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Teppo Nieminen

APPLICATION OF VALUE-BASED PRICING IN INDUSTRIAL SECTOR

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UNIVERSITY OF VAASA**Faculty of Business Studies**

Author:	Teppo Nieminen
Topic of the thesis:	Application of value-based pricing in industrial sector.
Supervisor:	Erkki K. Laitinen
Degree:	Master of Business Administration
Department:	Accounting and Finance
(Major subject):	Accounting and Finance
Year of entering the university:	2004
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ABSTRACT

The traditional cost- and competition-based pricing approaches are dominating in the industrial sector. Meanwhile, fierce competition and increasing pressures on prices have drawn attention to find alternative pricing strategies and approaches. Pricing based on a customer desired value is on the rise and pricing practitioners and marketing scholars praise its superiority in increasing profitability and competitive advantage.

However, the transition towards value-based pricing seems to be route fraught with obstacles. As pricing is connected to management accounting system, which is said to constitute the rules and routines of an organization, it requires conquering the internal change resistance and changing the prevailing institution around the old pricing strategy. Furthermore, it requires involvement by top management and strong leadership in delivering the change. Eventually, comprehensive implementation of value-based pricing requires understanding the value customers perceive and influencing it through value quantification and communication, and finally capturing a share of the created value.

The purpose of this thesis is to study the factors that affect the application of value-based pricing in a case company organization within the industrial sector. Variables of work experience, position and education are used with measures of motivation and confidence, presence of institution and the importance of management sponsorship to analyse whether they have diverging affect towards change in pricing strategy (value-based pricing). The application of value-based pricing in the case company is analysed from the viewpoint of selling to shipyards (as a sub-supplier) and ship owners (as a main supplier).

The results of this study do not indicate that the defined variables regarding the change resistance and importance of management sponsorship would have impact to the selected measures. However, the presence and effect of (old) institution was admitted. On the functionality of value-based pricing in industrial sector; the results were somewhat consistent with the previous findings, indicating the challenges in its application.

KEYWORDS: Value-based pricing, Customer-perceived value, Management accounting system change

1 INTRODUCTION

1.1 Background

In the face of increasing pressures on prices, managerial attention on pricing based on customer desired value is on the rise. Out of the main approaches to pricing strategies in industrial sector – cost-based, competition-based and value-based – the latter is considered superior according to most marketing scholars (Hinterhuber 2004; Ingenbleek Debruyne, Frambach & Verhallen 2003; Nagel & Holden 2002; Anderson & Narus 1998) and pricing practitioners (Forbis & Mehta 1981).

Recent research on pricing based on customer desired value, referred to as value-based pricing, acclaims its power of increasing profitability (Monroe 2002) and competitive advantage (Dutta, Zbaracki & Bergen 2003), however, there seems to be major obstacles in implementing and executing value-based pricing in industrial sector (Töytäri et al. 2015:53; Liozu et al. 2012a). Hinterhuber conducted multiple surveys of value-based pricing approaches within various industries in the Europe and U.S between 1983 and 2006 which revealed an adoption rate of just 17 percent (Hinterhuber 2008a).

Pricing is a sub-system of a management accounting system. Thus, a change in pricing strategy connects also to a change in management accounting systems. Management accounting systems have been said to constitute the rules and routines of an organization. Repetition of these rules and routines, as a gradual widespread process, leads to institutionalization. To change these rules and routines which are deeply rooted in the organization can be challenging according to various studies over the past decades.

The process of change, transition from a current state of equilibrium to another (Burns et al. 2000:4), could be seen idealistically as a systematic and functional effort (Kasurinen 2002). From the basis of a new strategy, a plan would be formulated and executed with a well-managed change project. Furthermore, during the project, individuals would seek the best out of their organization and perform as they say. The reality is however different (Kasurinen 2002). In order to understand the factors that influence in the pricing strategy change process requires identification of advancing and opposing forces of change, those that emerge from the organization or external environment. The importance of top management involvement, their sponsorship and leadership in bringing the change is highlighted.

Value-based pricing is said to be sophisticated and complex approach to pricing (Forbis et al. 1981). It features complicated customer specificities (Töytäri et al. 2015) and the value customers' perceive is subjectively evaluated through context (Kowalkowski 2011:279) and prevalent business position, which are exposed to time and environment. It requires changes in the mind-set of the organization, reforming the prevalent organizational institutions around cost-led selling, conceptualization of customer-perceived value, quantification of value to influence customer value perceptions and to control the value at risk. Successful implementation and execution of value-based pricing should finally realize as an increase in revenue and, or higher profit margin (Töytäri et al. 2015).

1.2 Purpose and theoretical framework of the thesis

The research question of this thesis is focusing on the factors that affect the application of value-based pricing in industrial sector. The purpose is to study the presence of change resistance towards the new pricing strategy (change in management accounting systems) in a case company organization and the challenges in the application of value-based pricing in the case company industry.

The level of change resistance is measured through motivation, confidence and institutional influence around the old pricing strategy. These measures are then analyzed against the respondents background factors, with the target to (possibly) identify whether these factors have diverging effect on how individuals respond to change. This point of view is providing fresh standpoint to the research context. In addition, whether management involvement and sponsorship in bringing the change are seen important, as suggested by Liozu & Hinterhuber 2013, is studied and included into the background factor related analysis.

As said; pricing is a sub-system of a management accounting system, thus a change in management accounting system was seen relevant to include into this study. Management accounting systems are studied to constitute the rules and routines of an organization. A lot of research has been done on changes in management accounting system and the issues that have been recognized to influence the change process are discussed. This should broaden the understanding of the influencing factors that advance the change as well as generate barriers which may impede, delay or even stop the change process.

Furthermore, marketing scholars and pricing practitioners praise the superiority of value-based pricing in increasing profitability (Monroe 2002) and competitive advantage. Despite of this, minority of the companies in industrial sector have implemented it. The focus is on analyzing whether its application is seen practical and efficient from the viewpoints of selling to a sub-supplier (later referred to as shipyard) and main supplier (later referred to as ship owners).

Change in the management accounting system and the topic of pricing strategy change and application of the said pricing strategy, value-based pricing, sets the foundation of theoretical framework of this study, as illustrated in figure 1.

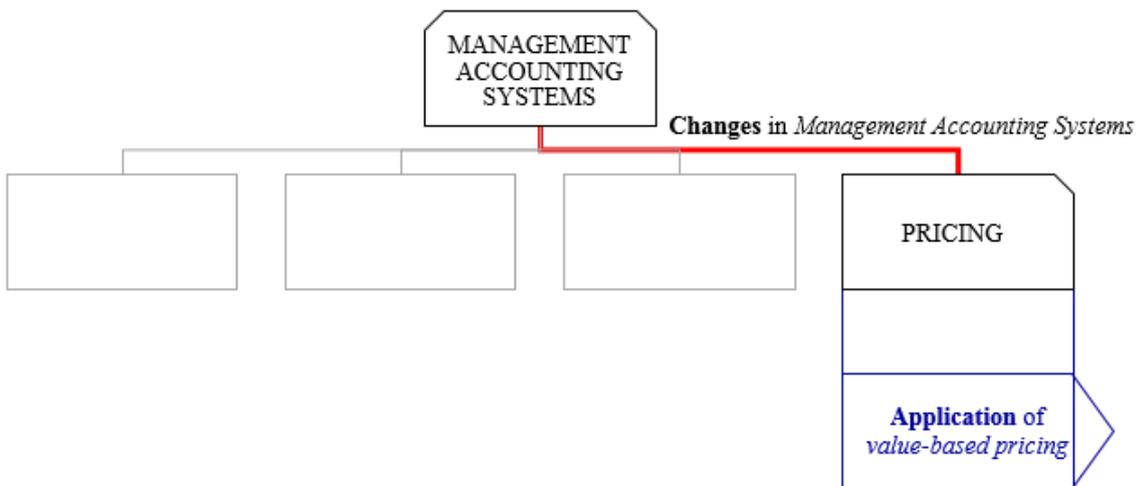


Figure 1. Theoretical framework of this study.

The aim of this study is to examine the presence of change resistance and institutional opposition towards change in the management accounting system. The target with the selected research method is to measure and analyse the response of the case company organization towards change in management accounting system and also their insights towards application of the new pricing strategy, value-based pricing.

The reason for selecting the utilized research method and statistical analysis were in the presumption that these could provide more comprehensive view of the phenomenon than with a (for example) qualitative research method.

The purpose of the hypotheses regarding management systems change are to examine the presence of change resistance in the case company and whether this study supports the

findings that have emerged in the research studies connected to the theoretical framework. On the application of value-based pricing; the hypothesis is to examine its functionality from the practical perspective of selling to shipyards and ship owners.

1.3 Research methodology and data

Theoretical part of this study is based on research articles in touch with the theoretical framework. Emerging issues arising from the research articles related to a change in management accounting system and pricing strategy change are discussed and analysed through empirical survey in a case company. The research articles used in this study have been collected mainly from SciVerse ScienceDirect, EBSCOhost and ProQuest Central: Business & Economics academic databases. Research articles were searched by using multiple keyword combinations that arose from the theoretical framework.

The research of this study is carried out by using mixed-methods. This study is a case study with an inclusion of quantitative survey-based questionnaire and is executed in a case company that is a global leader in advanced technologies and mechanical engineering, providing complete lifecycle solutions for the marine and energy markets. The survey-based research method utilized structured questionnaire in the data collection. Likert 7-scale response frame was applied in the questionnaire. The questionnaire consisted of questions about respondents' background, personal views on the pricing strategy change and application of the value-based pricing from the viewpoints of selling to a shipyard and ship owners. The group to which the questionnaire was addressed to was limited to individuals working in, or close to Sales function. The target group of respondents amounted to 151 out of which roughly 80 responses were recorded. After evaluation of the responses, 75 responses were classified as eligible for the empirical analysis (generating response rate of ~50%).

All the responses were compiled in Microsoft Excel and exported to SPSS (24) for statistical analysis purpose. In SPSS, the data was analysed through various statistical methods. The conclusion was that data for the hypotheses regarding pricing strategy change from the management accounting change perspective was analysed with nonparametric Mann-Whitney statistical U-test and through descriptive statistics. For the hypotheses regarding the application of value-based pricing towards shipyards and ship owners, data was analysed on the basis of non-parametric Wilcoxon Signed Rank Test, which is an equivalent for t-test without normal distribution assumption.

1.4 The validity and reliability of the study

All the research studies are subject to their validity and reliability. With validity, a reference is made to the initial research question, and whether the executed survey is measuring accurately of what is to be studied. In a questionnaire-based survey research the felicity of the questions and related layout, this is their capability to record the measure in question, will primarily affect to the validity of the study. The validity will eventually define whether the research problem can be successfully resolved. (Heikkilä 2010.)

According to Heikkilä (2010), the pre-requisite for a research study is to reassert the validity of the study by careful planning and consideration on how the data will be collected. The target for the questionnaire used in this study was to use as earthy and simple, context related word choices, as possible. Also, the limited group of respondents considered in this study were all, research topic-wise, somewhat equal, as all had participated in the pricing workshop (training) regarding the application of value-based pricing. These aspects should thus strengthen the validity of the results. However, the nature of questionnaire-based survey is, and especially when using structured questionnaires, that it basically does not leave room for elaborating the question further by the researcher, thus the result rely entirely on how the respondent has understood the questions or statements.

To further improve the validity of the survey, the respondents were told that the results are confidential and as such would not be published. Therefore it is reasonable to assume that all the respondents have given their responses truthfully. Furthermore, it was requested to keep the questionnaire short due to the original plan to gather all the responses during a break in the pricing workshop sessions. The expectance with a short questionnaire was that more responses would be collected, but the potential downside was in the relatively heaviness of the questions (to cover all the needed input for the study and analysis).

Reliability refers to the repeatability of the measured results. The expectation is that the research results are exposed to randomness. As briefly touched above, in a survey-based research, the respondents can misunderstand the targeted question, which affects negatively to the reliability of the study. (Heikkilä 2010.)

To safeguard the reliability of this study the questionnaire was tested beforehand with few persons working in the sales function of the case company. Some of the questions

used in the questionnaire were rephrased to better grasp the target or measure of the related question, eventually improving the reliability of the study. One question was eliminated afterwards due to its poor ability to measure the statement which was in question (question 9 [see appendix 2]).

