unique. The OCAI consists of six items (table 3). Each item has four alternatives, which represents the four different cultures from the competing values framework.

Table 3: Criteria of the cultural subsystems (Cameron & Quinn, 1999)

Dominant Organizational Characteristics	- Personal place like a clan - Entrepreneurial and risk taking - Orientation on competition and achievement. - Control and structure
Leadership style	- Mentoring, facilitating, nurturing - Innovative, risk taking, entrepreneurial - Aggressive, No-nonsense, result-oriented - Coordinating, organizing, efficiency oriented
Management of employees	- Teamwork, consensus, and participation - Individual risk taking, innovation, freedom, and uniqueness - Competitiveness and achievement - Security, conformity, predictability
Organizational glue	- Loyalty and mutual trust - Commitment to innovation and development - Emphasis on achievement and goal accomplishment - Formal rules and policies
Strategic emphasis	- Human development, high trust, openness - Acquisition of resources and creating new challenges - Competitive actions and winning - Permanence and stability
Criteria for success	- Development of human resources, teamwork, and concern for people - Having the most unique and newest products and services - Winning in the marketplace and outpacing the competition - Dependable, efficient, and low cost

2.6. Linking organizational culture to service orientation

This part provides the link between organizational culture and product vs. service orientation en concludes with formulation of the hypotheses.

2.6.1. Service culture

Above organizational culture and ways of measuring cultures are described. According to several authors a service culture is needed when shifting from a product-oriented organization to a service-oriented organization. Grönroos (1990) stated that 'the corporate culture concept is used to describe a set of more or less common norms and values' and that a strong and well-established culture is extremely important for a service company. In this section an overview is given on service culture.

There is not a lot written about what a service culture in the context of servitization should contain and how this culture should be measured. But in literature (Brax, 2005) it is clear that service management and traditional production management are different from each other and therefore the necessary organizational structures and processes need to be adapted as well as service culture, which requires a shift of managerial mindset.

The role of leadership within a service culture is about producing a service mentality or a soul of service in the organization. And the leaders focus on what is important to customers, what is occurring in service performance and why, and what should be done to improve it; it provides the basis for establishing an overall strategic direction – a service strategy (Berry, 1995).

As mentioned before a shift in organizational culture and mindset is needed to move from a product-oriented organization to a service-oriented organization. The needed change can be characterized as a shift in the company's mind-set towards a service-oriented culture (Wallin, 2012). Based on the literature and studies on industrial service capabilities and culture (Nuutinen, 2005b; Nuutinen & Ilomäki, 2008; Nuutinen & Lappalainen, 2009), Nuutinen and Lappalainen (2010, 2012) have formulated a tentative proposition for the kinds of general transformations that are needed in each element.

The change can be viewed as a transformation from an old product-(selling-) oriented core task to more customer- and service-oriented core task (Nuutinen & Lappalainen, 2012). As explained in the product-service continuum, first services are seen as a supportive function and while moving to the right extreme of the continuum service is seen as a central part of creating value and as an important element for growth.

Zeithaml and Bitner (2003) define service culture as "Culture where an appreciation for good service exists, and where giving good service to internal as well as ultimate, external

customers is considered a natural way of life and one of the most important norms by everyone".

Service culture includes the service capability, experience and ideal values within the work community, and customers as well as work motivation and professional identity. These issues are reflected in the understanding of the service business, management and development practices as well as customer relations within organizations (Nuutinen & Lappalainen, 2012).

Figure 2 shows the elements of the organizational service culture and capabilities in which the transformation is needed. The following elements are included in this model; understanding service business, management practices and supportive tools, development practices and supportive tools and customer relationships.
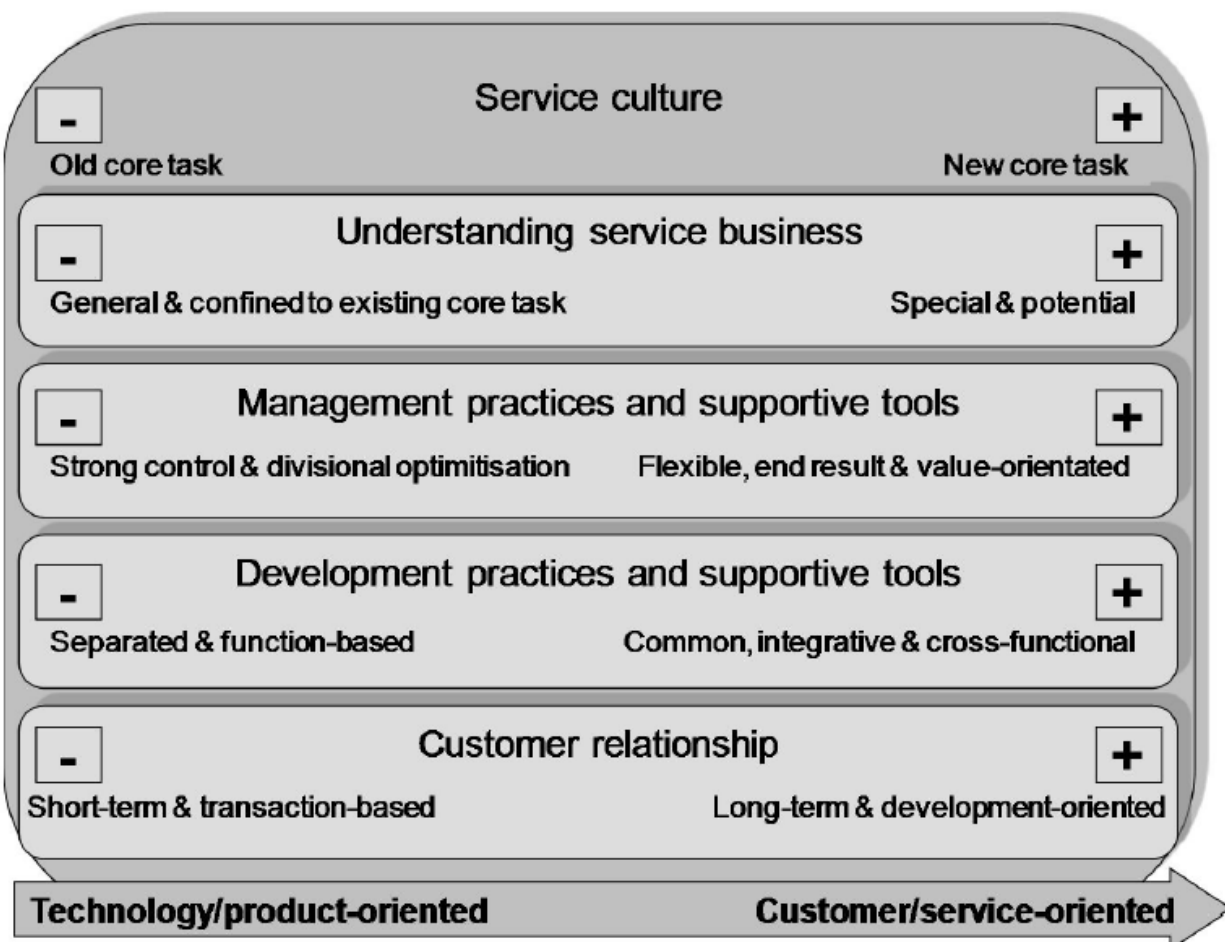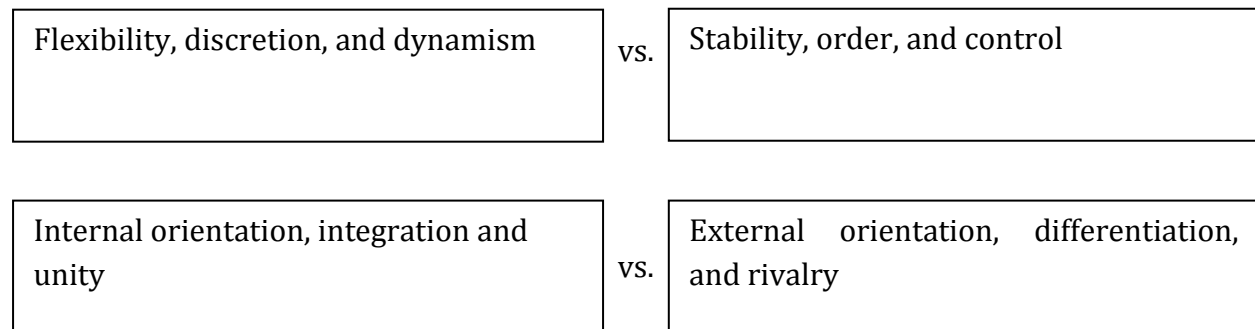

Figure 2. The transformations in the elements of the organizational service culture and capability framework obtained from Nuutinen & Lappalainen (2010).

2.6.2. Hypotheses

This paragraph links the organizational cultures (Cameron & Quinn, 1999) to the service culture model of Nuutinen and Lappalainen (2010). Based on this link the hypotheses are formulated.

The four organizational cultures (Clan, Adhocracy, Hierarchy and Market) from Cameron and Quinn (1999) have some overlap with the service culture model from Nuutinen and Lappalainen (2010).

Cameron and Quinn (1999) based their organizational cultures on the model of competing values (figure 1). The competing values are the following:

Flexibility, discretion, and dynamism	vs.	Stability, order, and control

Internal orientation, integration and unity	vs.	External orientation, differentiation, and rivalry

Nuutinen and Lappalainen's (2010) model (figure 2) of service culture presents the elements that need a transition to move from product-orientation to service- orientation. Below the elements are explained.

Understanding service business is about the difference between selling technology and adding value to the customers business. This element also focuses on the added value of services; services as add-ons or services as value adding. *Management practices* focus on the way management acts. For example is there is strong control or is there a lot of flexibility given in the organization. Optimization of the division or optimization of the organizational as a whole is part of this element. *Development practices* focuses in the way people work and interact with each other in an organization. The difference can be shown in individual or team work, but also if their work is function-based or cross-functional.

Customer relationship is the element that looks at the way people interact with their customers. The difference between the basis of a relationship: transactional or development. Customer relationship is also about the fact if customers are part, like co-producers, of product/services.

Some basic assumptions in a clan culture are that the environment can best be managed through teamwork and staff development, and that customers can best be seen as partners (Cameron & Quinn, 1999). It is indicated that employees in a clan culture are more flexible and attach importance to individual development. Teamwork and loyalty characterize this culture. These characteristics are also reflected within service-orientation as in the elements of flexibility and teamwork. Therefore the first hypothesis is formulated.

Hypothesis 1
The organizational culture CLAN has a positive effect on service-orientation

The adhocracy culture reacts strongly to the fast changing environment. In an adhocracy almost everyone is involved in the production and/or service delivery, customers, and research and development, making a strong emphasis on individuality, risk appetite and anticipate to the future (Cameron& Quinn, 1999). This means that wishes of the customer is the starting position and the focus of employees. These characteristics correspond with different elements of service-orientation. Namely that customer relationship is not transaction- based but oriented on development and adding value to the business of the customer. This formulates the second hypothesis.

Hypothesis 2
The organizational culture ADHOCRACY has a positive effect on service-orientation

The market culture functions like the market. Organizations with a market culture are not interested in what is happening within the organization but focuses on the external environment (Cameron & Quinn, 1999). The external environment consists of several stakeholders like suppliers, customers and unions etc. The market culture works according economic market mechanisms. These results in the most important features of market culture: focus on transactions. It is all about profitability, quarterly figures and a strong position within the market niche. The characteristics of the market culture, control and the focus on transactions are typical elements of product-orientation. Therefore the third hypothesis is formulated.

Hypothesis 3
The organizational culture MARKET has a negative effect on service-orientation
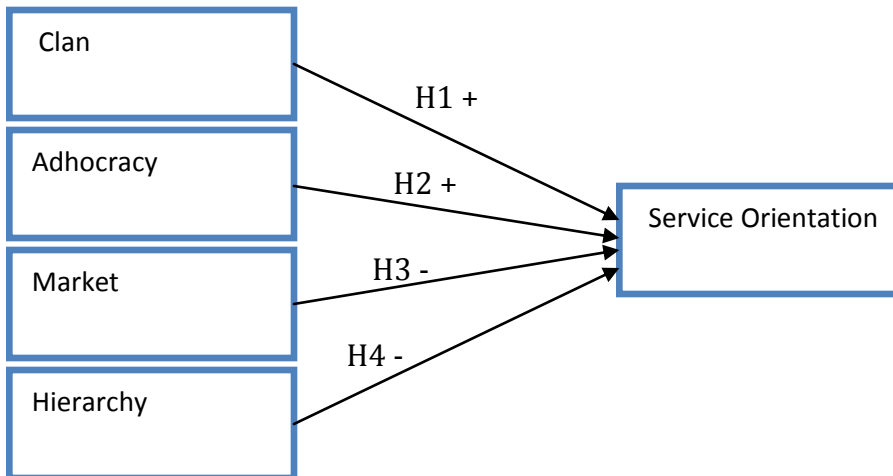
Until the sixties, the hierarchy was seen as the ideal organizational culture because it led to stable, efficient and extremely consistent products and services (Cameron & Quinn, 1999). Characteristics of this culture are a structured workplace, procedures are leading in how people act and the focus is internal. These elements of the hierarchic culture do not have

elements that correspond with the elements of service-orientation. Service-orientation is precisely focused on the opposite elements of this culture. Therefore the fourth hypothesis is formulated as follows.

Hypothesis 4
The organizational HIERARCHY has a negative effect on service-orientation

The hypotheses are shown schematically below.

```
┌─────────────────┐
│  Clan           │
│                 │────────────┐
└─────────────────┘    H1 +     \
┌─────────────────┐              \    ┌──────────────────────┐
│  Adhocracy      │    H2 +       \──▶│                      │
│                 │──────────────────▶│  Service Orientation │
└─────────────────┘    H3 -       /──▶│                      │
┌─────────────────┐              /    └──────────────────────┘
│  Market         │────────────┘
│                 │    H4 -
└─────────────────┘          /
┌─────────────────┐         /
│  Hierarchy      │────────
│                 │
└─────────────────┘
```

3. Methodology

This chapter discusses the methodology and techniques applied to answer the research questions. The first paragraph discusses the research design. The second paragraph pays attention to the research strategy and includes the development of the questionnaire. Paragraph three presents the sample. The fourth paragraph presents the data analysis which involves the data preparation, factor analysis and reliability and validity.

3.1. Research design

This research is based on a quantitative, non experimental design and consists of several elements: literature study, orientation interviews with managers and an online survey. This design can be used to make accurate descriptive inferences about a population. As 'correlational designs' they are also used to tackle explanatory questions. This study is cross-sectional as it is executed at a single point in time (Babbie, 2007).

3.1.1. Data collection

This paragraph shows how the data is collected. As this research is deductive in nature the data collected is used to test the hypotheses formulated.

Orientation interviews with managers

To get a deeper understanding of the organizational culture ten interviews were conducted for orientation. Interviews were held with managers from different business units and different levels, from line-managers to country managers. These semi-structured interviews were conducted in order to support the development of the questionnaire, as literature on servitization is still in its infancy. Therefore the model of Nuutinen & Lappalainen (2010) was the starting point of the interview. This was of value to confirm the various elements of the model. The interviews were only used for orientation and are therefore not structurally analyzed.

Online survey

To test the hypotheses empirical data was collected through an online survey within a subsidiary of an international IT company. Before the survey could be sent through the internal communication channel, management and PR had to give permission. Approximately 2500 employees were contacted and asked to participate in the survey (see appendix I for the communication letter). A questionnaire or survey has some advantages. An online survey has the advantage of being cheap and quick, surveys are flexible, many variables can be asked, and they have a great accuracy in measurement (Babbie, 2007). In addition, the reliability increases when many people participate in the survey. A survey is anonymous and a lot of people can be reached. When the survey has a lot of respondents it is possible to apply statistical analysis techniques. Some drawbacks of a questionnaire are the ambiguity of purpose, unacceptable topic and distrust to volunteer freely (Lorsch, 1987). These drawbacks should not be a problem during this research as there will be a clear introduction about the purpose of the questionnaire. The findings on this topic could be interesting for the employees and the topic is an interesting subject of discussion.

At the end of the questionnaire there was the opportunity for respondents to comment or send questions on the survey or the whole research. In order to increase the responds rate an incentive, in the form of a homemade apple pie, is raffled among the respondents. To ensure that the questions are understandable and no errors were formulated, the questionnaire was first tested by a number of people. Based on the feedback some adjustments are made. The tool used to create and send the survey was Qualtrics.

3.2.   Research strategy

The choice of a research strategy is largely determined by the nature of the research question, the resources available, and the units of analysis. A quantitative-correlational study will be used to answer the explanatory research question. This means that based on the questionnaire about organizational culture and the extent of product vs. service orientation something can be said about the correlation between these variables.

3.2.1. Development of the questionnaire

The questionnaire used for this research consists of three parts. The survey starts with five six introduction questions. With these questions things like gender, age and years employed are identified.

The second part is obtained from the Organizational Culture Assessment Instrument (OCAI). OCAI is based on the theoretical model of competing values (Quinn and Cameron, 1999) and has been applied in over 10.000 organizations[2].

The creation of the third part of the questionnaire is based on literature about product vs. service orientation. The model from Nuutinen & Lappalainen (2010) shows the transformations in the elements of the organizational service culture and capability framework. This model states that service culture consists of four different elements; understanding service business, management practices, development practices and customer relationship. Because there was no existing measurement scale available for service orientation questions were developed based on this model. The interviews with managers supported this model therefore this literature is used. For each element contradictory propositions are formulates and are measured in a five point bipolar scale. The respondents were asked to indicate their agreement level within this scale. The propositions anchor the beginning and the end (or poles) of the scale.

---

[2] Website OCAI online

The following types of propositions are formulated per element.

Understanding service business

| My core task is selling technology | ◎ ◎ ◎ ◎ ◎ | My task is adding value to the customers business |

Management practices and supportive tools

| Management has strong control in this organization | ◎ ◎ ◎ ◎ ◎ | Management gives flexibility in this organization |

Development practices and supportive tools

| My work mainly consists of individual work | ◎ ◎ ◎ ◎ ◎ | My work mainly consists of teamwork |

Customer relationship

| The relationship with the costumer is transactional based | ◎ ◎ ◎ ◎ ◎ | The relationship with the customer is development -oriented |

3.3. Sample

This research is executed at a Dutch subsidiary of an international IT company. The rationale to execute the research at this company is that this company is making the transition from products to services. Besides the company is part of the fast pacing and highly dynamic IT sector. As a result, in order to stay ahead of the competition it is important that the company quickly adapts to the standards of servitization.

The subsidiary has approximately 2500 employees. All employees are sent an invitation by email and were kindly requested to participate in the survey. 496 employees responded on the invitation which resulted in 326 completed surveys. This gives a response rate of 13 percent. The low response rate could be explained by the fact that several surveys were already sent within the organization by other graduates.

At a 95 percent confidence level the minimum sample size for a population of 3000 is 326 (Saunders et al., 2009). As the population is this research is 2500 (below 3000), the sample size is big enough to make statistical inferences.

The sample taken gives a good reflection of the total population based on the control variables. For example the male/female ratio (gender control variable) is respectively 89/11 percent. Compared to the actual population which has a ratio of respectively 87/13 percent the distribution of the sample is representative. In general there are not a lot of women working in the IT sector so this ratio is also representative for the IT sector.

Also the age control variable shows a representative distribution of the sample. The average age stated by the organization is 44 and the average age of the respondents was within the category of 41 and 50 years.

This paragraph shows how the data from the survey is analyzed. At first, the data is prepared. The second step is performing a factor analysis. After the factor analysis the reliability and validity is tested.

3.4.1. Data preparation

Before the analysis of the data obtained by means of the survey can be started, the data must be checked for errors. Errors can occur through *null values* or empty fields because of not fully completed questionnaires. The data of the respondents which could not be used due to errors are removed from the dataset. Because answering the questions was required to continue to the next question, the errors usually arise from respondents who did not complete the questionnaire.

3.4.2. Factor analysis

Using a factor analysis, researchers can refine their conceptualization of what the items in the test measure (Howitt & Cramer, 2007). According to Pallant (2005) serves a factor analysis as a data reduction technique and takes a large set of variables and looks for a way to reduce the data using a smaller set of factors (Pallant, 2005).

Because a part of the questions in the questionnaire, the questions on service orientation, were measured using a self-set measurement scale it is wise to check the underlying structure of a group of items within this dataset. Therefore the factor analysis is executed on this part of the data. The data need to be suitable to conduct a factor analysis. This means that the sample size needs to be above 150 and there should be correlations between the variables (Pallant, 2005). The conditions are met and the factor analysis has been carried out.

Looking at the value of the Eigenvalue (initially > 1), the scree plot and the pattern matrix with factor loadings the extraction of four factors is assessed. These four factors correspond with the four elements of service orientations, namely 1) understanding service business; 2) management practices; 3) development practices; 4) and customer relationship. The method of extraction used is the maximum likelihood, because a normal distribution is expected and allows computation of the goodness of the model and permitted testing of factor loadings and correlations among factors and the computation of confidence intervals (Costello et al., 2005). The rotation of the data is based on an oblique method as correlation between the factors is expected.

The other part of the questionnaire, which involves the statements about organizational culture, were not assessed for a factor-analysis as it is a validated instrument for diagnosing organizational culture (Quinn & Cameron, 1999).

3.4.3. Reliability and Validity

Reliability says something about the quality of the measurement method that suggests that the same data would have been collected each time the measurement is conducted (Babbie, 2007). Different tests were conducted to test for reliability and validity. Based on a Kolmogorov-Smirnov test, Normal Q-Q plot, Kurtosis and Skewness it can be said that the data has a normal distribution.

In the case of a survey it is important that the items measured are connected together as a set (Saunders et al., 2009). The reliability of the constructs is assessed based on the internal consistency. The internal consistency is the degree to which the items that make up the construct are all measuring the same underlying attribute (i.e. the extent to which the items hang together). Based on Cronbach's alpha coefficient an indication of the internal consistency is provided. A Reliability of 0.70 is acceptable (Saunders et al., 2009). Table 4 provides an overview of Cronbach alpha's found in earlier research in which the measurement scale of Cameron and Quinn (1999) was used. The table below also shows the Cronbach alpha's found in this research.

Table 4: Overview Cronbach Alpha's

Cronbach's Alpha	Quinn & Spreitzer (1991)	Yeung, Brockbank & Ulrich (1991)	Zammuto & Krakower (1991)	Present research
Clan culture	0.74	0.79	0.85	0.77
Adhocracy culture	0.79	0.80	0.83	0.77
Market culture	0.71	0.77	0.80	0.82
Hierarchy culture	0.73	0.76	0.73	0.66

The found Cronbach alpha's are equal to or higher than the Cronbach alpha's found in earlier research. It can be concluded that the measuring instruments identify the perception of the organizational culture has proven reliable. Except for the Cronbach alpha of the hierarchy culture that is a little lower.

The removal of items that can ensure an increase of reliability, but removing items brings the potential risk of making the measurement weak and unstable (Costello et al., 2005).

Besides the reliability the validity, more specifically the construct validity should be examined. Construct validity represents the degree to which a measure relates to other

variables as expected within a system or theoretical relationship (Babbie, 2007). To assess the construct validity a closer look is taken at the relationship of each element with the other element and consists of convergent and discriminant validity. Convergent validity tests if constructs that are expected to be related are, in fact, related and discriminant validity tests if constructs that should have no relationship do, in fact, not have any relationship (Saunders et al., 2009). Construct validity is based on the correlation; therefore we look at the correlation between the coefficients. Correlation coefficient should be above 0.30 and the factors loading has to be above 0.30 (Pallant, 2005).