1.5 Research context

As have been indicated already earlier, this is a case study with an inclusion of survey-based questionnaire. The case company is a global leader in advanced technologies and mechanical engineering, and provides complete lifecycle solutions for the marine and energy markets. The empirical research is limited to extended sales function of the marine solutions division. The division provides extensive portfolio to marine markets and represents 34% of the turnover (2015).

The division offers high-class technological solutions mainly for shipyards and ship owners. The nature of business is to deliver products for marine vessels and the focus in the offering has developed more towards technological attributes without focusing neither to the environment nor local conditions of the customer. The offering tools were built originally from the basis of deliverable product with connections to cost databases, which has been considered as an originator and perpetuator for the cost-led pricing and selling mindset in the case company organization. This 'system' has left very little latitude for salesforce to strive potential excess value from the markets.

1.6 Structure of the study

The structure of this study divides into seven main chapters. The first chapter provides an introduction, theoretical framework and research context of this study. Also the research methodologies and structure of the study are shortly presented

The second chapter concentrates on changes in management accounting systems. It was seen crucial to set up the background by discussing the institutional power that underlie in the organizational setting as well as the advancing forces and impeding barriers that affect in the change process. The importance of leaders in bringing the change is also discussed in this chapter.

In the third chapter the implementation and application of value-based pricing is discussed. It begins by giving an introduction about pricing, and then presenting the main pricing strategies used in the industrial sector. The main focus is then on conceptualization the customer-perceived value, how it can be influenced and finally how to capture a share of the created value. In chapter four the hypotheses are formed based on the theory and findings discussed in chapters two and three.

Chapter five provides introduction to the selected methods utilized in this study. The purpose of case study is presented together with the survey research method. How the data was collected and which statistical tests were applied in the analysis are discussed.

The results of the empirical research are presented in chapter six, followed by chapter seven where I give my conclusion for this research study and motivations for future research.

2 CHANGE IN MANAGEMENT ACCOUNTING SYSTEM

2.1 Management accounting systems

Management accounting system is the core of financial information. Accustomed viewpoint portrays management accounting as providing information for management planning and control (Burns & Scapens 2000:4). It uses data from the business operations, such as material costs, sales, changes in inventory and so forth, converting the information to reports for management analysis. It can contain multiple sub-systems, like cost-accounting, pricing and inventory management.

Management accounting practices have been in the focus of development, research and debate in the past decades. Simultaneously changes in the environment, such as advances in technologies and in organization management practices and systems (ERP), Business Intelligence, organizational structures and other electronic interchange possibilities have shaped the way how activities are conducted in companies. These internal and external changes create innovative practices and systems that are desired by companies, in which their management are willing to adopt these into their organizations. Managers are increasingly keen on using their accounting systems to generate financial reports in combination of a set of performance measures (Miller & O'Leary 1993). (Burns et al. 2000.)

2.2 Changes in management accounting systems

Relatively little attention from the research point of view has been given to understand the processes out of which these new management accounting systems and practices emerge, or fail to emerge, through time (Burns et al. 2000:4). Burns et al. (2000) argued that much of the research done in this area approaches the theoretical topic from a static viewpoint, focusing on the outcome of changes in management accounting (Covaleski, Dirsmith & Michelman 1993) rather than as a process of how the management accounting system becomes what it is. (Burns et al. 2000.)

Conceptualizing management accounting change calls for an inclusion of social sciences. The junction to social sciences emerges from institutional theories. The two most used approaches to explain management accounting system changes are Old Institutional

Economics (Scapens 1994) and New Institutional Sociology (Carruthers 1995). Despite both of these have different origins and intellectual roots (Burns et al. 2000:4) they share a common concern for institutions and institutional change with their insights that helps to conceptualize change in management accounting systems (Burns et al. 2000).

2.2.1 Power of institutions

Accounting in its wide social context unveils that instead of being simple recording and measuring system, it encompasses power relationships (Napier 2006; 462). From a social and institutional perspective, institutions, once grounded deeply into the organization, constitutes a set of rules and values that are taken-for-granted. These rules and values are predominant within the organizational social setting that underlies behaviours of organization or individuals actions and thoughts. Institutional power can exist anywhere within an organization, and can be purposefully harnessed to resist new rules or practices opposed to the organization (Burns et al. 2000:23). Organizational groups and individuals may also have also interests, goals, which are in a conflict with others and can result as a constant battle to conquer them.

The definition of power in this context can be explained as a subject, single or multiple, within the organization, that objects changes opposed to a management accounting systems (Burns et al. 2000). One of the factors out of which institutional power emerges is the autonomy of a specific department or such within an organization. According to Scapens and Roberts (1993) this autonomy springs up from the advantages of delegation of organizational or departmental authority and responsibility, being associated with the obtained benefits from high functionality and performance. (Scapens et al. 1993.)

Even though of the changes in business environment and in management accounting practices, it seems, indicated by studies, that the change in management accounting systems advance at much slower pace. Change resistance as one of the common themes has been argued to be one of the powerful factors in the change process and if it cannot be overcome it might prevent the implementation of change in management accounting systems and practices (Angonese & Lavarda 2014:215). In the past years institutional theories have been notably in the centre of studies of management accounting and management accounting change. Organizations and their environments social and institutional dimensions have been included into the context. In detail, management accounting systems, from an institutional perspective, are considered strictly linked to the

rules and norms that prevail in the organization and structure its social and organizational life (Burns et al. 2000). (Ribeiro & Scapens 2006; 95).

In 1994 Robert Scapens made a wide general statement that management accounting systems, in many organizations, constitute the rules and routines in the organization (Burns et al. 2000:4). These routines and rules can be considered as components of institutions. These refer to the work practices, how things are done, and ways of thinking, which through time become regular. Organizational rules, written or unwritten, are in the background in which routines formulate both the individual and the group regular ways of doing and thinking. Repetition of the formula through time, as a gradual widespread process with organizational specific convention of thought and action, leads to institutionalization (Burns et al. 2000; Scapens 2006; Ribeiro et al. 2006). In specific, the form of accepted and unquestioned assumptions which locate at a sub-cognitive level, that govern the daily conduct of business (Ribeiro & Scapens 2006:96). However, these unquestioned assumptions might have lost the connection to their historic origins or kept in place by relations of power (Ribeiro et al. 2006:96). These signal the slower pace of change related to institutions compared to, for example, organizations external environment.

It has been argued that some organizations or functions within organizations are strategic in their response to the institutional pressures focused on them (Oliver 1991). This strategic defence mechanism means that they purposefully comply with new practices, or adopt specific formal procedures, but in a manipulative fashion. This is done in order to gain their legitimacy, which is needed to secure resources and grants they depend on (Edelman 1992). This phenomenon is identified as window-dressing, where organization is seemingly complying with the new set of rules or practices but on the practical level applying old institutional structures and procedures to keep things as they were. (Ribeiro et al. 2006.)

Institution, crystallized by Ribeiro et al. (2006), is a constitution of deeply rooted and self-evident rules, values and routines that prevail in a specific social setting, which governs organizational behaviours or thoughts and actions of an individual. The so-called decoupling between the code and actual work practices is a strong example of an institutional power.

2.2.2 Advancing forces and barriers of change

Based on the revised (Kasurinen 2002) accounting change model, built on the foundation of accounting change model by Innes & Mitchell (1990) and Cobb, Helliard & Innes (1995), advancing forces of change as well as barriers which may impede, delay or in its full force even halt the practical process of management accounting change, are analyzed. Together, they can be referred to as influencing forces of change (Kasurinen 2002:324).

There is always an underlying motivation out of which a catalyst sparks the topic of change to surface in the minds and discussions of an organization. Such motivations usually emerge from the general business environment and are labelled as factors of motivators. These can be for example competitive market situation, globalization of the market, complexity of the business environment or advances in production technology (Innes et al. 1990; Kasurinen 2002:335). Product lifecycle maturity and management accounting system can also act as a motivator when narrowing to factors arising from the company itself. (Kasurinen 2002.)

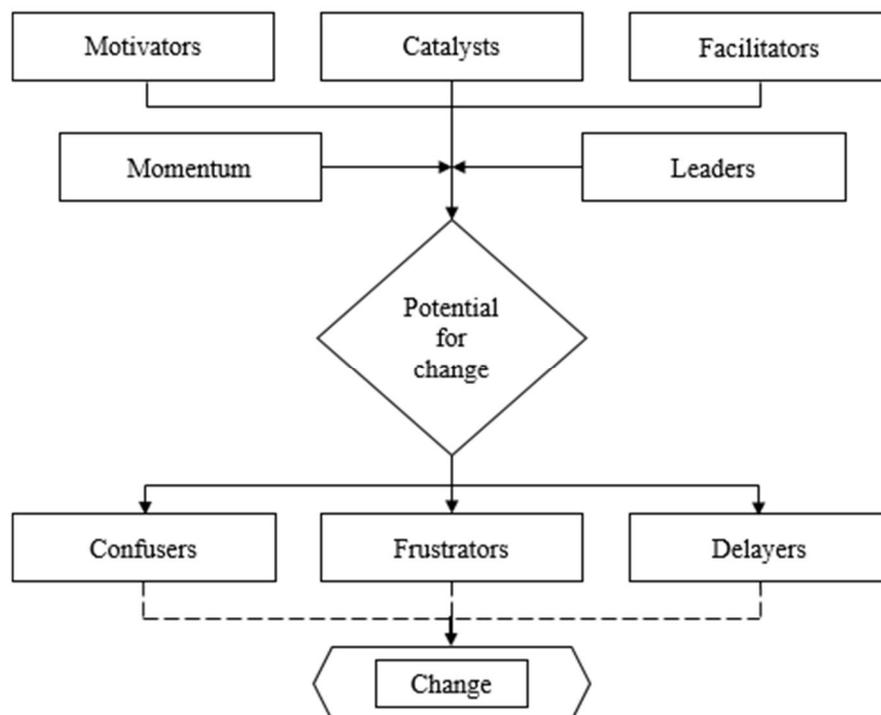


Figure 2. Revised accounting change model (Kasurinen 2002:338).

Catalyst as a factor can be directly associated with change and they emerge from conducted strategic analyses (Kasurinen 2002:336, 339). Catalyst for a change, specified by Innes et al. (1990), can be for example issues with profitability or in general business performance, decrease in market share or a competitive product entering a market. The substance for change evolves from the combination of motivators and catalysts and leads to a decision whether to initiate the change process or not. (Kasurinen 2002.)

Factors that facilitate change are not sufficient as such to drive the change through, but their existence is needed for realization of the actual change. Strategically well-structured organization (Kasurinen 2002:339) can turn out to be a great asset and facilitate change through certain resources of a function having a vital role. Individuals can also be facilitators and here the connection is drawn to leaders of the organization (Cobb et al. 1995). In the framework of pricing strategy change, notion by Preslan (2012) was that pricing touches everyone in the organization, from top-management to sales, marketing, customer service and supply chain, logistics and operations. Everyone has their stake on executing pricing strategy. Today, information technology plays a crucial role in the companies' operations and can also act, tool- and system-wise, as a facilitator in a change process. (Kasurinen 2002.)

Once the change has been initiated, the involved organization inherently expects the change to continue (Kasurinen 2002:336). Things should be kept moving on and to ensure that progress is taking place. This is referred to as force of momentum and should be sheltered as by not letting organizational inertia to start influencing.

It is evident that strong vision and leadership are required to drive successful change. However, leaders do not necessarily understand the way in which individuals commit to change. The potential in a change is often seen as an opportunity by top-level managers, whereas for the operative force change is neither aspired nor welcomed. Thus, managers should consider and understand the change also from the operative perspective as it usually has an impact on the reciprocal obligations and mutually agreed commitments. Furthermore, since these conditions usually alter during the change project, it is unrealistic to expect full commitment from the employees before new conditions are defined and accepted. (Kasurinen 2002: 326.)

Conflicting targets or priorities of the change by management level can cause confusion in the organization (Kasurinen 2002:337) and promote uncertainty related to the change project. Frustration can arise from the organizational culture or from actions or decisions

that suppress the original change intention. Finally, delayers, often temporary by nature, can arise from poor planning and resourcing or because of technical, information system related hitch. Prior to involvement of organization, the scope, depth and target of the change must be in place and jointly agreed by the individuals or departments possessing decisional power.

In figure 2 these factors are illustrated (Revised accounting change model, Kasurinen 2002:338).

2.2.3 Executing change through leadership

Executing a price strategy is not a simple task (Preslan 2012). The importance of leadership in the process of change has emerged from the theoretical framework of this study. In the context of management accounting change, leadership was identified as an advancing force in change process (Kasurinen 2002). Furthermore, the literature on transition towards value-based pricing puts a great deal of weight on the leadership, suggesting top management involvement for managing the change (Liozu et al. 2012a).

The research results by Liozu et al. (2012a) revealed that the companies who successfully implement value-based pricing had common characteristics. They had succeed in executing deep transformational change, removed as many structural and emotional barriers as possible (Preslan 2012), they had top executive champions leading the transformation, the organizational mindfulness was established and diffused, they had managed to boost the organizational confidence which fuelled the transformation and designed centre-led and specialized teams to support the company's pricing transition process. (Liozu et al. 2012a.)

Transforming price strategy into price execution and a continual discipline is a process of many years, route full of obstacles. Having a mindful top executive to oversee a price management project greatly increases its chance of success (Preslan 2012; Liozu et al. 2012a). The literature emphasizes the role of organizational champions in delivering the organizational change (Howell & Higgins 1990). Preslan (2012) underlined to place a position of chief pricing officer into organizational setting to drive the execution of new pricing strategy (Preslan 2012). Positive outcomes emerges also when CEO's take an active role in new pricing innovations (Liozu & Hinterhuber 2013a). The role of top management defining and promoting corporate-wide priorities and new strategic

objectives, and furthermore also in identifying, securing and deploying strategic resources to support and meet the objectives has also been highlighted (Chandler 1973). The conclusion is that management sponsorship and coaching is crucial in adoption of new pricing strategy. (Liozu et al. 2013a.)

Skilled organizational champions, leaders, are charismatic (Nadler & Tushman 1990), transformational (Bass 1985; Wang & Huang 2009) and advocate change (Nadler 1997:98). They are strong in communicating clear vision of the innovation potential, they sense and navigate through environmental turbulence, show enthusiasm and demonstrate and cultivate commitment by involving others in supporting the change (Howell et al. 1990:323). Pricing champions observe pricing practices by investing in salesforces capabilities, by developing tools and providing training for sales employees in order to equip them with resources to meet the pricing goals (Liozu et al. 2013a). Champions create sense of resilience, confidence and increase effort-accomplishment expectancies by reasserting collective and individual efficacy (Tasa, Taggar & Seijts 2007) in organization members.

3 VALUE-BASED PRICING

3.1 About pricing

Prices constitute the language of business. The meaning of word “price” is conceptualized variously by different people. Many think of the equation that “price equals to cost plus profit” (Kain & Rosenzweig 1992:24). They contribute to the business by serving three crucial functions. Firstly, they contain information. Secondly, they provide an incentive for utilizing production methods that are optimal, consuming the least of inputs while generating the most of value. And thirdly, they distribute income. Successful companies are laser-focused on pricing as a critical discipline (Preslan 2012). (Baker 2003.)

From the literature point of view pricing strategies have not gotten the same level of attention by the marketing scholars and other practitioners than compared to marketing or business strategies. According to a study by Ingenbleek in 2007 the conclusion was that pricing literature is highly descriptive and fragmented, lacking combined insights (Ingenbleek 2007:441). It is also silent about the alternative pricing orientation consequences from a company performance perspective and how behavioral characteristics may impact the adoption of pricing orientation (Ingenbleek 2007). While the need for alternative pricing orientation in the demanding business environment has increased substantially in the recent decade, Liozu and Hinterhuber in their review article found that pricing in industrial sector is still an under-researched topic (Liozu & Hinterhuber 2013a).

In a large, continuously growing and complex global marketplace it is essential for companies to develop their pricing strategies. With a dysfunctional pricing strategy companies can miss significant opportunities that could increase their revenue and profits. (Hogan & Lucke 2006: 54.) If the supplier can't defend their prices and will let customers to consider prices to be negotiable, value will be eventually given away when pushed hard enough (Hogan et al. 2006:54). Suppliers have also started to bundle their offering with additional products and services into their main offering to attract customers, sweeten the deal, and make sales. This approach can backfire by giving away services or other value elements that can make customers to consider these to be not valued by the supplier (Hogan et al. 2006:54). As Hogan et al. pointed out; these short-sighted pricing approaches can increase or sustain sales, but are also channelling customers to focus mainly on prices and ignore value. (Hogan et al. 2006.)

3.2 Cost-based pricing

The most used pricing strategy within the industrial sector is cost-based pricing. It base itself primarily on cost data, sourced from the accounting data. The principle objective is on applying a certain markup or return for costs or an investment for defining the offering price. Known approach rooted from cost-based pricing is cost-plus pricing (also known as mark-up pricing). (Hinterhuber & Liozu 2012: 70.)

The ideology that the amount of labor and materials spent in manufacturing a product or service being a responsible for its value has a very long history. It was Karl Marx's labor theory of value that set the foundation for cost-based pricing. Later, Adam Smith's cost of production theory, has also been considered as a predecessor to cost-plus pricing. (Baker 2003.)

The main reasons why cost-based pricing has dominated the pricing strategies in industrial sector (Liozu et al. 2012a), but also beyond, is in its ease of use. The approach originates from the company's internal efficiency, based on material, labour, overhead and immaterial costs. As most of the companies naturally understand their cost structures, it provides an easy, objective formula on which to base the calculations and apply reasonable rate of return (Hinterhuber et al. 2012; Baker 2003).

A somewhat common form of cost-plus pricing is with an inclusion of competitor price component (Skugge 2011:392). Here the supplier calculates the cost of manufacturing a product or creating a service and adding a markup to arrive at an offer price. Observing the competition the price is then adjusted accordingly.

The main weakness in cost-based pricing is its inward-looking approach to market. As such it does not account for the value of the product or service to the customer. In general it has disinterest on external perspectives. It ignores the aspects of customer's willingness to pay, price elasticity and competitive price levels (Hinterhuber et al. 2012:70). Another critical downside with cost-based pricing is that any development done within the supplier processes that result, for example as a decrease in costs, can move unnoticed to customers' advantage. The method of cost-plus pricing is thus a calculation of inside-out prices, compared to value-based pricing which is the opposite method of calculating outside-in prices. Going from inside-out to outside-in pricing is a step forward towards value- based pricing (Skugge 2011:392).

However, internal transactions within a company are often based on cost-plus pricing, unless the trade is not subject for arm's-length transaction. The products or services subject for internal trade are often without market reference prices due to their uniqueness for the organization or because the trade is about semi-finished products. This synergy within a company calls for a procurement decision, and in the absence of market prices, the organization is left with a cost-plus transfer pricing scheme. Whether the prices are negotiated, as suggested by the textbooks, or governed by a corporate rule, in the end the transfer price is set above seller's incurred costs, resulting as cost-plus transfer pricing. (Kren 2014: 56.)

3.3 Competition-based pricing

Competition-based pricing approach utilizes competitors' price level data or anticipated actions of potential competitors as a primary source on defining appropriate price levels (Hinterhuber et al 2012:71). According to Kain et al (1992:24) companies using this pricing strategy want their prices to reflect perceived value and image, examined from the customer perspective. Examples of such pricing strategies include floor-pricing, penetration pricing and price leadership. Floor-pricing is a strategy where prices cover only the incurred costs (break-even). Penetration pricing is a tactical pricing strategy that is used when company enters the market. This strategy utilizes lower than average market prices. Price leadership is when a market leading company makes conservative pricing decisions, followed by competitors. (Kain et al. 1992.)

Obviously, the main advantage of competition-based approach is that it takes strongly into account the competitive situation. However, likewise with cost-plus approach, the disadvantage is in its ignorance of demand function. Focusing primarily on competing with prices can inflict the risk of price war and it can also draw the attention from value offering to prices being the most important criteria for customers. (Hinterhuber et al 2012: 71.)

3.4 Value-based pricing

Of the main pricing approaches prevalent in industrial sector – cost-based, competition-based and value-based – the latter is considered superior according to most marketing scholars (Hinterhuber 2004; Ingenbleek et al. 2003; Nagel & Holden 2002; Anderson & Narus 1998) and pricing practitioners (Forbis et al. 1981). However, only few industrial companies have adopted it (Liozu et al. 2012a). Hinterhuber (Hinterhuber 2008a) conducted multiple surveys in between 1983 and 2006, which revealed an adoption rate of just 17 percent for value-based pricing strategy. Cost- and competition-based pricing practices continued to reign in industrial sector (Liozu, Hinterhuber, Boland & Perelli 2012b). Creation of superior customer value has been recognized as a key for companies' long-term survival and growth (Slater 1997; Woodruff 1997). While the literature has recently picked up on the customer value creation - the implementation of it at sales force level is still largely unexplored area (Terho, Haas, Eggert & Ulaga 2012:174) and the concept of value-based selling is considered relatively innovative approach (Töytäri et al. 2015:58).

An Austrian, Carl Menger, a Brit, William Stanley Jevons, and French-Swiss, Leon Walras, were the three economists in 1800's who independently developed the idea that value was determined, ultimately, by the consumer (Baker 2003:3, Vargo & Lusch 2004).

Value-based pricing concept requires mindset similar to marketing concept, which focus heavily on the outside of the organization. It does not try to figure out what the supplying company or organization wants or needs, but rather looks outside to the customer and asks what they desire and value (Baker 2003:1). Thus, value is only created when supplier have produced something the customer voluntarily and willingly pays for (Baker 2003:1). In today's tight competition environment with increasing pressures on prices, companies are putting more efforts in understanding customers' value perceptions (Ingenbleek 2007) which calls for implementation of value-based pricing (Töytäri et al. 2015:57).

Products or services, industrial or commercial, are not valued because of the labour and materials being used in the production. Rather, the means of production are valued because of the potential value of the consumption of products or services (Baker 2003). Value is exchanged in business markets through trade, where transactions takes place between the suppliers and a customers. In the relational processes it means that supplier, in exchange for money or other commercial attribute, supplies technical, service or economic outputs of which the customer obtains benefits (Anderson et al. 1993; Töytäri

et al. 2015:55). During the relationship between customer and supplier both dimensions of value, benefits and sacrifices, are subjected. Customer makes supplier-related sacrifices and receives related benefits.

The value is thus the difference between net benefits and price paid, where the price is being determined in the range set by the supplier cost and the value perceived by the buyer (Forbis et al. 1981; Kortge & Okonkwo 1993). The range can consist of multiple price points based on differences in customers' willingness to pay, limited by the perceived net benefits (Anderson & Wynstra, 2010:31). Furthermore the price specifies the distribution of value between the parties. In value-based pricing it is considered that the value the product or service delivers to the customer, in a specified segment, is the factor that sets the price (Hinterhuber 2008b:42). From the pricing reference point of view it means that the value customer perceives is variable. Thus, value, having its dynamic nature and being subject to context, is evaluated at times and in different business situations. (Töytäri et al. 2015.)

According to the findings by Liozu et al. (2012b) companies that had successfully implemented value-based pricing had their conception of value in line with the current academic literature, whereas those who had failed in the transition showed poor understanding of the concept of value-based pricing. This could explain why their companies continued practice cost- or competition-based pricing approaches.

Value-based pricing is said to be sophisticated and complex approach to pricing (Forbis et al. 1981). It features complicated customer specificity (Töytäri et al. 2015) and it does not form entirely on quantified parameters, like cost-plus pricing that utilizes internal cost accounting data, or external price-points generated in the market, like competitor prices. It basis itself on customer-perceived values, which are subjective, bound to time, environment and business situation. Thus, the price point defined by value-based pricing cannot be interpret as absolute, moreover it is a moving target and requires constant monitoring, value audits and analysis by the supplier to keep the strategy performing.

3.4.1 Customer-perceived value

The customer's perception of value is indicated as customer-desired value (Flint, Woodruff & Gardial 2002) or as customer-perceived value (Töytäri et al. 2015), which portrays the customer's value perception and scope, what is the anticipation and which dimensions are considered in the customer perception of value. Outside of the product or service, value can be classified through strategic, economic, symbolic, operational, behavioural, technical, social, knowhow, time-to-market and supplier related relationship (Anderson, Jain & Chintagunta 1993; Wilson & Jantrania 1994; Ulaga & Eggert 2005; Töytäri et al. 2015). Thus, value in customers' perception is constantly subjective for appreciation.