3.4.4. Hypotheses testing

To test the hypotheses formulated in paragraph 2.7. a model is made. This model shows the relationship between organizational culture and service orientation (fig. 9). In this model is organizational culture the independent variable and service orientation is the dependent variable.

Figure 9. Regression model
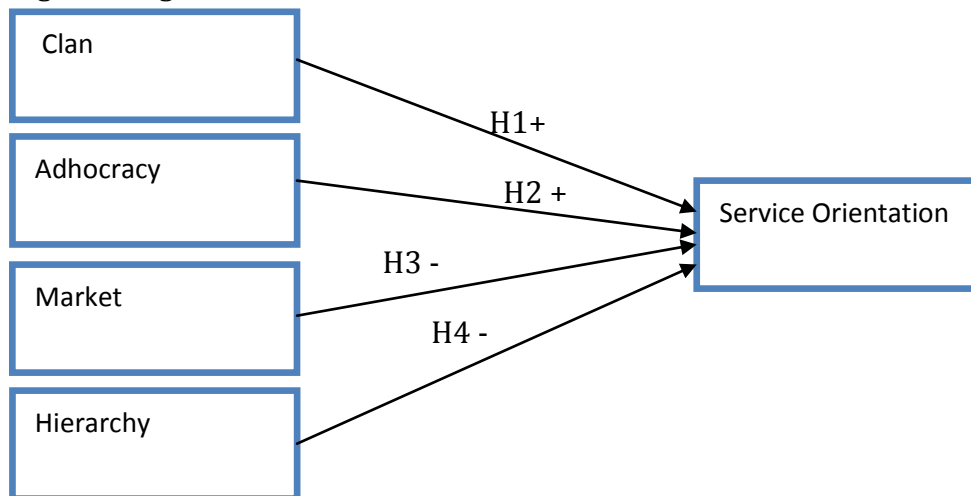
This model is assessed for the major regression model assumptions (Pallant, 2005) which consist of: - Normality of residuals
               - Independence of residuals
               - Homoscedasticity of residuals
               - Linearity between variables

By performing a Pearson correlation analysis the correlation between the variables is also analyzed. Afterwards conclusions are drawn about the hypotheses based on the regression analyses.

3.5. Measures

Organizational culture – Independent variable

The independent variable *organizational culture* is measured based on the Organizational Culture Assessment Instrument, which is a validated measurement scale of Quinn and Cameron (1999). This instrument has a variety of companies proven to be very useful for the elucidation of culture and cultural change (Quinn & Cameron, 1999). The organizational culture is determined by six dimensions, namely *Dominant organizational characteristics, Leadership style, Management of employees, Organizational glue, Strategic emphasis* and *Criteria of success.*

The adapted OCAI questionnaire with 24-items consists of six clusters with four statements. Within each cluster the respondents had to indicate to what extent the statements are applicable to their organization. Every time a total of 100 points had to be divided among the four statements. The statements are linked to the four organizational cultures.

Cronbach's Alpha is assessed for each culture and gives a score of average score of approximately 0.7 and above, which means that the items are reliable in measuring organizational culture.

Construct	Cronbach's Alpha	Number of items
Clan culture	0.770	6
Adhocracy culture	0.767	6
Market culture	0.819	6
Hierarchy culture	0.654	6

Table 5: Reliability of culture

Service Orientation – Dependent variable

The dependent variable is service orientation and involves four dimensions. The four dimensions are *Understanding Service Business, Management Practices, Development Practices* and *Customer Relationship.*

As the model of Nuutinen and Lappalainen's (2010) does not have a validated measurement scale new questions are developed to test the four dimensions. To test if the questions on each dimension included in the questionnaire have actually been tested a factor analysis was performed.

The result of the factor analyses shows that there are four factors congruent with the theory. According to the factor analysis the four elements of service orientation found in literature are confirmed in the data. Because the KMO was 0.780 and the Barlett's Test was significant the factor analysis could be assessed. The Cronbach's Alpha is also assessed for

the different elements of service orientations. Afterwards the four elements of service orientation were combined in one variable. The SPSS output can be found in appendix IV.

Construct	Cronbach's Alpha	Number of items
Understanding Services Business	0.583	3
Management Practices	0.637	4
Development Practices	0.751	2
Customer Relationship	0.717	4
Service Orientation	0.564	4

Table 6: Reliability of service orientation

Test variables

A test variable is a variable that is held constant in an attempt to clarify further the relationship between two variables (Babbie, 2007). The data is controlled for age, gender and years employed at the company. The age of employees can have influence on the organizational culture as people who are older can experience the organizational culture in a different manner than the younger employees. In the questionnaire the respondents had to indicate their age in categories of 5 years, ranging from < 21 to > 61 years old.

Gender is the second test variable. The male/female ratio within this company is skewed as there are much more male employees than female employees within this company. It is possible that male and female employees experience a different culture as gender influences the things that are experienced as important.

The years employed is also a test variable as employees who are working for a long time within this company may have a different view on culture than people who are relatively new within this company. In order to determine changes in the model when testing the hypothesized relationships these test variables are used.

4. Results

Once the collected data are in a suitable form, it can be interpret for the purpose of drawing conclusions that reflect the interests, ideas, and theories that initiated the inquiry (Babbie, 2007). In chapter 2 the hypotheses are described and are tested in this chapter by a linear regression analyses. This test is used as a regression analysis is a statistical tool for the investigation of relationships between variables. In the case of this research it is hypothesized that organizational culture affects service orientation. Whereas the organizational culture is the independent variable and service orientations is the dependent variable. Before conducting the analyses several assumptions should be met (Pallant, 2005). These assumptions involve sample size, normality and linearity.

Sample size – to get a reliable equation approximately 15 subjects per independent variable is needed. In this case there are four independent variables that should lead to 60 required subjects. This assumption is met as the sample size is 326.

Normality – there should be a normal distributions of the residuals. Conducting a normal Q-Q plot and histogram shows a normal distribution.

Linearity – there should be a straight-line relationship with the dependent variable. This is controlled with the use of residuals scatter plots

Now the assumptions are met the regression analyses can start. The results of the regression analysis are reviewed on the basis of three aspects.

Adjusted R-square – measures the extent of variance of the dependent variable that is explained by the in the independent variable (expressed as a percentage).

Significance of F-value – F-value shows the statistical significance of the regression equation as a whole. An F- value that is significant means that the regression equation helps to understand the relationship between the independent en dependent variable.

Significance of Betas – Beta measures how strong the relationship is between the independent variable and the dependent variable. Beta also indicates the direction of the relationship.

4.1. Pearson correlation analysis

The results of the Pearson correlations test indicates the correlations between all the variables used in the regression analysis and are shown in table 7. The correlations shown are the basis for the assessments whether there is a relationship between the independent en dependent variables. Afterwards the extent of the possible effect is indicated by the regressions analysis. This Pearson correlation test is conducted prior to the regression analysis to avoid multicollinearity. Multicollinearity is the phenomenon in which two or more independent variables are highly correlated. The correlation value should be below 0.80, otherwise variables are not distinguished from each other during the regression analysis (Pallant, 2005).

Based on table 7 it can be concluded that there is no multicollinearity as the values are below 0.80. The output shows that service orientation is significantly correlated with clan and adhocracy culture. There is a negative correlation between market culture and service orientation (significance level of 0.01) as well as between hierarchy culture and service orientation (significance level of 0.05).
The adjacent quadrants are expected to be negatively correlated (Cameron & Quinn, 1999). In this research the correlation between clan and market culture and the correlation between adhocracy and hierarchy culture are indeed negative.

The test variable *number of years employed* does not significantly correlate. The other test variables show some correlation. *Age* is found to be significantly correlated with hierarchy culture (0.05 level) and service orientation (0.01 level). The test variable *gender* is significantly correlated with clan (0.01 level), adhocracy (0.01 level) and market culture (0.05 level).

Table 7: Summary and statistics (N=326)

Variables	MN	SD	1	2	3	4	5	6	7	8
Test Variables										
1. Gender	1.11	.31	1							
2. Age	4.18	.945	-.182**	1						
3. Years employed	3.39	1.858	-.036	.524**	1					
Independent variables										
4. Clan culture	18.947	9.479	.145**	.030	-.022	1				
5. Adhocracy culture	18.576	8.313	.152**	.048	.047	.511**	1			
6. Market culture	36.316	14.859	-.126*	.032	.042	-.763**	-.561**	1		
7. Hierarchy culture	26.160	10.337	-.074	-.112*	-.079	-.231**	-.467**	-.287**	1	
Dependent Variable										
8. Service orientation	3.62	.543	.071	.152**	.036	.315**	.232**	-.251**	-.114*	**1**

**Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

4.2. Regression analysis

The next paragraphs discuss the hypotheses tested by the regression analysis. The goal of the research as described in paragraph 1.2. is to find the relationship between organizational culture and service orientation. Organizational culture is divided in clan, adhocracy, market, and hierarchy culture.

For each hypothesis the linear regression analysis is conducted in two steps. The first step is conducting a univariate analysis on the independent culture. The second step includes the control variables in a multivariate analysis. The results of the multivariate analysis are
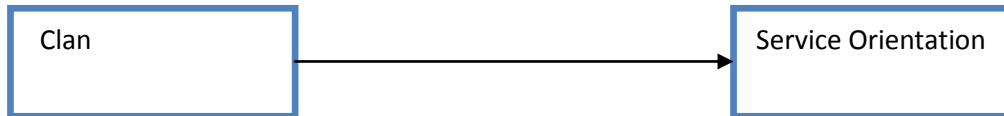
used as this analysis controls the independent variables for gender, age and years employed.

Clan culture and service orientation

The first hypothesis is about the relationship between clan culture and service orientation.

Hypothesis 1
The organizational culture CLAN has a positive effect on service-orientation

Clan	→	Service Orientation

This hypothesis tests and analyzes the possible positive relationship between clan culture and service orientations. The results of the regressions analyses on this hypothesis are shown in table 8.

Table 8: Results regression analysis hypothesis 1

Service orientation					
Organizational Culture	**Adjusted R^2**	**F-value**	**Significance F-value**	**Beta**	**Significance Beta**
Clan culture[u]	.096	35.565	.000	.315	.000
Clan culture[m]	.113	11.331	.000	.300	.000

[u] = univariate analysis
[m] = multivariate analysis

The adjusted R^2 is 0.113 for the organizational culture *clan* and the F-value of 11.331 is significant (p<0.05). Consequently 11,3% of the variance of service orientation is explained by the clan culture, besides the significant F-value shows that the model is significant. The Beta is significant (p<0.05) with a coefficient of 0.300. This means that there is a positive relation between the organizational culture clan and service orientation. Therefore the first hypothesis can be accepted.

Adhocracy culture and service orientation

The second hypothesis focuses on the possible positive relationship between adhocracy culture and service orientation.

Hypothesis 2
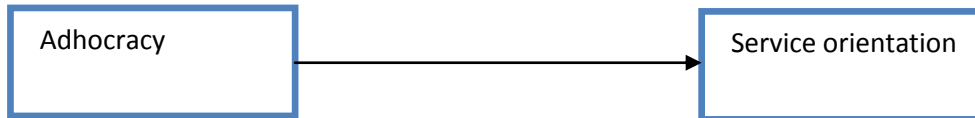*The organizational culture ADHOCRACY has a positive effect on service-orientation*

Table 9 shows the results from the regression analysis on hypothesis 2.

Table 9: Results regression analysis hypothesis 2

Service orientation					
Organizational Culture	Adjusted R^2	F-value	Significance F-value	Beta	Significance Beta
Adhocracy culture[u]	.051	18.378	.000	.232	.000
Adhocracy culture[m]	.070	7.105	.000	.215	.000

[u] = univariate analysis
[m] = multivariate analysis

The *adhocracy culture* gives an adjusted R^2 of 0.070 and the F-value of 7.105 is significant (p<0.05). This means that 7,0% of the variance of service orientations can be explained by the adhocracy culture. The Beta coefficient (0.215) is significant and therefore indicates that adhocracy culture has a significant effect on service orientation. The result is that hypothesis 2 is supported.