The definition of value is ambiguous, subjective. It consists of multiple factors. From a customer perspective it is subject for evaluation through context (Kowalkowski 2011:279) and prevalent business position. Customers perceive value differently, through institutionalized norms and rules, the way they do business, influenced by social and behavioural factors. The perception of value is exposed to time, meaning that it becomes dynamic from the perspective of its weight and related importance to business (Flint et al. 2002:102).

Value is conceptualized by most researchers as a function, consisting of the benefits the customer receives and then compared with the costs that has incurred obtaining these benefits (Liozu et al. 2012b). Some debate exists among researchers on the elements what to include in the benefits component of value as well as how to treat the cost component (Liozu et al. 2012b). Cost accounting data in regards to pricing decision has a clear role in value-based pricing but the significance of the incurred costs are heavily questioned. Through value estimation to profit optimization companies should only invest in those costs that create and deliver significant value to the customer. The approach is the opposite of cost-plus pricing: companies' needs to understand that price determines the costs and not let its costs dictate the price (Baker 2003:4).

The conceptual framework of customer value does not contain economic indicators but through operational performance the economic measures as an output are focused in the customer value-based approach (March & Sutton 1997). Customer value-based approach affects the economic outcome with a change in all or in one of the economic performance indicators, being an increased revenue or profit margin through decrease in operational

cost (OPEX), by an improvement in the operation stability that reduces risks or by a developed efficiency in capital or process input resources. (Töytäri et al. 2015.)

One of the key approaches in value-based pricing is the need for customer differentiation. In order for the supplier to start identifying the customer desired value, customers should be categorized into market segments, business segments, sales types and so forth. This will enable supplier to focus on the customer specific value desire out of which value propositions can be created.

The desired value in the customer organization is determined and influenced by various stakeholders (Johnston & Bonoma 1981) such as functions and departments that can have multiple targets and conflicting ambitions affecting with different magnitude of power (Eisenhardt & Zbaracki 1992). From an individual perspective there are factors such as education, past experience, career history and targets set by the present time and responsibilities that affect to the value perception. Despite of this, according to Cohen & Levinthal (1990), March et al. (1997) and March (1991), the standard of value perceptions within the industry is acquired through benchmarking and imitation of others and that generates a somewhat uniform attention to pricing. (Töytäri et al. 2015: 57.)

The prevalent practice of industrial purchasing is determined by the beliefs, set by the outdated transactional supplier relations and the approach to goods as commodities. According to the research article by Töytäri et al. (2015), there is an underlying characteristic within an industrial purchasing culture - that is aggressive buying. The nature of aggressive purchasing is rooted deeply in the organization, surfacing from old conservative institutions and norms that are more or less adopted as the global standard of doing industrial business. These institutionalized logics that govern the decision criteria of procurement were establish in an era with different market conditions, where the concept of value maximization or relational exchange was not necessarily the key focus. The manifestation of this is that prices are often taken as the dominant factor or key of focus. This implicates that a reduction in sacrifices, prices, is appreciated more than an increase in value. This price-focused practice indicates that in the industries, the value-based concepts are largely unrecognized or limited, and buyers' don't necessarily realize the value of, for example, total-cost-of ownership. This naturally impedes the applying of value-based pricing on the supplier side, especially if access to influence on decision power cannot be established through partnering or relationship management (Kraljic 1983). (Töytäri et al. 2015.)

Suppliers might encounter irrational decisions made by the buyer's purchasing organization or decision makers. Such challenges can be crystallized as goal conflicts. Industrial trade does not necessarily basis on products delivering the highest value. Buyers might be instructed to buy cheap and might lack the mandate to choose value over price.

Motivational targets, bonus plans or similar, can also strive buyers towards benefits that support their short-term goals over long-term incentives. Long-term relationship between buyer and supplier might hinder other suppliers to compete, as for the buyer to change supplier might realize as high switching costs. Despite of the highest value offered by the supplier for an organization, the alignment between individual incentives and organizational goals might not be inline, leading to a decision not favouring the highest value offered. Such sub-optimal objectives might encourage the rationale of individuals or functions having the decision power, possibly effecting negatively to the company through increase in total-cost-of-ownership (Töytäri et al. 2015:58). (Töytäri et al. 2015.)

Timing plays a crucial role in influencing customers' value perception. The sales-based influencing in mature industrial business markets is often reactive. Customers approach suppliers with finalized specifications with an embedded value conception (Töytäri et al. 2015:58). This late engagement does not leave much room for supplier's value conceptions. Buyers execute competitive procurement practices in the final stages of the buying process by making various decision alternatives comparable by dismantling solutions to comparable elements, applying bidding contests and reverse auctions to bargain, often with a strong focus on the initial investment cost (Hunter, Kasouf, Celuch & Curry 2004:150). To get a better bargaining position calls for an early influence on the buyers definition of scope, targets and evaluation criteria before the specification has locked and purchasing activities begin (Adamson, Dixon & Toman 2012). Influencing customers' value-perceptions through traditional marketing approach and verified reference stories should provide access to negotiate and sell value propositions. (Töytäri et al. 2015.)

As explained above, customer-perceived value is *subjective*, responsive to *time*, *business* and *environment*, it requires constant monitoring from suppliers by using methods of customer *value audits* (Ulaga & Chacour 2001), customer *value analysis* (Miles 1972) and customer *value research* (Anderson et al. 2007) to understand how business processes are executed and how value could be created by improving their business performance (Töytäri et al. 2015:58). Comprehensive implementation of value-based pricing requires

understanding of customer's earnings principle and getting into hearts and minds of a customer, however, this can be of burden for the suppliers' organization from the resource and system point of view.

3.4.2 Challenges in influencing customer-perceived value

Based on the achieved conception of customer-perceived value and to establish a reference point for value-based pricing, a quantified evidence of value needs to be established. Quantification of value is crucially important in influencing customer-perceived value. (Hinterhuber 2004.)

Quantification of value is founded on selecting an attractive salient economical result as an aggregate measure for value creation. Typical measures used in industrial sector are reduction in total-cost-of-ownership (factors reducing the cost of operational expenditure) and risk reduction. There can be multiple salient value dimensions derived from the customer-perceived value conception for which quantified value measures can be established through the access of customer baseline data. The output of the quantification exercise should generate a measurable performance level for the value dimension that can be used to calculate the aggregate impact on the value measure (Anderson et al. 2006). Added value can be achieved by incorporating the customer in the process (Anderson et al. 2007). (Töytäri et al. 2015.)

However, the exercise of value quantification for industrial companies is generally a significant challenge according to Storbacka (Storbacka 2011). There are obstacles in identifying the salient value dimension or disagreements with the customer on the value perceptions. As said above, for proper value quantification the access to customer's baseline data would ease and give depth to the supplier's value analysis out of which a better value offerings could be derived. The most fruitful situation would be to process the value analysis in conjoint with customer. (Töytäri et al. 2015.)

Certain practical barriers and challenges for suppliers to access the baseline data have been noticed. The level of depth in terms of data access can vary from non-existent to all-access-pass. Naturally, the deeper the supplier can get into the customer's processes and earnings principles the better it should serve the value quantification. Thus as a result a custom-fit offer, including the essentials for better business performance, should come as an output. Töytäri et al. in their research article brought up their findings, being consistent

with the findings of Grönroos & Helle (2010), of factors that limit or prevent suppliers to access this essential information. Customers might be refusal due to factors such as lack of trust, confidentiality and competition (Töytäri et al 2015:59, Grönroos et al. 2010:576) among other similar types of factors. The access can be granted by the customer but the analysis or interpretation of the baseline can be challenging for various reasons. If the offering of a supplier contributes significantly to the customer's value creation process, it should naturally have an influence to the willingness of a customer to enter into the relationship with the supplier (Van Weele 2009).

The lack of trust can develop from many different aspects. If the relationship between the buyer and Supplier is new, or if the Supplier is new in the market or if something negative has happened in the past that has left a mark into the relationship or general public. All these will affect to the image the customer has and which will for the most part direct his actions in this context. Supplier can gain credibility in the eyes of the buyer in many ways, especially through credible evidence originating from their business output. Trust and credibility are essential characteristics that customers use for evaluating the level of access in question. If there are issues with these characteristics it may discourage the decision makers on the customer side and result in refusal. (Töytäri et al. 2015.)

Buyers might also take a protective stand with sharing their baseline information. The perception of the customer on being too open might generate a view point that supplier could leverage the information for a higher price. In some cases the customer might also be jealous of their data and possibly withhold it in a fear it might benefit the competition. Appearing indifferent to benefits buyers might think they have an advantage on negotiating a better deal (Smith & Nagle 2002: 20). (Töytäri et al. 2015.)

As mentioned by Töytäri et al (2015) to quantify value requires capabilities on establishing a functional rule, which would generate performance indicators from the customer's operational parameters. An example of an comprehensive top-down process of a value quantification is for example the DuPont analysis, that can represent a viable form of information about the operating characteristics of a company (Soliman 2008:823).

3.4.3 Value capture

The core of business trade is that all parties pursue benefits that exceed the incurred sacrifices (Khalifa 2004), however, sharing the value between the business parties is noted to be a major issue (Wilson & Jantrania 1994:63). Customers are mostly unprepared to share the value evenly, even though there would be a certain proof of value (Töytäri et al. 2015:59). The greater the created value is the more issues it will generate in the business relationship (Wilson et al. 1994:63). To capture a chunk of the value created necessitates overcoming the rooted cost-based pricing, controlling the uncertainties in value creation and building a position with bargaining power (Töytäri et al. 2015:59).

Industrial purchasing has characteristics of repetition, representation of competitive alternatives and strong buyer power (Töytäri et al. 2015:59). Töytäri et al. (2015) brought up an interesting phenomenon which emerged from their research - cost-based pricing has become an institutionalized norm over time (Töytäri et al. 2015:59). This implies, generally speaking, that the cost levels are approximately known within the industry. This potential illusion of supplier costs and related value capture in relation to price can be seen as unfair, resulting as withdrawal or as price reclamation. Thus, to avoid revealing cost data that could indicate pricing reference for the buyer, should increase the position of strength in the negotiations and potentially increase the value capture. Such negotiating position can be seen as an antecedent to value-based pricing (Töytäri et al. 2015:60).

In industrial trade, value realizes very seldom at the moment when the transaction takes place. Rather it is created during the span of product or service usage, which can be a long period of time. This exposes value to inherent risk or failure. This can naturally generate concerns for customers whether their business will, during the usage period, realize the expected cost savings (Anderson et al. 2010:56) or capture the marketed increase in revenue and eventually in profits. The better the evidence of the value propositions the stronger position in the negotiations it assures. For new product launches the evidence is naturally scarce, unless reliable data exists from a pilot or demo program. The risk with this is that the missing proof of evidence, especially with new products or services, is factored into pricing (Storbacka 2011) and the potential value is then captured mainly by the buyer.

Capturing value with value-based pricing requires bargaining power (Bowman & Ambrosini 2000:1) through which the supplier can influence on how the value is shared. Supplier related challenges to bargaining power arise from sophisticated buyers, that

utilize leveraged purchasing and negotiation tactics to seize higher value capture. This is evident especially in markets where comparability of alternative offerings is easy. Through bidding contests the nature of negotiations can lead to prices being driven towards competition-based pricing, where the buyer captures the majority of the created value (Töytäri et al. 2015:60). The function of bargaining power operates in the range from supplier cost to net benefits (Töytäri et al. 2015:60). Regardless of the amount or role in creation of the value, being low or, and minor, supplier can capture small amount of the value subject for exchange, despite if their bargaining power would be weak (Bowman et al. 2000).

As stated earlier, to obtain long-term relationship, both parties need to benefit from it in terms of value. No supplier nor buyer will remain in the relationship if sacrifices exceeds benefits. Thus, aggressive bargaining in terms of motivation, integration efficiency and so forth can be ruinous for a relationship. Therefore, the value received from the long-term relationship should deter the use of one's weak position in negotiation for short-term goals. It requires changes in the organizations mindset, dismantling the prevalent organizational institutions around cost-led selling, conceptualization of customer-perceived value, quantification of value to influence customer value perceptions and to control the value at risk to build position of strength through implementation of value-based selling. And finally to capture fair share of the created value. (Töytäri et al. 2015.)

4 FORMATION OF HYPOTHESES

4.1 Hypotheses for management accounting change

From the basis of institutional theory, that deeply rooted institutions govern the behaviour of the organization and the individual; it was considered appropriate to measure whether the case company organization recognize the presence of institution around cost-based pricing and its (potential) hindering effect to change (new pricing strategy). Furthermore, motivation and confidence towards the new pricing strategy were measured, as these would clearly signal the commitment of the organization. The results of these should provide good indication of the presence of institution and how the organization responds to the change. Furthermore, as the importance of leadership has been highlighted in the research articles of management accounting systems change – whether management sponsorship and coaching is seen important in the adoption of new pricing strategy was included and measured.

People respond to change differently. The change is subject for value judgement through knowledge and experience (Quattrone & Hopper 2001, Burns & Scapens 2000). In the context of the case company, where the cost-led pricing and selling has prevailed for years (decades) and (potentially) become institutionalized over time, whether a long work experience affects to the defined measures is analysed. This is also supported with the theory that deeply rooted rules and routines that have been applied for long period of time can take a form of change resistance and thus oppose changes subjected to them (Burns & Scapens 2000).

Structural positions can also cause differences in the interests (Quattrone & Hopper 2001) and aspirations of the individuals or groups in the organization. Thus, it was seen relevant to include also whether the (employee) position (managerial or operational) affects to how change is experienced. Continuing from the positional effect, the expectation that managerial positions require higher education (along the knowledge and experience) than operational position, it was seen valid to include also the educational variable into the context of measures.

The defined measures; *motivation* and *confidence*, presence of *institution* and importance of *leadership* are thus analysed with the background information variables; *work experience*, *position* and *education*. The selected variables are also supported due to their

fundamental importance behind the respondents' responses. The target is to examine whether the findings of this study support the findings of the research articles of management accounting systems change. Thus, the first hypotheses of this study are formed as (null hypotheses);

H1: Work experience / position / education does not affect to motivation in the management accounting systems change.

H2: Work experience / position / education does not affect to confidence in the management accounting systems change.

H3: The prevailing institution oppose changes to management accounting systems.

H4: Work experience / position / education does not affect to the need of management sponsorship and coaching in the management accounting systems change.

The alternative hypotheses for H1 – H4 would be that *work experience, position and education* (separately) would affect in management accounting systems change.

4.2 Hypothesis for application of value-based pricing

The application of value-based pricing in the case company is analysed from the viewpoint of selling to shipyards and ship owners. The effectiveness of value-based pricing is measured based on the findings by Töytäri et al. (2015) and analysed whether the observations differ between shipyards and ship owners. The results should then signal whether the presence of similar barriers are present in the case company and thus influence in the application of value-based pricing.

The used measures are based on, as said, findings by Töytäri et al. (2015). Prices were recognized to be in the key focus in industrial trade, thus whether shipyards and ship owners favour reduction in price more than an increase value was measured. Furthermore, whether the focus is more on short-term goals than long-term benefits was included as well. The importance of early influence to customer's definition of scope was highlighted and thus whether involvement at the early stage of the customer's definition of scope enables selling of value propositions was measured.

A critical success factor for application of value-based pricing is the construction of value propositions from the basis of customers' value perceptions. As pointed by Töytäri et al. (2015) these can be derived from the customer baseline data. Therefore, customers' willingness to share their baseline data of value perceptions for supplier value analysis and quantification was measured. Lastly, the relevance whether the presence of high buyer power and competitive alternatives drive prices towards competition-based pricing was measured.

The aggregate of these measures formed a null hypothesis of;

H5: Application of value-based pricing is equally effective towards shipyards and ship owners.

The alternative hypothesis for H5 would then be that the effectiveness of application of value-based pricing would differ between shipyards and ship owners.

5 METHODOLOGY

5.1 Research methodology

This study applies mixed methodology; it is a case study with inclusion of survey-based questionnaire, which follows the quantitative research methodology. Quantitative research as such has its roots in natural science. The target of a quantitative research method is to convert data into information by using statistical methods (Malhotra & Birks 2007:86). The essential target of the information assessed in this study is to prove its validity, reliability and subject to generalization (Metsämuuronen 2006:35). The empirical research frame consists of three modules: research problem, data and method. Out of these, the research problem is the most essential as the gains of this research are fully dependent of its outline and definition. The research problem then steer the data collection, processing of it and finally the analysis (Heikkilä 1999:23).

For quantitative concerned research it is typical that the data is assorted to numerical analysis. The data can be sourced from statistics, registries or databases. It can also be collected by the researcher by executing a survey, which seems to be quite common these days. The method of collecting data is usually done by using a structured questionnaire or interview, following the quantitative research method requirements. From the basis of numerical data, questions can be explained in amounts, percentages (Heikkilä 2008:16) as well as correlations and changes in the phenomena's being observed. Findings are then usually illustrated with the help of tables and figures. For quantitative-based research it is typical that the reality is founded on objectively discovered facts and the universal cause and effect related laws tend to stand out (Hirsjärvi, Remes & Sajavaara 2009).

The research methodology of this study is quantitative survey that basis itself on a structured questionnaire. According to Holopainen & Pulkkinen (2003:19); a survey is a systematic questionnaire- or interview-based research that utilizes hierarchical forms in data collection. In addition, it is typical that the group subject to provide the required sample data is well defined in advance.

The advantages of a quantitative survey-based research are that the effect of a researcher is almost non-existent. This is valid especially in situations where the survey is executed through web or other similar means where the researcher is not present. The questionnaire enables collection of the data anonymously, which should minimize any external effect

to the responses, such as the presence of the researcher. The layout of the form and instructions related to questionnaire are also consistent to all respondents, which should have a positive effect on the data quality and reliability (Malhotra & Birks 2007:384–387).

However, the challenges with survey-based questionnaires are that it cannot be confirmed whether the respondents have been honest or thorough when responding. The respondents do not have the possibility to ask for clarification or clearance if they do not understand the question. Thus, it is impossible to control misunderstandings. In addition, quantitative research offers very little understanding regarding the actions of the individual (Hirsjärvi et al. 2009).

5.1.1 Case study methodology

Case study is an empirical research that utilizes diverse and various ways obtained information to analyse certain current incident or activity in a specific and defined setting. The intention of the case study research is to intensively analyse certain social target such as individuals, groups, institutions or communities. The research subject can be for example the related background factors, current state or situation, environment or internal or external factors of the research target. Usually there are various factors affecting simultaneously, thus the intention is to compile as holistic, detailed and exact depiction of the research target. (Yin 1987:23.)

As said above, case studies are in-depth researches of certain social setting, out of which an extensive and well-organized description is provided. Depending of the meaning of the study, the research focus can be in the total view or in a part of it; it can fasten on certain components or deal all of them simultaneously. It is a so-called intensive research method. It focuses on topical questions and enables the possibility to execute systematic observations and interviews. The weight in case study method is more on explaining the topic rather than on interpretation. It can be executed for example on the basis quantitative archive data and thus is not dependent on participation of an individual. Naturally the data can be complemented with information recorded from respondents. (Yin 1987:23.)

As such case study does not strive on generalization and the results should not be kept as generally relevant. The distinctive factor between case study and survey is that survey is used to examine a variable in a broad but well defined context, whereas with a case study

the aim is to explain well defined object with a restricted and limited data without separating the underlying variable structures.

The case company in this study is an enterprise in the global marine equipment production and mechanical engineering industry. The focus in the case company was limited to a sales function and related key supporting functions. The group was mainly salesforce and sales management plus few respondents representing Finance and Control. The recorded responses were random from the total theoretical response group.

5.1.2 Survey research

As laid out by Isaac & Michael (1997) survey research is used to seek an answer to raised questions, posed or observed problems, to assess needs and set goals, to determine if certain objectives have been met, to establish a reference for future comparisons, to analyse trends through time, to describe what exists, in what amount and in what context. (Isaac et al. 1997:136.)

The main three characteristics of a survey research are, first, in its quantitative approach to describe specific aspects of the defined population. These aspects generally involve variables of the relationships being observed. Second, in survey research the data is collected from people, and thus are subjective. Third, survey research uses a selected portion of the population to which the survey is addressed, and the findings can later be generalized back to the population. (Kraemer 1991.)

The dependent and independent variables in the survey research are used to define the scope of the study, but as such lack the explicit control of the researcher. Thus, the researcher prior conducting the survey must predicate a model that identifies the assumed relations of these variables. Next, the survey is executed to test this model against the observations of the phenomena. (Glasgow 2005.)

Comparing case study and survey, a survey is simply a tool to collect data required to carry out a survey research. Definition of a survey by Pinsonneault and Kraemer (1993) is that it is a mean of gathering information about the characteristics, actions or opinions of a large group of people (Pinsonneault et al. 1993:77). Salant & Dillman (1994:4) took a different angle on survey research by defining it as a method of assessing need, evaluating demand and examining the impact. In the context of a survey research, it is

good to make a distinction between the actual survey research and the survey instrument, which is a tool designed to support the research (Glasgow 2005).

The benefit of survey lies in its capability of obtaining data from large samples of the population. Furthermore, in its suitability on gathering demographic data that narrates the composition of the sample (McIntyre 1999:74). The use of types and number of variables in surveys is extensive, plus the variables hardly require much of neither development nor administration (Bell 1996:68). Like pointed out by McIntyre (1999:75), surveys can also elicit information about attitudes which can be difficult to record by using, for example, observational techniques. However, it is crucial to note that surveys provide only estimates, not absolute measurements for the true population (Salant et al. 1994:13).

On the reliability and validity of the survey research noted by Pinsonneault et al. (1993) is that it might not serve the purpose in full effect when the historical context of the phenomena is required. In addition, biases may occur either in the lack of responses from intended respondents or in the accuracy and nature of the responses that are received (Bell 1996). Other sources of errors in survey research include intentional misreporting of behaviours by respondents to confound the survey results or to hide inappropriate behaviour (Glasgow 2005:4). Finally, respondents might be unwilling to share their personal views or in general have distorted conception of the survey topic or the circumstances surrounding their behaviour.

5.2 Case company, research context and data collection

The case company is a global leader in advanced technologies and mechanical engineering, and provides complete lifecycle solutions for the marine and energy markets. The company is divided into three divisions, energy solutions, marine solutions and services. This study focuses on the marine solutions division, which represents 34% of the turnover (2015). The division provides extensive portfolio to marine markets through its business lines; from ship design, main engines, propulsion systems, electrical & automation systems, gas solutions, pumps & valves to environmental solutions, covering vast majority of the vessels types.

The business environment where the case company is embedded is about delivering high-class technological solutions for shipyards and ship owners. The focus and mindset has been more in the products and related technical attributes. Furthermore, the offering tools

have been built from technological perspectives with connections to cost databases, which has led to cost-led pricing and selling mindset (potential institutionalization). The presence of fierce competition with the technology-led offering philosophy has resulted that the customer needs and local conditions have not been in the key consideration from the pricing point of view.

The offering process has been two folded; sales support of the respective business line has configured the offered scope in the offering tool and provided the offer to the salesforce as basis for negotiations. This has left very little latitude for salesforce to pursue the price levels the customer perceives (inside-out).

Applying the revised accounting change model by Kasurinen, the factors for change are clearly recognizable. The motivation for the change was that the business was too business control-led. As the offered technological solutions and attributes have significant impact to costs, the presence and interference of business control on safeguarding the budgets was natural. As the case company division is organized into business lines and provides total solutions (bundled offers), the cost-based approach led to application of fixed product markups to control internal profit sharing. This practice does not consider the variation in the customer needs in different customer segments nor market environments. From the basis of fierce competition and cost oriented (selling) philosophy, management recognized the need for the change. Business management as a factor of catalyst took actions and appointed a pricing director to execute the pricing strategy change from cost-based to value-based pricing, which can be recognized as a facilitator in the revised accounting change model. With this nomination the ownership of pricing was moved from business control to sales function. It is in the hands of the pricing director to lead the organization towards value-based pricing strategy.

Along the implementation of value-based pricing strategy, the tools have been revised to provide a tool for salesforce to adjust the scope and related prices closer to customer value perception. The tool provides predefined elasticity for adjusting the scope and related prices closer to customer perceived value elements.

5.3 Data collection and analysis

An opportunity for an effective data collection took place in December 2015, when global pricing workshop sessions were held in Europe, Asia and United States. For these workshops the so called ‘extended’ sales function was invited. The population consisted of ‘functions’ such as operational salesforce, sales support, sales management and finance and control. As all the respondents are from the case company it is expected that they have responded truthfully.