Market culture and service orientation

Hypothesis 3 proposes a negative relationship between the independent variable market culture and the dependent variable service orientation.

Hypothesis 3
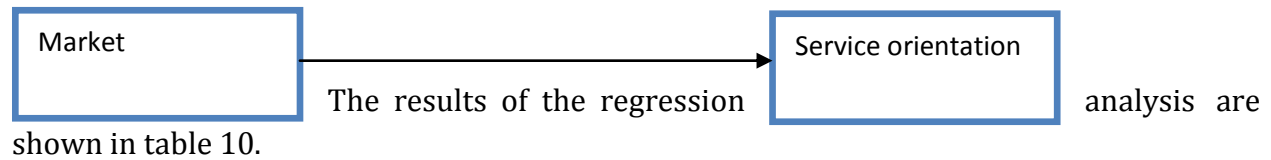*The organizational culture MARKET has a negative effect on service-orientation*

Market	Service orientation

The results of the regression analysis are shown in table 10.

Table 10: Results regression analysis hypothesis 3

Service orientation					
Organizational Culture	**Adjusted R^2**	**F-value**	**Significance F-value**	**Beta**	**Significance Beta**
Market culture[u]	.060	21.735	.000	-.251	.000
Market culture[m]	.084	8.474	.000	-.245	.000

[u] = univariate analysis
[m] = multivariate analysis

The organizational culture *market* shows an adjusted R^2 of 0.084 and has a significant F-value of 8.474. This means that 8,4% is explained by the market culture. Also the Beta coefficient (-0.245) is significant. This results in a negative relationship between market culture and service orientation, as proposed in the hypothesis. Therefore hypothesis 3 is supported.

Hierarchy culture and service orientation
Hypothesis 4 also proposes a negative relationship between hierarchy culture and service orientation.

Hypothesis 4
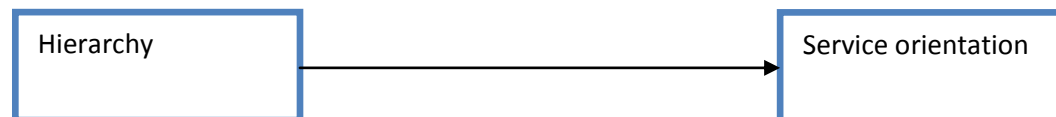*The organizational HIERARCHY has a negative effect on service-orientation*

Hierarchy	Service orientation

Table 1: Results regression analysis hypothesis 4

Service orientation					
Organizational Culture	**Adjusted R²**	**F-value**	**Significance F-value**	**Beta**	**Significance Beta**
Hierarchy culture[u]	.010	4.289	.039	-.114	.039
Hierarchy culture[m]	.033	3.732	.006	-.091	.101

[u] = univariate analysis
[m] = multivariate analysis

Table 11 shows the results of the regression analysis of hypothesis 4. Hierarchy culture has a very low explanatory power as the adjusted R^2 is 0.033, which indicates that 3,3% of service orientation is explained by hierarchy culture. The F-value (3.732) is found to be significant ($p<0.05$). This indicates that there is a significant relationship between hierarchy culture and service orientation, although the explanatory power is low.
The Beta coefficient is -0.091 but is not significant ($p=0.101>0.05$). This negative Beta coefficient indicates a negative relationship between hierarchy culture and service orientation. Hypothesis 4 proposes a negative relationship between hierarchy culture and service orientation, but the regression analysis results in no significant evidence.

To summarize three out of four organizational cultures show a significant relation with service orientation. The first and the second hypothesis show a significant positive relation towards service orientation. Hypothesis 3 shows a significant negative towards service orientations.
After performing these analyzes, there is also examined for relationships between organizational cultures and the different elements within service orientation. The remaining analyzes did not result in significant relationships and therefore not added to this study.

Table 2: Hypotheses and empirical results

	Hypotheses	Supported/rejected
H1	*The organizational culture CLAN has a positive effect on service-orientation*	Supported
H2	*The organizational culture ADHOCRACY has a positive effect on service-orientation*	Supported
H3	*The organizational culture MARKET has a negative effect on service-orientation*	Supported
H4	*The organizational HIERARCHY has a negative effect on service-orientation*	Rejected

5. Conclusion and discussion

This last chapter gives an overview of the conducted research and discusses the results of the analyses executed in chapter 4. The first paragraph gives a summary and the key findings of the research. Paragraph two provides the answers to the research questions formulated in paragraph 1.3. The third paragraph discusses the limitations of the research. Followed by paragraph four which give recommendations for future research. The last paragraph discusses the practical implications.

5.1. Key findings

Servitization is a business model manufacturing firms are increasingly adopting "servitization" - a business model innovation whereby existing product offerings are extended through the provision of related services (Neely, 2008). Other authors (Vandermerwe, 1988; Aurich, Mannweiler & Scweitzer, 2010) also see the bundling of services and products as a way to gain advantage over competitors in a changing environment. Organizations can benefit from servitization as it offers growth opportunities (Canton, 1984; Sawhney et al., 2004), higher margins on product-related services (Anderson & Narus, 1995; Gadiesh & Gilbert, 1998; Reinartz & Ulaga, 2008; Wise & Baumgartner, 1999) and steadier flow of revenues (Canton, 1984; Cohen et al., 2006; Cusumano, 2004; Quin et al., 1986). But there are also challenges in shifting to a service strategy. Neely (2008) categorized the challenges of servitization in three parts, shifting mindsets, timescale and business model en customer offering. A customer focus is required as servitization is about customization of solutions and product-service systems. Ceschin (2012) argues that in order to support a more service oriented business it is needed to implement changes in the corporate culture and organization. This research focuses on the

relationship between organizational culture and service orientation. The following research question is the starting point of this research:

"What is the effect of organizational culture and service orientation?"

To define organizational culture the literature of Quinn and Cameron (1999) is used, which distinguishes four types of organizational culture. The organizational cultures are clan, adhocracy, market and hierarchy. The organizational culture is investigated on the basis of the organizational culture assessment instrument (OCAI).

Service culture is needed to support servitization. Therefore a change is required from a product-oriented organization to a service-oriented organization. This can be viewed as a transformation from an old product-oriented core task to more customer- and service-oriented core task (Nuutinen & Lappalainen 2012). According to Nuutinen & Lappalainen (2012) organizations need to make a change in de following dimensions, namely understanding service business, management practices, development practices and customer relationship. Based on the link between organizational culture and service orientation hypotheses are formulated (paragraph 2.6.)

The hypotheses are tested with the use of a linear regression analysis. The sample of 326 respondents was obtained from an online survey at the Dutch subsidiary of an international IT company. The results of the tested hypotheses are shown in table 12. Based on the tested hypotheses conclusions can be drawn and the answers to research question can be formulated. It can be concluded that the *clan culture* and *adhocracy culture* both have a positive effect on service orientation. The *market culture* has shown to have a negative effect on service orientation. The *hierarchy culture* did not show a significant effect on service orientation.

5.2. Conclusion

This paragraph discusses the results of the research. The analysis will be discussed and answers to the research questions are formulated.

Research question 1

As a reminder the first research question was: *What is service orientation?*

To answer this research question a theoretical framework is created. First the concept of servitization is defined as "a business model innovation whereby existing product offerings are extended through the provision of related services" (Neely, 2008). Authors (Canton, 1984; Sawhney et al., 2004; Anderson & Narus, 1995; Gadiesh & Gilbert, 1998; Reinartz & Ulaga, 2008; Wise & Baumgartner, 1999; Cohen et al., 2006; Cusumano, 2004; Quin et al.,

1986) argue that organizations benefit from servitization in different ways by growth opportunities, higher margins, and steadier revenue flows.

On the other hand are challenges of servitization indicated by Neely (2008). Shifting mindsets, timescale and business model and customer offering are elements that all need a shift to become more service oriented. The product-service continuum (Oliva and Kallenberg, 2003) explains that first services are seen as a supportive function and while moving to the right extreme of the continuum services are seen as a central part of creating value and as an important element for growth. According to Brax (2005) there is a difference in product and service management and therefore a change in organizational structure, processes and culture is needed to adapt a service strategy. Vargo and Lusch (2004) view the changes in culture and attitude in terms of a shift from goods to service dominant logic. Whereas a goods dominant logic implies a view whereby goods are the primary focus of value in exchange and services are seen as an add-on that enhances the value of a good. The service dominant logic, in contrast, implies "a process of doing something for another party".

Walling (2012) stated that the needed change can be characterized as a shift in the company's mind-set towards a service-oriented culture. Kumar (2004) argues that a product-centric approach is focused on the existing core product, whereas a customer-centric approach is focused on the customer's problem. In the service culture model of Nuutinen & Lappalainen (2010) the elements in which a transition is needed to shift from a product-oriented to service oriented shown. Service orientation consists of understanding service business, management practices that are flexible and focused on value adding, development practices that are cross-functional, and customer relationships that are long term and focused on development.

Research question 2

The second research question was: *What is organizational culture?*

In the theoretical framework the definition of culture is first described. Culture refers to the underlying values, beliefs and principles that serve as a foundation for an organization's management system as well as the set of management practices and behaviours that both exemplify and reinforce those basic principles (Denison, 1990).

Organization culture can be defines as "values that are taken for granted, to underlying assumptions, refer to expectations, collective memories and definitions used in the present organization" (Quinn & Cameron, 1999).

The authors Quinn and Cameron (1999) did research on organizational culture and proposed a model of four competing values, which corresponds with four types of organizational culture. Based on this model, every organization has its own mix of four types of organizational culture. The four types of organizational culture are clan culture, adhocracy culture, market culture and hierarchy culture.

Central research question

The central research question "*What is the relationship between organizational culture and service orientation?*" is answered in the section below.

From the theoretic analysis it is found that the organizational culture types of Quinn and Cameron (1999) have some corresponding items with the service culture model of Nuutinen & Lappalainen (2010). As explained in paragraph 2.6. the organizational culture types are linked to the service orientation and based on this linkage hypotheses are formulated. Below the findings based on the analysis are discussed.

Hypothesis 1 (supported)
The organizational culture CLAN has a positive effect on service-orientation

Based on the analysis it can be said that a significant positive relation is found between the organizational culture clan and service orientation. This means having a clan culture results in more service orientation. This effect can be explained by the theoretic framework which proposes teamwork, flexibility and partnering with customers.

Hypothesis 2 (supported)
The organizational culture ADHOCRACY has a positive effect on service-orientation

The adhocracy culture shows a positive relation with service orientation. Although the explanatory factor is not that high (0.070) a positive relation was expected. Within the adhocracy culture, just as service orientation, it is important to involve all parties, take risk and anticipate to the future. A higher explanatory factor was expected as the adhocracy culture focuses on the customer and this is high priority within the service orientation.

Hypothesis 3 (supported)
The organizational culture MARKET has a negative effect on service-orientation

The analysis shows a significant negative relationship between market culture and service orientation. This was also expected by the hypotheses as market culture focuses on transactions, which is the opposite if focusing on development. Other characteristics of the market culture also do not correspond with service orientation, like focus on results and control.

Hypothesis 4 (rejected)
The organizational HIERARCHY has a negative effect on service-orientation

Based on the hypothesis a negative relation between hierarchy and service orientation was expected. Although the effect was *negative*, this hypothesis was found to be *non-significant* and therefore this hypothesis was *rejected*.

Conclusion
In this research three significant relations are found between the organizational culture types and service orientations which correspond with the expected hypotheses.
The first organizational culture that shows a significant relation with service orientation is the clan culture. The second organizational culture that shows a significant relation with service orientation is the adhocracy culture. The third organizational culture that shows a significant relation with service orientation is the market culture. To summarize the conclusion is that clan and adhocracy have a positive relation with service orientation. The extent of the relationship scores the highest between clan culture and service orientation.

5.3. Limitations
This study is based on a quantitative correlation study. In this part the limitations of the methodology is discussed.