The first section of the questionnaire focused on the background information of the respondent. Following information was requested; *work experience, gender, education, sales area, business line and function*. The second section focused on the feelings of the individual regarding the pricing strategy change (management accounting system change). The level of motivation and confidence towards new pricing strategy, the presence of cost-based institution and the importance of leadership in bringing the change were measured. The questions were based on Likert 7-scale response frame and consisted of verbal statements; *strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree*. In SPSS, the 7-scale data was encoded as value 1 representing the *strongly disagree* and value 7 *strongly agree* responses. The background details were to provide variables for analysing the presence of change resistance and institution around cost-led selling from the basis of questions in section two. The third section focused on the application of value-based pricing. The questions were formed as two folded from the viewpoint of application of value-based pricing towards shipyards (as a sub-supplier) and ship owners (as a main supplier). Section three utilized the same Likert 7-scale response frame as section two. Naturally, the target of the survey was to be as simple and unambiguous as possible while also easy to complete.

Table 1. Likert 7-scale response frame.

<u>Likert 7-scale response frame</u>	<u>SPSS encoding</u>
Strongly disagree	1
Disagree	2
Somewhat disagree	3
Neutral	4
Somewhat agree	5
Agree	6
Strongly agree	7

First batch of the data was recorded by handing over the questionnaire as printouts during a break in the first workshop session. An amount of 31 responses were collected in this event. However, due to technical and time –related issues the remaining batch was collected by using email. The exact same questionnaire was sent to the rest of the population that were not present in the first session. The questionnaire was sent to 120 people, out of which 44 responded. The total (theoretical) population being 151 people and the amount of responses recorded and eligible for the analysis was 75.

The research data of this study was analysed with statistical methods. The recorded data was analysed with IBM SPSS (24) Statistical Analytics software. The amount of observations was eventually relatively small ($n < 100$ [75]). Each hypothesis (H) is prepared with the H_0 assumption that there is no significant difference or, that the means of the variables do not differ. The alternative hypothesis then indicates that there is significant difference between the observed variables. Either one, null or alternative hypothesis, can remain valid. The purpose of statistical analysis is to generate results which define whether the null hypothesis is accepted or rejected. (Heikkilä 2008:193.)

As the target of this study is on comparing groups with certain variables, the suggested statistical analysis is t-test. However, t-test and many other statistical analysis tests assume the observations to be normally distributed. If the observation sample is large, the assumption of normal distribution is usually not critical. Instead, if the observation sample is small, the assumption of normal distribution can become critical. The observed sample data in this study was analysed in SPSS with Kolmogorov-Smirnov and Shapiro-Wilk tests to examine whether the distribution is normal. The results proved clearly that the distribution was not normally distributed (see table 3).

The level of statistical significance (P value [calculated probability]) is the measure of risk for measuring error when the null hypothesis is rejected. Generally used significance levels are;

Table 2. Statistical significance.

<u>Probability</u>	<u>P value</u>	<u>Significance</u>
>5,0%	>0,05	Not significant
5,0 %	<0,05	Significant
1,0 %	<0,01	Very significant
0,1 %	<0,001	Extremely significant

The interpretation of statistical significance was analysed in SPSS based on the Sig-value (Significance). From the basis of the above table 2, which was also applied in the statistical analysis of this study, the Sig- value was to be smaller than .05 to prove the existence of statistical significance in the compared groups to reject the null hypothesis.

Table 3. Test of normal distribution.

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	<u>Statistic</u>	<u>df</u>	<u>Sig.</u>	<u>Statistic</u>	<u>df</u>	<u>Sig.</u>
Q1	,301	71	,000	,807	71	,000
Q2A	,270	71	,000	,876	71	,000
Q2B	,294	71	,000	,832	71	,000
Q3	,208	71	,000	,903	71	,000
Q4	,263	71	,000	,805	71	,000
Q5sy	,330	69	,000	,799	69	,000
Q5ow	,252	69	,000	,882	69	,000
Q6sy	,285	69	,000	,819	69	,000
Q6ow	,225	69	,000	,896	69	,000
Q7sy	,199	69	,000	,895	69	,000
Q7ow	,204	69	,000	,905	69	,000
Q8sy	,191	69	,000	,918	69	,000
Q8ow	,274	69	,000	,797	69	,000
Q10sy	,206	69	,000	,873	69	,000
Q10ow	,178	69	,000	,924	69	,000
Q11sy	,144	69	,001	,929	69	,001
Q11ow	,327	69	,000	,807	69	,000

a. Lilliefors Significance Correction

5.3.1 Mann-Whitney

For the statistical analysis of background information variables having effect to change resistance in management accounting systems change, Mann-Whitney U-test was selected to be proper analysis method. The reason for selecting of Mann-Whitney U-test was based on the requirement to compare two independent groups. Also, the Mann-Whitney test does not make any assumptions of observations to be normally distributed, which was the case in this study.

In Mann-Whitney U-test the two sample groups are sorted based on values. Each observation is identified with own serial number. If the serial numbers of both groups are equally distributed there is no difference. Whereas if the serial numbers differ (high – low) it can be concluded that there are differences between the groups. (Metsämuuronen 2006:379–380.)

5.3.2 Wilcoxon Signed Rank Test

To compare the application of value-based pricing between shipyards and ship owners, the requirement was to compare two dependent groups, and for this a Wilcoxon Signed Rank Test was chosen as a method for statistical analysis. The Wilcoxon Signed Rank Test is intended for comparing the means of paired observations. The Wilcoxon Sign Test is a nonparametric counterpart for one-sample parametric t-test, and is used to analyse small sample data. Comparing to other tests, the advantage of Wilcoxon Sign Test is in its capability of taking into account the magnitude of differences and in its indifference to the forms of observations normal distribution (Malhotra 1999:480). When executing the testing of the hypothesis, the definition for the null hypothesis was that the means of the results are equal, whereas for the alternative hypothesis the means would be unequal (Metsämuuronen 2006:984-989).

6 EMPIRICAL FINDINGS

In this chapter the empirical findings are presented. The results of the empirical survey are analysed and whether the hypotheses are approved or rejected.

The research data is described with mean, standard deviation, minimum and maximum. Mean is the arithmetic average. When the number of observations is large, mean is a steady quantity, and on the other hand, when the number of observations is small, the impact of extremes on mean can be considerable. Standard deviation is a measure that describes how dispersed the observations are with certain variable. It express how widely or narrowly the observations are scattered. The smaller the deviation is, the closer the measured observations are to each other, or the measured mean. Minimum and maximum provides the range in which the observations will vary, they inform the lowest and highest observed value.

6.1 Background information

The (theoretical) amount (target) of respondents' subject for this study was 151 persons. The amount is based on the definition (set by the case company) of 'extended sales function' that were invited to the value-based pricing workshops (trainings). Total amount of received responses was 79, but after validation 75 responses were recognized as eligible for the analysis.

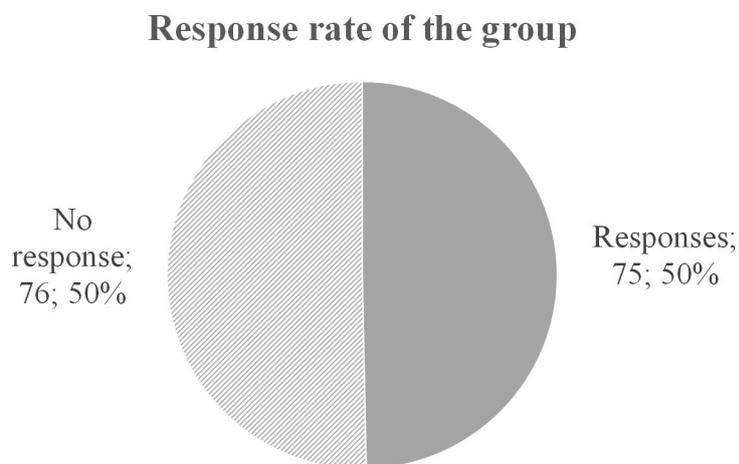


Figure 3. Response rate.

The nature of the business where the case company is embedded is relatively male oriented, as can be seen from the sex ratio of the respondents. From the 75 responses, males represented as high as 95% (71 pcs.), whereas females represented the minority, 5% (4 pcs.). Because of this significant disparity, the analysis whether the response towards change in management accounting system differ between males and females was discarded. Otherwise it would have been interesting to include the gender aspect into this study as well.

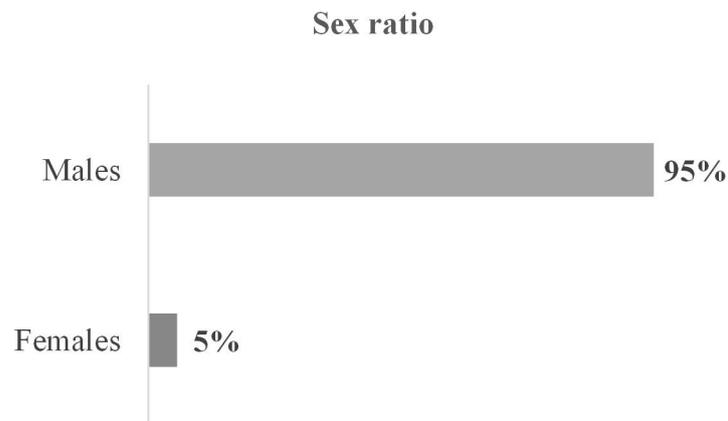


Figure 4. Sex ratio of the respondents.

Educational information was collected by providing three options for the respondent; technical, economic and other. A possibility to choose multiple selections was provided. This setup made possible to record maximum of six different combinations. However, five combinations were actually recorded. As can be expected from the heavy mechanical engineering industry, vast majority has a technical education. Furthermore, as an increasing trend, many seem to have supplemented their education with an additional degree (with technical or economical in this context [amount of combinations]). Technical education was statistical leader in this study regarding educational background. From the respondents; 63% (47 pcs.) had technical education, 19% (14 pcs.) had both, a degree of technical and economical, 11% (8 pcs.) had only economical education, 5% (4 pcs.) had technical degree together with an 'other' education or degree. Only 3% (2 pcs.) had an education other than technical or economical.

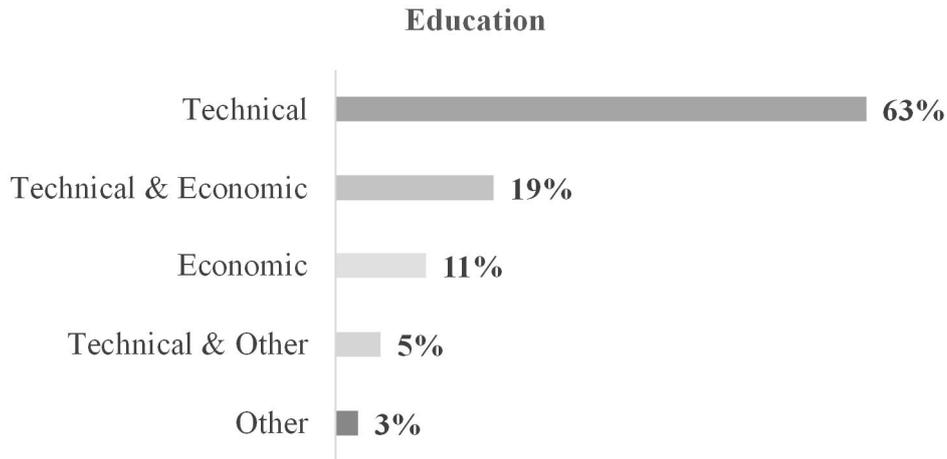


Figure 5. Educational background.

The industry where the case company operates is education-wise technically oriented. Because of this, pure technical education was chosen to represent one group. The arrangement of positions and assumption that managerial position requires higher educational degree supported also to include the variable of education. For the analysis whether educational degree affects in management accounting system change, the respondents were divided into following groups for the analysis purpose (table 4.);

Table 4. Distribution of 'education' group.

<u>Technical (only)</u>	<u>Other (incl. combinations)</u>
47	28

Figure 5 (below) demonstrates the distribution of respondents work experience. As can be seen, vast majority of the respondents have relatively long work experience. Of the respondents, over 85% (64 pcs.) had work experience, career, longer than 10 years, 36% (27 pcs.) had over 20 years-, 33% (25 pcs.) had between 15 to 20 years- and 16% (12 pcs.) had 10 to 15 years of work experience. Minority of the respondents had work experience less than 10 years, 12% (9 pcs.) had from five to ten years and 3% (2 pcs.) had accumulated only five years or less.

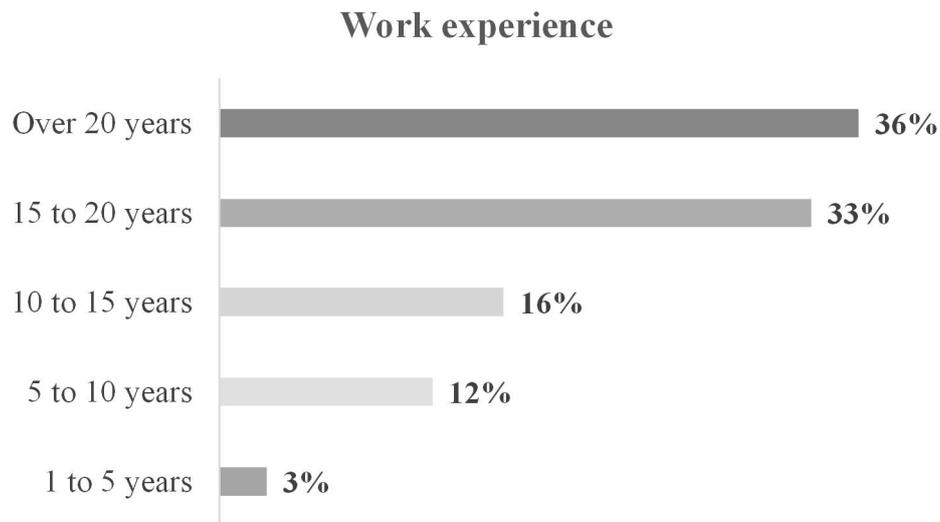


Figure 6. Distribution of work experience.

According to the institutional theory, groups, functions and individuals respond to change differently. Furthermore, institution once grounded into the organization, oppose changes. Measuring whether long work experience have an effect to motivation and confidence was thus justified to measure. For the analysis whether it has an effect in management accounting systems change, the respondents were divided into two groups. The interest was especially in the responses arising from respondents having long work experience, thus the group was formed as (table 5.);

Table 5. Distribution of ‘work experience’ group.

<u>Work experience less than 20 years</u>	<u>Work experience over 20 years</u>
48	27

The target audience for the value-based pricing workshop was Sales Management and related sub-functions (extended sales function), such as Salesforce and Sales Support. To acquire a position in the sales management usually requires significant amount of experience from various fields, thus, a conclusion why 85% (64 pcs.) of the respondents had more than 10 years of experience can be explained with the heavy attendance of Sales Management function (41 % [31 pcs.]). Surprisingly, 20% (15 pcs.) of the group represented functions not among the assumed, expected functions. The reason for this is in the assumption that some respondents have cross-functional position.

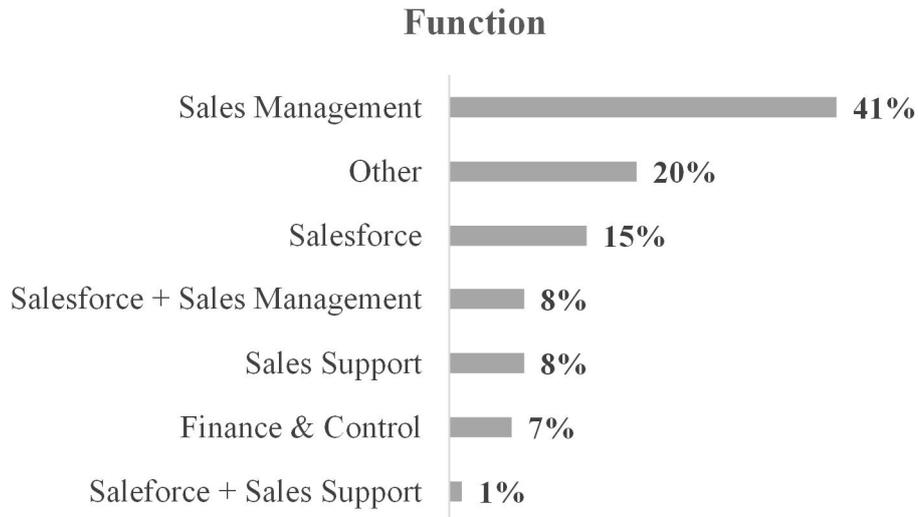


Figure 7. Represented functions (organizational position).

Managerial and operational levels were also studied to have (potentially) diverging respond to management accounting change. Where the change is aspired by management – it might not be welcomed on the operational level. Based on this, the target was to measure whether the position, managerial or operational, has a diverging effect to change. For dividing the group to operational and managerial, the functions *Salesforce*, *Sales Support* and *Other* were considered as operational, and functions *Sales Management* (incl. combinations) and *Finance & Control* were considered as managerial (table 6.).

Table 6. Distribution of ‘position’ group.

<u>Operational</u>	<u>Managerial</u>
38	37

6.2 Response to management accounting change

Coming back to the institutional theory and change resistance in the management accounting system change, the target was to examine whether the defined background variables; *work experience*, *position* and *education* have diverging effect in the management accounting system change. The potential effect of these background variables were analysed with statistical Mann-Whitney U-test, due to normal distribution violation and requirement to compare two independent groups with each variable.

Reason for this is most likely in the few demotivated responses (see figure 8). The presence of institution and its potential hindering effect to change was admitted (mean value 5,31). However, the deviation is somewhat high, which signal the divergent opinion within the respondent group. Remains to be seen whether it was strong enough to prove the rejection of null hypothesis. The mean of the importance of leadership, 6,24, supports strongly the essence of leadership (management sponsorship and coaching) in bringing the change. This is supported also with relatively low deviation (0,852).

As laid out by Burns et al. (2000), that deeply rooted institutions constitute the rules and values of the organization. The institutionalized way of working, which can exist anywhere in the organization, is the foundation that govern the organization or individuals' actions and thoughts. Institutional power in this context can be explained as a subject, single or multiple, within the organization, that objects changes opposed to a management accounting (Burns et al. 2000). The observations clearly support the presence of cost-based pricing institution and its (potential) hindering effect in the adoption of new pricing strategy (see figure 9.).

The routines and practices (= institution) of the old cost-based (cost-plus) pricing strategy are deeply rooted in the organization, hindering the adoption of new pricing strategy (value-based pricing).

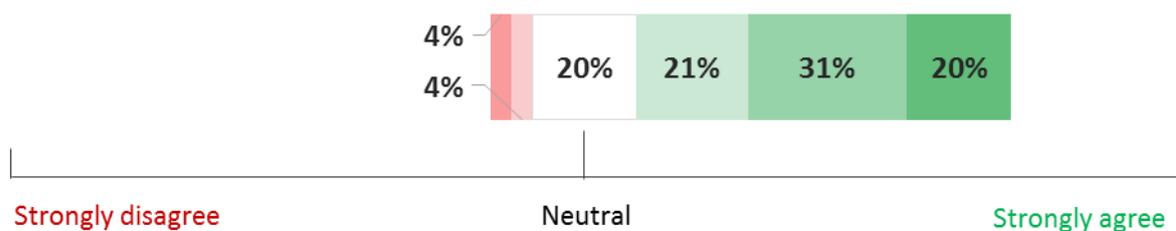


Figure 9. Presence of cost-based pricing institution.

On the importance of leadership it can be clearly seen (figure 10) that the organization agrees what the literature suggests, this is; crucial role of management sponsorship and coaching in the adoption of new pricing strategy. Vast majority of the respondents strongly agreed whereas only 4% of the population had neutral response to the statement.

Management sponsorship and coaching is important in adoption of new pricing strategy.

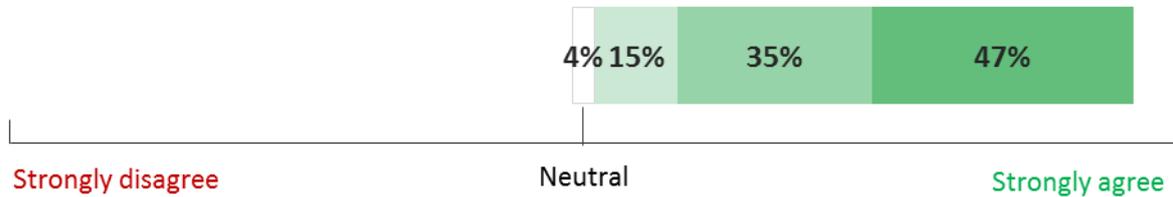


Figure 10. Importance of management sponsorship and coaching.

Table 8 below provides deeper insights to descriptive statistics for the variables and measures. Taking a deeper look to the statistics measures proves that no dramatic deviations between the variables and measures can be witnessed. The medians of the groups per variable goes mainly parallel through the whole table. Some deviation can be seen here and there, but in general the results gives an indication for the evaluation of hypotheses.

Table 8. Descriptive statistics for measuring change resistance.

<u>Variable</u>	<u>Descriptive</u>	<u>MOTI</u>	<u>CONF</u>	<u>INSTI</u>	<u>LEAD</u>	
WRK. EXP.	LESS20	Mean	5,29	5,85	5,46	6,31
		Std. Deviation	1,13	0,73	1,32	0,80
		Minimum	3	4	2	4
		Maximum	7	7	7	7
	OVER20	Mean	5,50	5,73	5,04	6,11
		Std. Deviation	1,14	1,08	1,32	0,93
		Minimum	3	3	2	4
		Maximum	7	7	7	7
ORG. POSIT.	OPERA	Mean	5,16	5,68	5,26	6,26
		Std. Deviation	1,26	0,99	1,43	0,83
		Minimum	3	3	2	4
		Maximum	7	7	7	7
	MGMT	Mean	5,58	5,94	5,35	6,22
		Std. Deviation	0,94	0,69	1,23	0,89
		Minimum	3	4	2	4
		Maximum	7	7	7	7

EDUC.	ETECH	Mean	5,32	5,75	5,17	6,13
		Std. Deviation	1,05	0,79	1,43	0,88
		Minimum	3	3	2	4
		Maximum	7	7	7	7
	EOTHER	Mean	5,44	5,92	5,54	6,43
		Std. Deviation	1,28	0,99	1,11	0,79
		Minimum	3	3	4	4
		Maximum	7	7	7	7

The hypotheses were to measure whether *work experience*, *position* or *education* affects divergently to change in management accounting systems. The analysis was executed with Mann-Whitney U-test (as described in chapter five) and the results can be seen in table 9 below. The null hypotheses remain valid with all variables and measures. The conclusion is that the background information variables have no diverging effect to management accounting system change in the case company. Thus, the findings of the research articles in touch with the theoretical framework of management accounting systems change are not supported by this study.

There is no statistical significance that *work experience* (less than 20 years versus over 20 years), *position* (operational versus managerial) or *education* (technical versus other) would have diverging impact to measured items. The P value (Sig. [significance]) should be equal or lower than ,05 to prove that the difference between the measured items would be significant, supporting that the rejection of null hypothesis.

Table 9. Evaluation of hypotheses (management accounting system change).

<u>Independent-Samples Mann-Whitney U Test</u>			
<u>Null hypothesis</u>	<u>Variable</u>	<u>Sig.</u>	<u>Conclusion</u>
The distribution of MOTI is the same across categories of;	Work experience	,408	Valid
	Organizational position	,152	Valid
	Education	,432	Valid
The distribution of CONF is the same across categories of;	Work experience	,934	Valid
	Organizational position	,283	Valid
	Education	,231	Valid
The distribution of INSTI is the same across categories of;	Work experience	,146	Valid
	Organizational position	,922	Valid
	Education	,398	Valid
The distribution of LEAD is the same across categories of;	Work experience	,386	Valid
	Organizational position	,877	Valid
	Education	,119	Valid

Asymptotic significances are displayed. The significance level is ,05

6.3 Application of value-based pricing

Value-based pricing strategy has been said to be superior in bringing financial results compared to traditional cost-based and competition-based pricing strategies. However, the utilization rate of it in the industrial sector has remained relatively low. Raised by Liozu et al. (2013) that while the research of value in business-to-business is extensive, despite of this, the empirical research of implementation of value-based pricing is slim. Thus, the empirical results of this study are unique from this perspective although incomparable to some extent due to selected case study method. However, the results should reveal some indication of its application and effectiveness in industrial sector. As presented in chapter three, the questions regarding the application of value-based pricing were derived from recent research studies and are being analysed from the viewpoints of application towards shipyards (which are mainly acting as a sub-supplier) and ship owners (case company as a main supplier). Based on the empirical results of the

observations, the hypothesis whether application of value-based pricing is equally effective towards shipyards and ship owners will be evaluated in this chapter.