In the data obtained are several biases. Bias can be attributed to the abnormal distribution of the respondents when it comes to gender and age. The male/female ratio within the sample is skew as 89% is male and 11% is female. In addition the average age within the sample is 41 year to 50 year. These skewed distributions undermine the generalizability of the conclusions of this study towards other companies with a normal distribution of gender and age. The skewed distribution of gender and age within this research undermines the generalizability.
The cross-sectional character of this research is another limitation. Although a cross sectional design is in general quick and cheap because it is conducted at one point in time, it does not include changes over time.

In addition it is a limitation that the theoretical construct of service orientation is not measured using a validated measurement scale. This also results in a low Cronbach's Alpha for the Understanding Service Business (0.583) and Management Practices (0.637) dimensions within service orientation. It is recommended to further develop theory about service orientation in future research.

The organizational culture assessment instrument is used to measure organizational culture. This measurement instrument is practical, timely, involving, manageable and valid (Cameron & Quinn). On the other hand this measurement instrument is not the single best approach. The disadvantage of the method is that cultures are reduced to a variation in four predefined categories cultures. It organizes organizational culture types, but it is not comprehensive of all cultural phenomena. This may result in the loss of an important part of the uniqueness of cultures.

5.4. Future Research

This paragraph gives recommendations for future research. Based on the limitations described above it can be concluded that future research should be done with more representative samples to overcome the limitation of generalizability.

Furthermore the cross sectional design does not include changes over time. Therefore future research should be done with longitudinal data to get a better understanding of causal relationships. Especially in the case of this study it is interesting to find out if a company becomes more service oriented in time.

This study focused primarily on statistical analyses of survey data to identify the effect of organizational culture on service orientation. Given this method, future research would benefit from analyses of interview data in order to better capture the complexity of organizational culture. This would be useful for identifying the underlying assumptions and collective memories which are also part of organizational culture.

As this research includes a non-validated measurement scale for service orientation it is necessary further develop the questionnaire.

An opportunity for future research lies in investigating the other challenges of servitization. Because there is (almost) only literature on servitization and the challenges of servitization it is good to have additional empirical evidence.

5.5. Practical implications

When organizations are working on or implementing a service strategy it is interesting for managers to know what the culture is within their organization. When the main culture within an organization is identified, they know whether they have to change organizational culture or have to focus on specific cultural elements.

The research shows that the clan culture has the highest explanatory factor for service orientation. This means that this is the best organizational culture to support servitization.

As clan culture has the most positive effect on service orientation it is necessary to further develop or change the organizational culture into a clan culture. To bring back these results

to a more practical level it would be interesting for organizations to look at the recommendations. Cameron and Quinn (1999) give some recommendations for developing organizational change in each quadrant. Here are some practical implications to change or develop clan culture:

1. Design a career development program that emphasizes inter unit mobility and will contribute to cross-functional communication.
2. Develop programs to the competence of personnel in the field of team building and facilitation to increase.
3. Change the incentives in a way that middle managers are becoming more innovative and more independent.
4. Institute an effective employee survey program that will allow for systematically monitoring employee attitudes and ideas. Establish employee teams to work on making changes identified in the survey.
5. Make an assessment of the training needs in each unit, prioritize the needs, and develop programs to meet the needs. Have people inside the unit do the training.
6. Build cross-functional teamwork by holding a daily fifteen minute meeting of all managers. The agenda is to identify all items requiring coordination between units. Problems are solved outside the meeting.

6. Readings

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Websites
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Appendix I   Communication letter

To: NL All Employees

English version

Traditional products alone cannot make the difference anymore in the changing competitive environment. Therefore, companies are adding value through the provision of services. --- is currently moving from product orientation to service orientation. When implementing a service strategy, it is of great importance that the entire organization is involved in the change, and that there is a shift in the cultural mindset.

As part of my thesis for the Master of Business Administration at the University of Twente I carry out a study on the present culture and mindset within ---. I like to invite you to contribute to this research.

Please fill in the survey and have a chance to win a homemade apple pie. Your input is of importance to implement the service strategy within ---

Click here for the English survey. Completing the survey will take about 10 minutes.

Thank you for your time and contribution to this research.

If you have additional questions or comments, please send an email to ---

With kind regards,

Eline Wijbenga

Intern at Enterprise Services

Appendix II   Questionnaire – English version

Dear colleague,

The results of this survey will give insight in the organizational culture of HP the Netherlands.
The following statements and questions relate to organizational culture and service/product orientation.The questionnaire will take approximately 10 minutes. The answers are anonymous and will not be shared with third parties.

Besides the contribution to HP, it will help me to finish the Master Business Administration at the University of Twente.

Thank you in advance for your time and input.

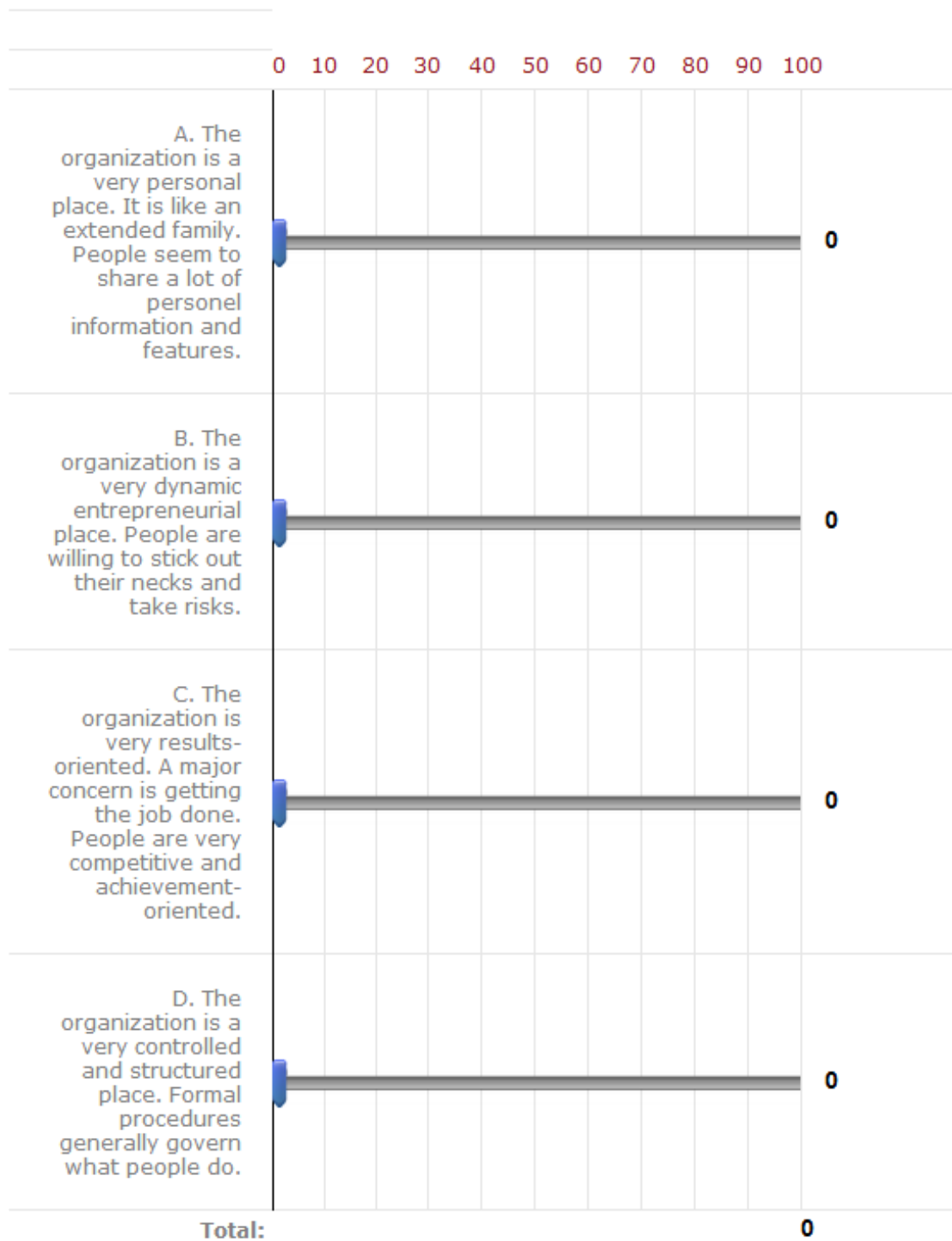With kind regards,
Eline Wijbenga

General

Gender

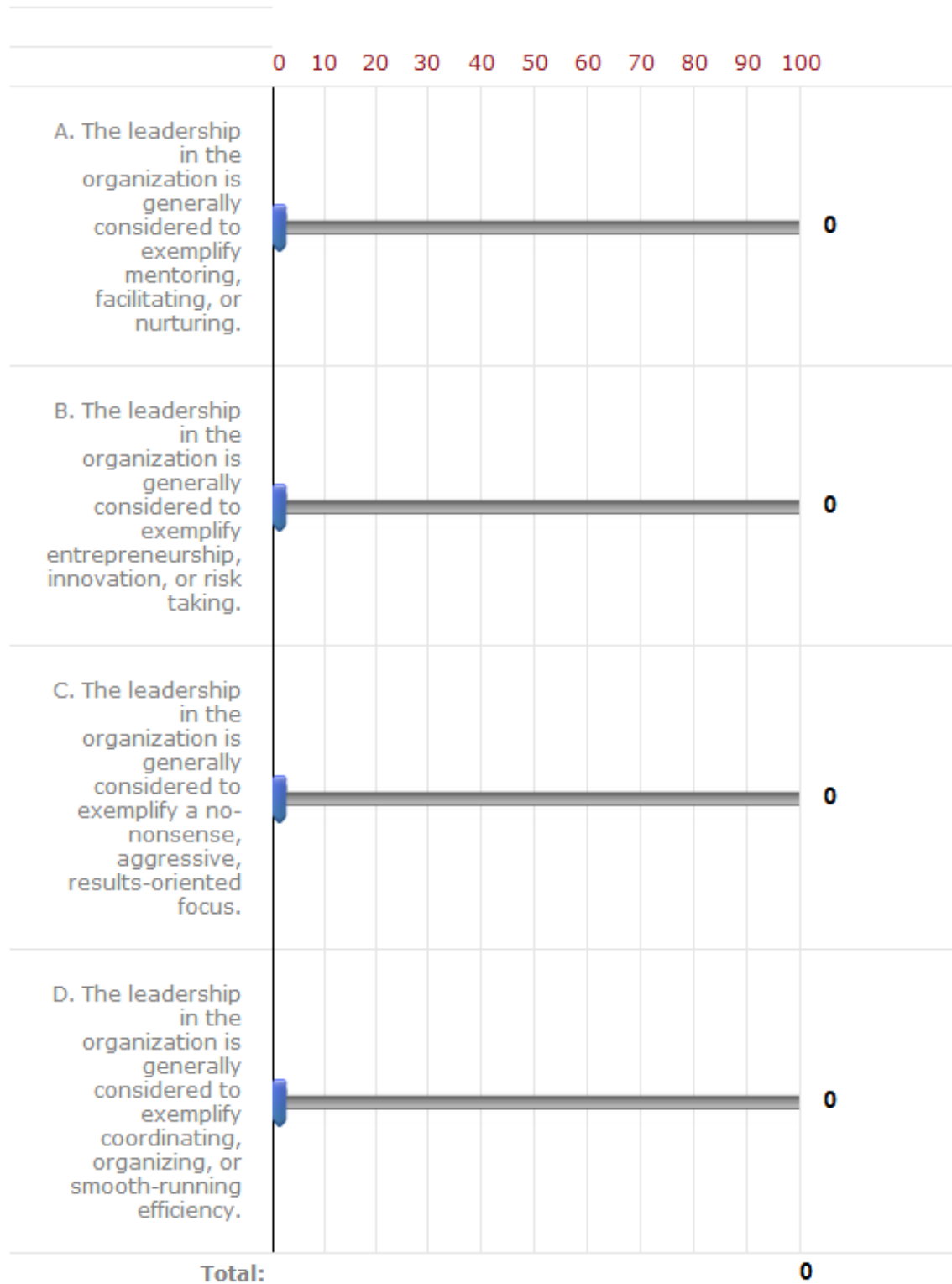◯ Male

◯ Female

Age

[▼]

Number of years employed at HP

[▼]

The following statements are about service culture. Indicate which statement is most appropriate for you.

My core task is selling technology	○ ○ ○ ○ ○	My task is adding value to the customers business
I see services as add-ons	○ ○ ○ ○ ○	I see services as value-adding
My task is simple	○ ○ ○ ○ ○	My task is complex
I get settled by the end result	○ ○ ○ ○ ○	I get settled by the process

| ☐ has its primary focus on its product and on the skills, knowledge and systems that support its product | ○ ○ ○ ○ ○ | ☐ organizes its activities, products and services around the wants and needs of its customers |
| Every customer can be handled in the same way | ○ ○ ○ ○ ○ | Every customer is unique |

☐ values focus on efficiency, economies of scale, and beliefs that variety and flexibility are costly	○ ○ ○ ○ ○	☐ values center on innovation, customization, and beliefs that flexibility and variety create profits
Management has strong control in this organization	○ ○ ○ ○ ○	Management gives flexibility in this organization
Divisional optimization is important	○ ○ ○ ○ ○	Total optimization is important
Performance is measured by costs and time	○ ○ ○ ○ ○	Performance is measured by customer satisfaction

| My work mainly consists of individual work | ○ ○ ○ ○ ○ | My work mainly consists of teamwork |
| My work is function-based | ○ ○ ○ ○ ○ | My work is integrative and cross-functional |

The relationship with the costumer is transactional based	○ ○ ○ ○ ○	The relationship with the customer is development-oriented
The relationship with the customer is short term	○ ○ ○ ○ ○	The relationship with the customer is long term
Customers are seen as recipients of goods	○ ○ ○ ○ ○	Customers seen as co-producers of services
There is a limited interaction with customers	○ ○ ○ ○ ○	There is a strong interaction with customers

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Dominant Characteristics

	0	10	20	30	40	50	60	70	80	90	100

A. The organization is a very personal place. It is like an extended family. People seem to share a lot of personel information and features. — 0

B. The organization is a very dynamic entrepreneurial place. People are willing to stick out their necks and take risks. — 0

C. The organization is very results-oriented. A major concern is getting the job done. People are very competitive and achievement-oriented. — 0

D. The organization is a very controlled and structured place. Formal procedures generally govern what people do. — 0

Total: 0

Organizational Leadership

	0	10	20	30	40	50	60	70	80	90	100	

A. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing. — 0

B. The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking. — 0

C. The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus. — 0

D. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency. — 0

Total: 0

49

Management of Employees

	0	10	20	30	40	50	60	70	80	90	100	
A. The management style in the organization is characterized by teamwork, consensus, and participation.												0
B. The management style in the organization is characterized by individual risk taking, innovation, freedom, and uniqueness.												0
C. The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.												0
D. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.												0
Total:												0

50

Organization Glue

	0	10	20	30	40	50	60	70	80	90	100	
A. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.												0
B. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.												0
C. The glue that holds the organization together is an emphasis on achievement and goal accomplishment.												0
D. The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.												0
Total:												0

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Strategic Emphases

	0	10	20	30	40	50	60	70	80	90	100

A. The organization emphasizes human development. High trust, openness, and participation persist. **0**

B. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued. **0**

C. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant. **0**

D. The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important. **0**

Total: **0**

Criteria of Success

	0	10	20	30	40	50	60	70	80	90	100	
A. The organization defines success on the basis of development of human resources, teamwork, employee commitment, and concern for people.												0
B. The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.												0
C. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.												0
D. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.												0
Total:												**0**

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This is the end of the survey. Click on the "next" button to save and send your results.

Thank you for your cooperation.

If you have any questions or comments in response to the questionnaire or in relation to the investigation, send an email to eline.wijbenga@ ▢.nl

Want a chance to win a homemade apple pie please enter your name below. Your name will only be used to contact you if you have won and not for other purposes.

_____

Appendix III SPSS Output – factor analysis

III. 1. Factor analysis Service Orientation

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.780
Bartlett's Test of Sphericity	Approx. Chi-Square	873.425
	df	78
	Sig.	.000

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared	
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance
1	3.446	26.507	26.507	1.751	13.472	13.472	1.786	13.737
2	1.949	14.990	41.496	2.059	15.841	29.314	1.350	10.385
3	1.094	8.419	49.915	1.284	9.876	39.189	1.297	9.977
4	1.045	8.035	57.951	.506	3.891	43.080	1.168	8.982
5	.885	6.811	64.762					
6	.810	6.234	70.995					
7	.670	5.155	76.150					
8	.624	4.802	80.952					
9	.618	4.752	85.705					
10	.538	4.136	89.841					
11	.522	4.016	93.856					
12	.443	3.405	97.262					
13	.356	2.738	100.000					

Extraction Method: Maximum Likelihood.

Communalities[a]

	Initial	Extraction
SO_1_1U1 De volgende stellingen gaan over service cultuur. Geef aan welke stelling het beste van toepassing i...-Mijn taak is het verkopen van technology:Mijn taak is het toevoegen van waarde aan de business van de klant	.269	.391
SO_2_1U2 De volgende stellingen gaan over service cultuur. Geef aan welke stelling het beste van toepassing i...-Ik zie services als add-ons:Ik zie services as value-adding	.286	.491

SO_3_1U3 De volgende stellingen gaan over service cultuur. Geef aan welke stelling het beste van toepassing i...-Mijn taak is simpel:Mijn taak is complex	.156	.222
SO_7_2M1 --- waarden focussen op efficiency, schaalvoordelen, en gelooft dat variatie en flexibiliteit kostbaar zijn:--- waarden zijn gericht op innovation, maatwerk, en gelooft dat flexibiliteit en variatie winst genereert	.241	.386
SO_8_ 2M2 Management heeft sterke controle in deze organisatie:Management biedt flexibiliteit in deze organisatie	.267	.449
SO_9_2M3 Divisie optimalisatie is belangrijk:Totale optimalisatie is belangrijk	.154	.207
SO_10_2M4 Prestatie wordt gemeten in kosten en tijd:Prestatie wordt gemeten in klanttevredenheid	.211	.279
SO_11_3D1 Mijn werkzaamheden bestaan uit individueel werken:Mijn werkzaamheden bestaan uit werken in een team	.388	.999
SO_12_3D2 Mijn werkzaamheden zijn functie-gericht:Mijn werkzaamheden zijn geïntegreerd en gericht op samenwerken	.462	.488

SO_13_4C1 De relatie met de klant is gebaseerd op uitwisseling:De relatie met de klant is gericht op ontwikkeling	.196	.202
SO_14_4C2 De relatie met de klant is korte termijn:De relatie met de klant is lange termijn	.328	.424
SO_15_4C3 Klanten zijn ontvangers van goederen:Klanten zijn co-producenten van services	.402	.539
SO_16_4C4 Er is gelimiteerde interactie met de klant:Er is een sterke interactie met de klant	.380	.526

Extraction Method: Maximum Likelihood.

a. One or more communalitiy estimates greater than 1 were encountered during iterations. The resulting solution should be interpreted with caution.

Scree Plot
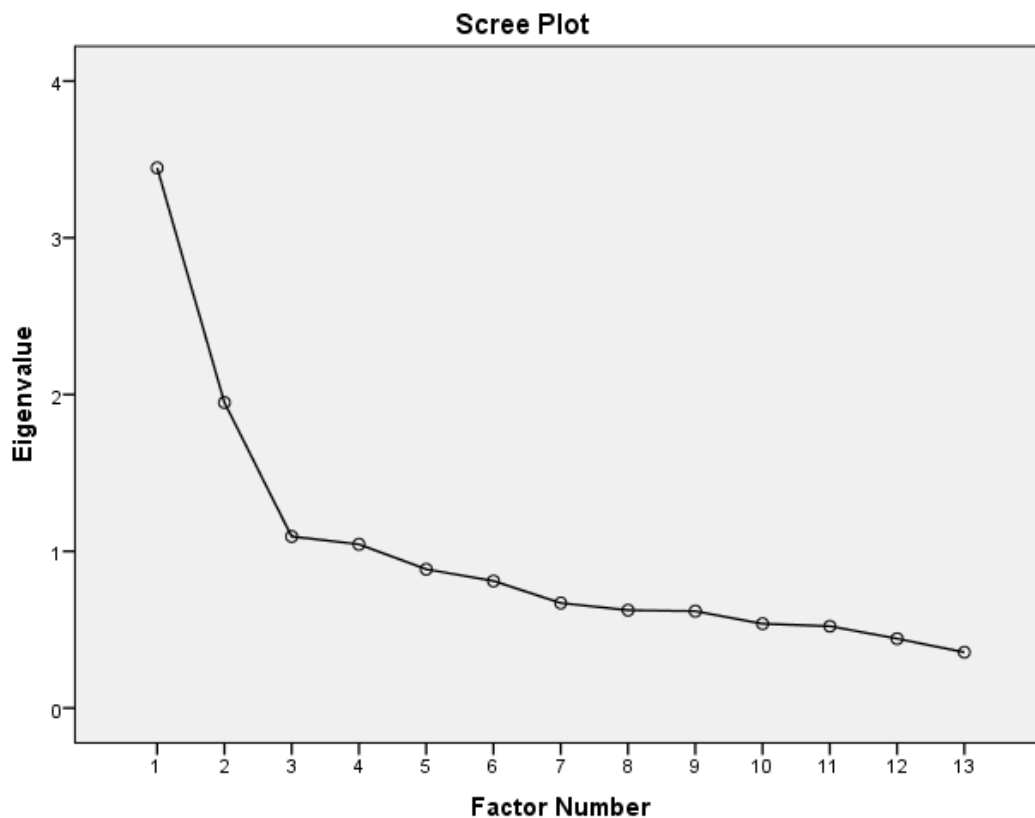
Rotated Factor Matrix^a

	Factor			
	1	2	3	4
SO_1_1U1 De volgende stellingen gaan over service cultuur. Geef aan welke stelling het beste van toepassing i...-Mijn taak is het verkopen van technology:Mijn taak is het toevoegen van waarde aan de business van de klant				.552
SO_2_1U2 De volgende stellingen gaan over service cultuur. Geef aan welke stelling het beste van toepassing i...-Ik zie services als add-ons:Ik zie services as value-adding				.667
SO_3_1U3 De volgende stellingen gaan over service cultuur. Geef aan welke stelling het beste van toepassing i...-Mijn taak is simpel:Mijn taak is complex				.421
SO_7_2M1 --- waarden focussen op efficiency, schaalvoordelen, en gelooft dat variatie en flexibiliteit kostbaar zijn:--- waarden zijn gericht op innovation, maatwerk, en gelooft dat flexibiliteit en variatie winst genereert		.617		
SO_8_ 2M2 Management heeft sterke controle in deze organisatie:Management biedt flexibiliteit in deze organisatie		.652		

	1	2	3	4
SO_9_2M3 Divisie optimalisatie is belangrijk:Totale optimalisatie is belangrijk		.449		
SO_10_2M4 Prestatie wordt gemeten in kosten en tijd:Prestatie wordt gemeten in klanttevredenheid		.475		
SO_11_3D1 Mijn werkzaamheden bestaan uit individueel werken:Mijn werkzaamheden bestaan uit werken in een team			.972	
SO_12_3D2 Mijn werkzaamheden zijn functie-gericht:Mijn werkzaamheden zijn geïntegreerd en gericht op samenwerken	.374		.504	
SO_13_4C1 De relatie met de klant is gebaseerd op uitwisseling:De relatie met de klant is gericht op ontwikkeling	.338			
SO_14_4C2 De relatie met de klant is korte termijn:De relatie met de klant is lange termijn	.620			
SO_15_4C3 Klanten zijn ontvangers van goederen:Klanten zijn co-producenten van services	.676			
SO_16_4C4 Er is gelimiteerde interactie met de klant:Er is een sterke interactie met de klant	.698			

Extraction Method: Maximum Likelihood.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Appendix IV   SPSS Output – reliability analysis

IV.1. Reliability analysis Service orientation

Understanding Service Business

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.583	.583	3

Management Practices

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.632	.637	4

Development Practices

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.751	.751	2

Customer Relationship

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.722	.717	4

Service orientation – combined scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.556	.564	4

IV. 2. Reliability analysis Organization culture

Clan Culture

Reliability Statistics

Cronbach's Alpha	N of Items
.770	6

Market Culture

Reliability Statistics

Cronbach's Alpha	N of Items
.819	6

Adhocracy Culture

Reliability Statistics

Cronbach's Alpha	N of Items
.767	6

Hierarchy Culture

Reliability Statistics

Cronbach's Alpha	N of Items
.654	6

Appendix V   SPSS Output – test for normality

Kolmogorov-Smirnov test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
C_1	.040	326	.200*	.983	326	.001
C_2	.039	326	.200*	.993	326	.166
C_3	.087	326	.000	.964	326	.000
C_4	.079	326	.000	.954	326	.000
SO_All	.027	326	.200*	.996	326	.683

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Skewness and Kurtosis

Descriptives

			Statistic	Std. Error
C_1	Mean		18.9473	.52504
	95% Confidence Interval for Mean	Lower Bound	17.9144	
		Upper Bound	19.9802	
	5% Trimmed Mean		18.6921	
	Median		19.1667	
	Variance		89.866	
	Std. Deviation		9.47979	
	Minimum		.00	
	Maximum		53.50	
	Range		53.50	
	Interquartile Range		12.54	
	Skewness		.459	.135
	Kurtosis		.498	.269
C_2	Mean		18.5762	.46043
	95% Confidence Interval for Mean	Lower Bound	17.6704	
		Upper Bound	19.4820	
	5% Trimmed Mean		18.5321	
	Median		18.3333	
	Variance		69.110	

	Std. Deviation		8.31326	
	Minimum		.00	
	Maximum		47.83	
	Range		47.83	
	Interquartile Range		11.71	
	Skewness		.060	.135
	Kurtosis		-.175	.269
	Mean		36.3165	.82300
	95% Confidence Interval for	Lower Bound	34.6974	
	Mean	Upper Bound	37.9355	
	5% Trimmed Mean		35.7372	
	Median		33.6667	
	Variance		220.810	
C_3	Std. Deviation		14.85967	
	Minimum		.00	
	Maximum		84.17	
	Range		84.17	
	Interquartile Range		18.08	
	Skewness		.687	.135
	Kurtosis		.469	.269
	Mean		26.1600	.57257
	95% Confidence Interval for	Lower Bound	25.0336	
	Mean	Upper Bound	27.2864	
	5% Trimmed Mean		25.6964	
	Median		24.9167	
	Variance		106.873	
C_4	Std. Deviation		10.33794	
	Minimum		.00	
	Maximum		75.00	
	Range		75.00	
	Interquartile Range		12.50	
	Skewness		.971	.135
	Kurtosis		2.589	.269
	Mean		3.6243	.03011
	95% Confidence Interval for	Lower Bound	3.5651	
SO_All	Mean	Upper Bound	3.6835	
	5% Trimmed Mean		3.6304	
	Median		3.6250	

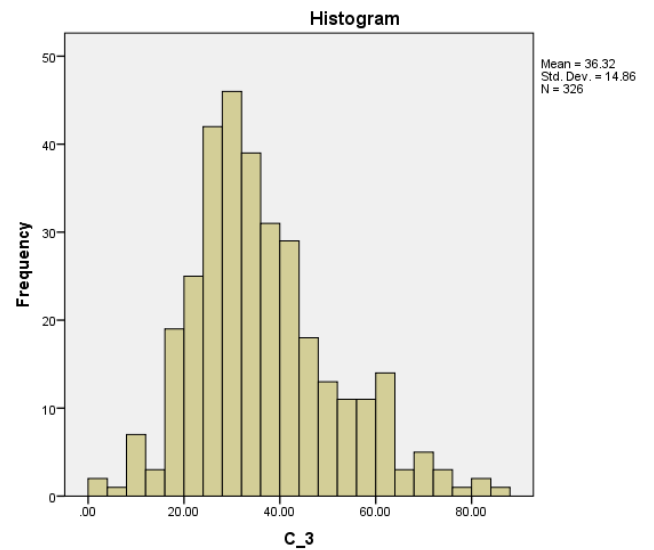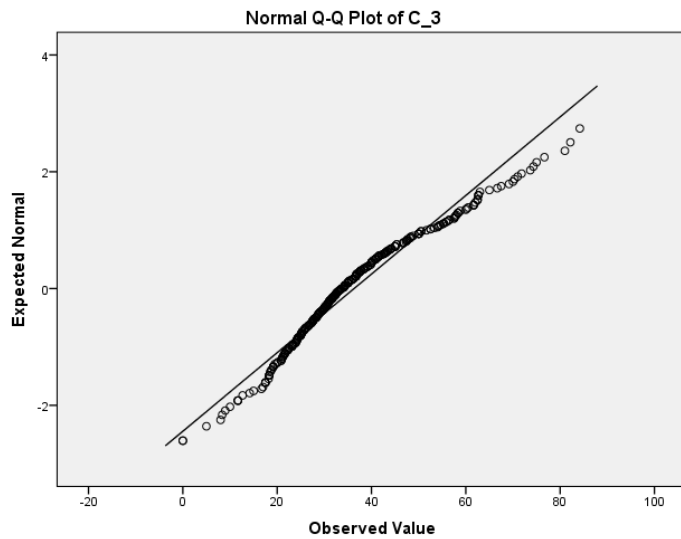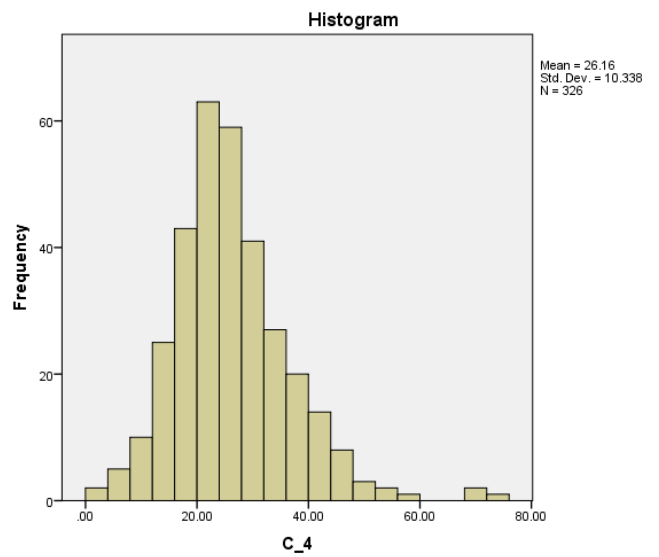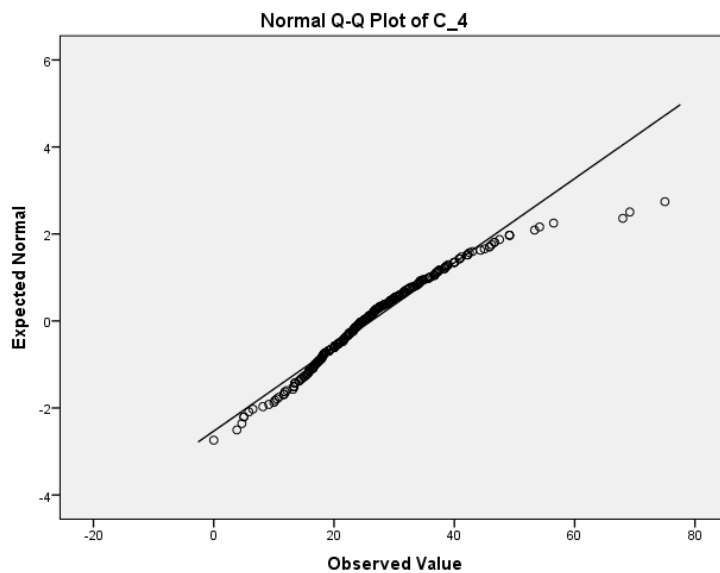|		
Variance	.296	
Std. Deviation	.54373	
Minimum	1.88	
Maximum	5.00	
Range	3.13	
Interquartile Range	.75	
Skewness	-.158	.135
Kurtosis	-.044	.269

Clan culture - Normal Q-Q plot & Histogram
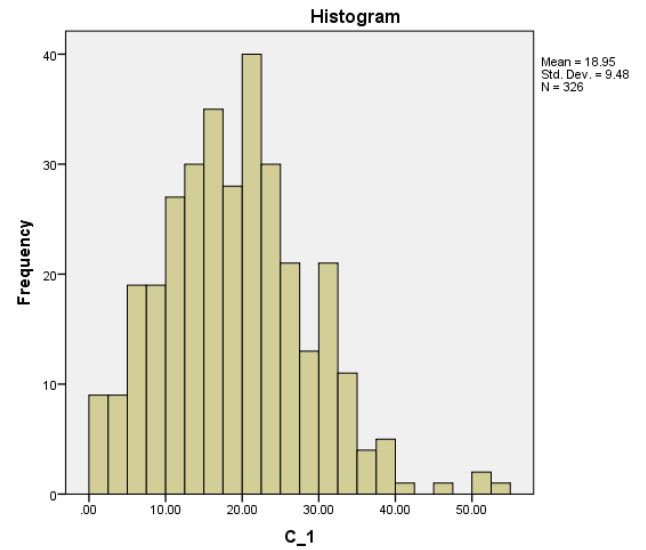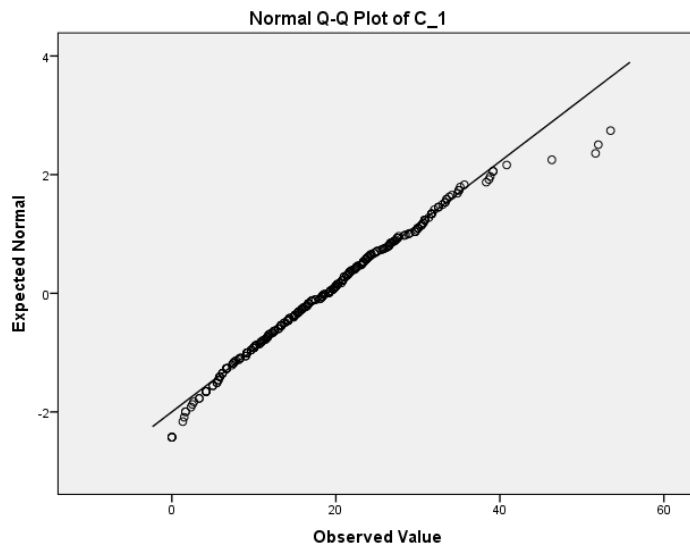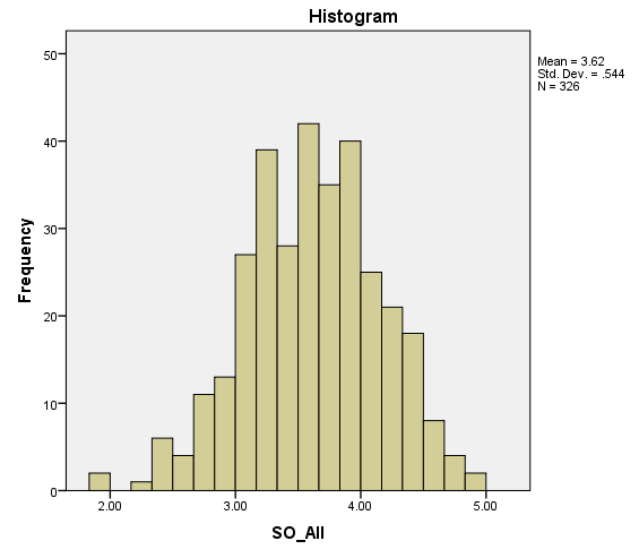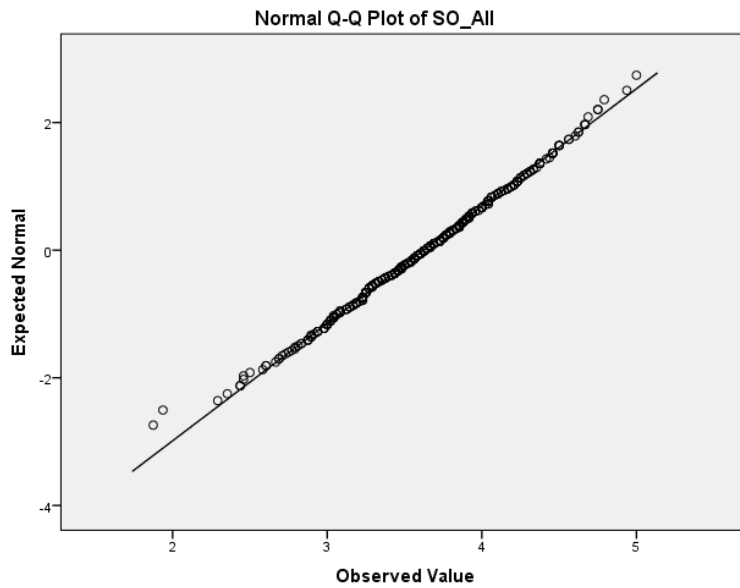

Adhocracy culture - Normal Q-Q plot & Histogram
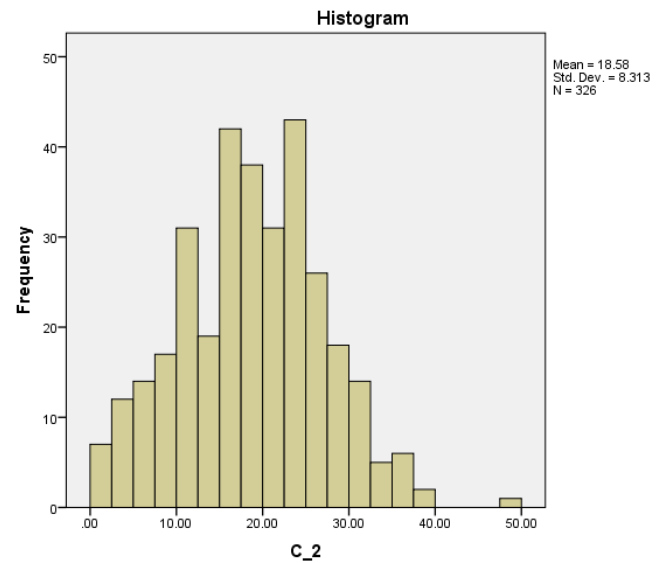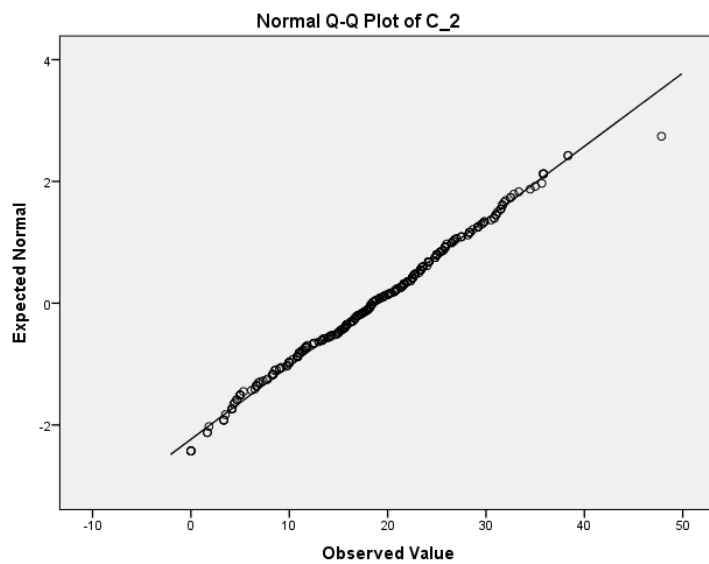
Market culture - Normal Q-Q plot & Histogram

Hierarchy culture - Normal Q-Q plot & Histogram

Service orientation – Normal Q-Q plot & Histogram

Appendix VI   SPSS Output - correlations – Pearson test

Descriptive Statistics

	Mean	Std. Deviation	N
Geslacht	1.11	.310	326
Leeftijd	4.18	.945	326
Aantal jaren in dienst bij ---	3.39	1.858	326
Culture_Clan	18.9473	9.47979	326
Culture_Adhocracy	18.5762	8.31326	326
Culture_Market	36.3165	14.85967	326
Culture_Hierarchy	26.1600	10.33794	326
SO_All	3.6243	.54373	326

Correlations

		Geslacht	Leeftijd	Aantal jaren in dienst bij ---	C_1	C_2	C_3	C_4	SO_All
Geslacht	Pearson Correlation	1	-.182**	-.036	.145**	.152**	-.126*	-.074	.071
	Sig. (2-tailed)		.001	.517	.009	.006	.022	.185	.202
	N	326	326	326	326	326	326	326	326
Leeftijd	Pearson Correlation	-.182**	1	.524**	.030	.048	.032	-.112*	.152**
	Sig. (2-tailed)	.001		.000	.592	.390	.565	.044	.006
	N	326	326	326	326	326	326	326	326
Aantal jaren in dienst bij --	Pearson Correlation	-.036	.524**	1	-.022	.047	.042	-.079	.036
	Sig. (2-tailed)	.517	.000		.698	.399	.445	.155	.519
	N	326	326	326	326	326	326	326	326
C_1	Pearson Correlation	.145**	.030	-.022	1	.511**	-.763**	-.231**	.315**
	Sig. (2-tailed)	.009	.592	.698		.000	.000	.000	.000
	N	326	326	326	326	326	326	326	326
C_2	Pearson Correlation	.152**	.048	.047	.511**	1	-.561**	-.467**	.232**
	Sig. (2-tailed)	.006	.390	.399	.000		.000	.000	.000
	N	326	326	326	326	326	326	326	326
C_3	Pearson Correlation	-.126*	.032	.042	-.763**	-.561**	1	-.287**	-.251**
	Sig. (2-tailed)	.022	.565	.445	.000	.000		.000	.000
	N	326	326	326	326	326	326	326	326
C_4	Pearson Correlation	-.074	-.112*	-.079	-.231**	-.467**	-.287**	1	-.114*
	Sig. (2-tailed)	.185	.044	.155	.000	.000	.000		.039
	N	326	326	326	326	326	326	326	326
SO_All	Pearson Correlation	.071	.152**	.036	.315**	.232**	-.251**	-.114*	1
	Sig. (2-tailed)	.202	.006	.519	.000	.000	.000	.039	
	N	326	326	326	326	326	326	326	326

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix VII SPSS Output - Regression Analysis
VII. 1. Regression analysis Clan Culture > Service Orientation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.315[a]	.099	.096	.51694
2	.352[b]	.124	.113	.51215

a. Predictors: (Constant), Culture_Clan

b. Predictors: (Constant), Culture_Clan, Aantal jaren in dienst bij ---,

Geslacht, Leeftijd

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	9.504	1	9.504	35.565	.000[b]
1	Residual	86.581	324	.267		
	Total	96.084	325			
	Regression	11.888	4	2.972	11.331	.000[c]
2	Residual	84.196	321	.262		
	Total	96.084	325			

a. Dependent Variable: SO_All

b. Predictors: (Constant), Culture_Clan

c. Predictors: (Constant), Culture_Clan, Aantal jaren in dienst bij ---, Geslacht, Leeftijd

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.283	.064		51.237	.000
	Culture_Clan	.018	.003	.315	5.964	.000
	(Constant)	2.804	.185		15.140	.000
	Culture_Clan	.017	.003	.300	5.657	.000
2	Geslacht	.102	.095	.058	1.078	.282
	Leeftijd	.103	.036	.179	2.856	.005
	Aantal jaren in dienst bij ---	-.014	.018	-.049	-.801	.424

a. Dependent Variable: SO_All

VII. 2. Regression analysis Adhocracy Culture > Service Orientation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.232[a]	.054	.051	.52975
2	.285[b]	.081	.070	.52439

a. Predictors: (Constant), Culture_Adhocracy

b. Predictors: (Constant), Culture_Adhocracy, Aantal jaren in dienst bij

---, Geslacht, Leeftijd

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.158	1	5.158	18.378	.000[b]
	Residual	90.927	324	.281		
	Total	96.084	325			
2	Regression	7.815	4	1.954	7.105	.000[c]
	Residual	88.270	321	.275		
	Total	96.084	325			

a. Dependent Variable: SO_All

b. Predictors: (Constant), Culture_Adhocracy

c. Predictors: (Constant), Culture_Adhocracy, Aantal jaren in dienst bij ---, Geslacht, Leeftijd

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.343	.072		46.480	.000
	Culture_Adhocracy	.015	.004	.232	4.287	.000
2	(Constant)	2.836	.191		14.880	.000
	Culture_Adhocracy	.014	.004	.215	3.963	.000
	Geslacht	.123	.097	.070	1.274	.204
	Leeftijd	.110	.037	.192	2.994	.003
	Aantal jaren in dienst bij ---	-.021	.018	-.072	-1.146	.253

a. Dependent Variable: SO_All

VII. 3. Regression analysis Market Culture > Service Orientation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.251[a]	.063	.060	.52718
2	.309[b]	.096	.084	.52033

a. Predictors: (Constant), Culture_Market

b. Predictors: (Constant), Culture_Market, Leeftijd, Geslacht, Aantal

jaren in dienst bij ---

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.040	1	6.040	21.735	.000[b]
	Residual	90.044	324	.278		
	Total	96.084	325			
2	Regression	9.177	4	2.294	8.474	.000[c]
	Residual	86.907	321	.271		
	Total	96.084	325			

a. Dependent Variable: SO_All

b. Predictors: (Constant), Culture_Market

c. Predictors: (Constant), Culture_Market, Leeftijd, Geslacht, Aantal jaren in dienst bij ---

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.957	.077		51.262	.000
	Culture_Market	-.009	.002	-.251	-4.662	.000
2	(Constant)	3.374	.203		16.592	.000
	Culture_Market	-.009	.002	-.245	-4.581	.000
	Geslacht	.131	.096	.075	1.369	.172
	Leeftijd	.117	.037	.203	3.197	.002
	Aantal jaren in dienst bij ---	-.017	.018	-.057	-.917	.360

a. Dependent Variable: SO_All

VII. 4. Regression Analysis Hierarchy Culture > Service Orientation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.114[a]	.013	.010	.54100
2	.211[b]	.044	.033	.53481

a. Predictors: (Constant), Culture_Hierarchy

b. Predictors: (Constant), Culture_Hierarchy, Geslacht, Aantal jaren in

dienst bij ---, Leeftijd

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.255	1	1.255	4.289	.039[b]
	Residual	94.829	324	.293		
	Total	96.084	325			
2	Regression	4.270	4	1.068	3.732	.006[c]
	Residual	91.814	321	.286		
	Total	96.084	325			

a. Dependent Variable: SO_All

b. Predictors: (Constant), Culture_Hierarchy

c. Predictors: (Constant), Culture_Hierarchy, Geslacht, Aantal jaren in dienst bij ---, Leeftijd

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.782	.082		46.322	.000
	Culture_Hierarchy	-.006	.003	-.114	-2.071	.039
2	(Constant)	3.159	.216		14.595	.000
	Culture_Hierarchy	-.005	.003	-.091	-1.646	.101
	Geslacht	.171	.098	.097	1.740	.083
	Leeftijd	.113	.038	.196	2.989	.003
	Aantal jaren in dienst bij ---	-.021	.019	-.070	-1.097	.274

a. Dependent Variable: SO_All