As explained earlier, all respondents had been invited (and assumedly) participated to the value-based pricing workshops. Thus, the first question of the questionnaire measured whether the respondent is familiar with the concept of value-based pricing. The targeted function of this question was to validate whether the respondent is familiar with the value-based pricing concept. It was used also to somewhat measure whether the respondent had actually participated to the pricing workshop. As can be seen from the figure 11 below, vast majority responded being familiar with concept. This supports the basis that theoretically all the respondents possess somewhat equal understanding of the concept of value-based pricing, which should strengthen the validity of the results.

I am familiar with the concept and definition of value-based pricing.

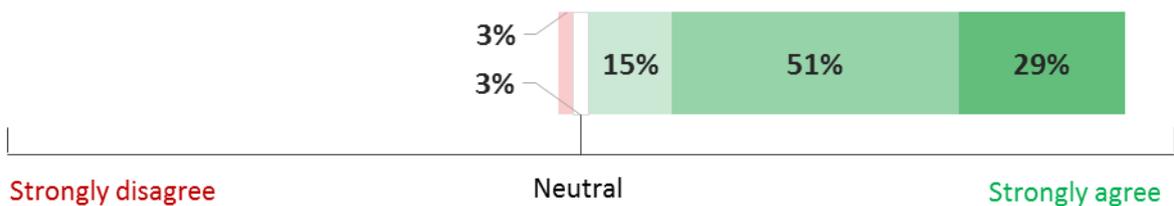


Figure 11. Respondents' familiarity towards value-based pricing concept.

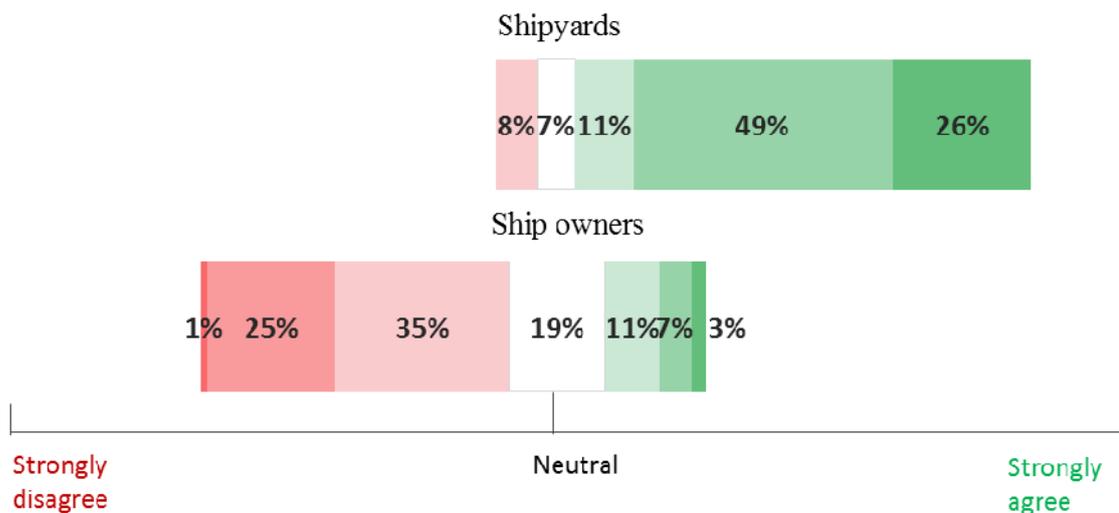
Table 10 below provides descriptive statistics of the observations of application of value-based pricing towards shipyards and ship owners. Contrary to descriptive statistics of management accounting system change, we can see clear deviations between the shipyards and ship owners, which gives the impression of diverge in effectiveness in the application of value-based pricing between the two. Please refer to the applied questionnaire (appendix 2) for further clarity of the applied measures.

Table 10. Summary of descriptive statistics for application of value-based pricing.

<u>Measure</u>	<u>Variable</u>	<u>Mean</u>	<u>Std. Deviation</u>	<u>Minimum</u>	<u>Maximum</u>
<i>"favoring prices over value"</i>	Shipyards	5,77	1,153	3	7
	Ship owners	3,43	1,337	1	7
<i>"short-term vs. long-term"</i>	Shipyards	5,80	1,205	2	7
	Ship owners	3,54	1,491	1	7
<i>"sharing baseline data"</i>	Shipyards	3,51	1,372	1	6
	Ship owners	4,47	1,162	2	7
<i>"early influence"</i>	Shipyards	5,03	1,258	1	7
	Ship owners	6,11	0,837	4	7
<i>"high buyer power"</i>	Shipyards	5,66	1,063	2	7
	Ship owners	5,08	1,281	2	7
<i>"superiority (long run) of VBP"</i>	Shipyards	5,01	1,329	2	7
	Ship owners	5,73	1,004	2	7

Industrial procurement is based on institutions where prices (capital expenditure [CAPEX]) are in the key focus. Thus, whether a reduction in prices are favoured more than an increase in the value (such as total cost of ownership (operational expenditure [OPEX]), quality and delivery time) is measured. Figure 12 below provides the distribution of the observations.

Buyers favor a reduction in price more than an increase in value (for example total cost of ownership [OPEX], quality, delivery time etc.).

**Figure 12.** Favouring price over value.

The deviation of observations between shipyards and ship owners, figure 12, indicates the rejection of null hypothesis that both the shipyards and ship owners would favour prices more than the value. This is supported by the statistical test which proves the null hypothesis rejection (table 11). The result is in line with the expectation, as shipyards act mainly as a supplier for ship owners and shipping companies, thus they are (presumably) focused more on CAPEX than for example to OPEX when building the vessels. On the other hand, ship owners are seen more focused on the values than prices. They pursue value elements that could improve their business performance in the long run.

Table 11. Wilcoxon Signed Ranks Test for ‘price over value’.

Test Statistics [a]	
	Ship owners - Shipyards
Z [b]	-6,958
Asymptotic significance, 2-tailed	,000

[a Wilcoxon Signed Ranks Test

[b Based on positive ranks.

Referring to the findings by Töytäri et al. (2015) that procurement decisions can be governed by organizational goals, motivational targets or bonus plans, which could lead to sub-optimal targets. This would mean that procurement decisions could be driven by short-term targets, such as cost savings. The result would be that the procurement decisions would focus more on generating short-term results rather than focusing on the long-term benefits, arising from the total lifecycle.

Buyers focus more on short-term goals than long-term benefits.

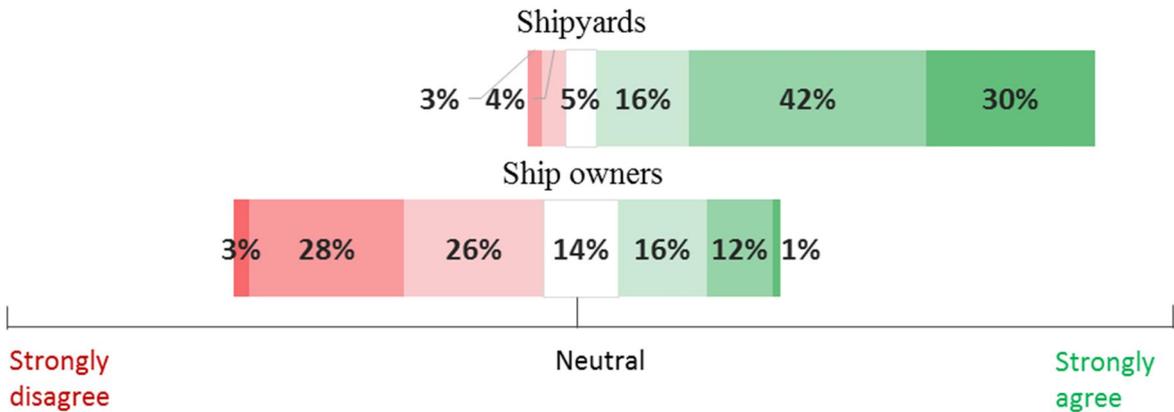


Figure 13. Short-term goals versus long-term benefits.

The observations between shipyards and ship owners are strongly diverging, supporting also partly the findings that shipyards, due to the nature of their business and interest, favour prices more than value and thus are focused more on short-term goals (CAPEX). Ship owners were, as expected, more focused on long-term benefits although some evidence of their short-sighted ambitions can be seen (figure 13 above). Supported with the statistical analysis (table 12), the null hypothesis that both shipyards and ship owners would focus more on short-term goals than long-term benefits is reject.

Table 12. Wilcoxon Signed Ranks Test for ‘short-term vs. long-term’.

Test Statistics [a]	
	Ship owners - Shipyards
Z [b]	-6,505
Asymptotic significance, 2-tailed	,000

[a Wilcoxon Signed Ranks Test

[b Based on positive ranks.

Value propositions used in value-based pricing are based on customer’s value perceptions. To access customer’s baseline data would support the supplier’s value analysis and improve the value offering. The better the supplier understand the customer’s processes the better it should improve the quantification of value. However, to access customer’s baseline data is not self-evident. The access might be declined due to lack of trust, confidentiality or because of competitive environment.

Buyers are willing to share their baseline data of value perceptions for Suppliers' value analysis and quantification.

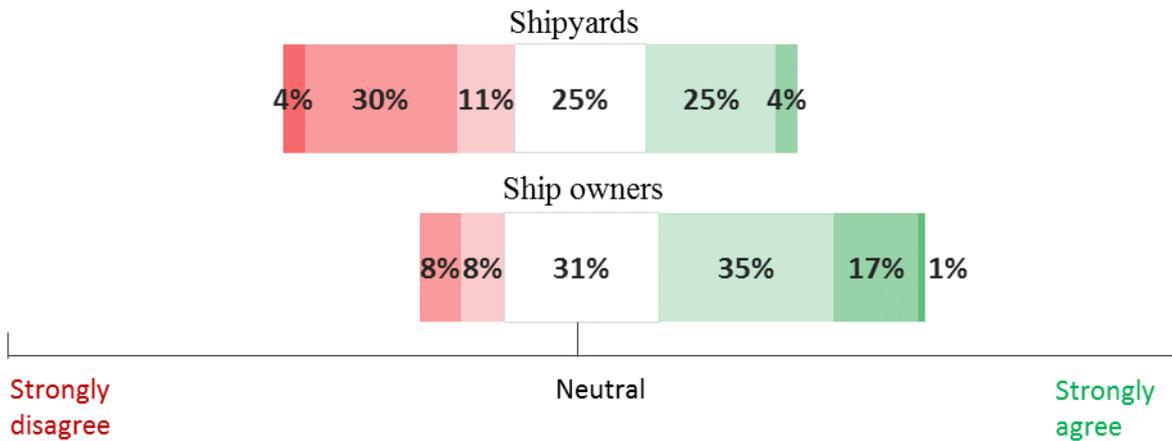


Figure 14. Access to baseline data.

The observations show that shipyards are more refusal in willingness to share their baseline data whereas ship owners are more open. Here as well the results are in the favour of rejecting the null hypothesis, as proved by the statistical analysis test.

Table 13. Wilcoxon Signed Ranks Test for 'access to baseline data'.

Test Statistics [a]	
	Ship owners - Shipyards
Z [b]	-4,195
Asymptotic significance, 2-tailed	,000

[a Wilcoxon Signed Ranks Test

[b Based on negative ranks.

Timing is of the essence. It has a crucial role in the potential influence to customers' value perception when defining the scope. As highlighted by Töytäri et al. (2015) in their research article, that the nature of sales-based influence in the industrial business markets is often reactive, which leaves little to no room to influence customers definition of scope and value conceptions. Thus, early influence before the specification has been locked, could assure better bargaining position in the negotiations.

Capturing value in the industrial sector was noticed to be a major issue. Despite of certain proof of value, the customers are mainly unprepared to share value evenly. The presence of competitive alternatives and fierce competition can strengthen the buyer power. Strong value propositions could strengthen the position in the negotiations, and thus potentially increase the value capture. However, sophisticated buyers utilize negotiation tactics and leverage their positional power with bidding contests, which can drive pricing strategies towards competition-based pricing.

High buyer power and competitive alternatives drive prices towards competition-based pricing, where the value is captured mainly by the Buyer.

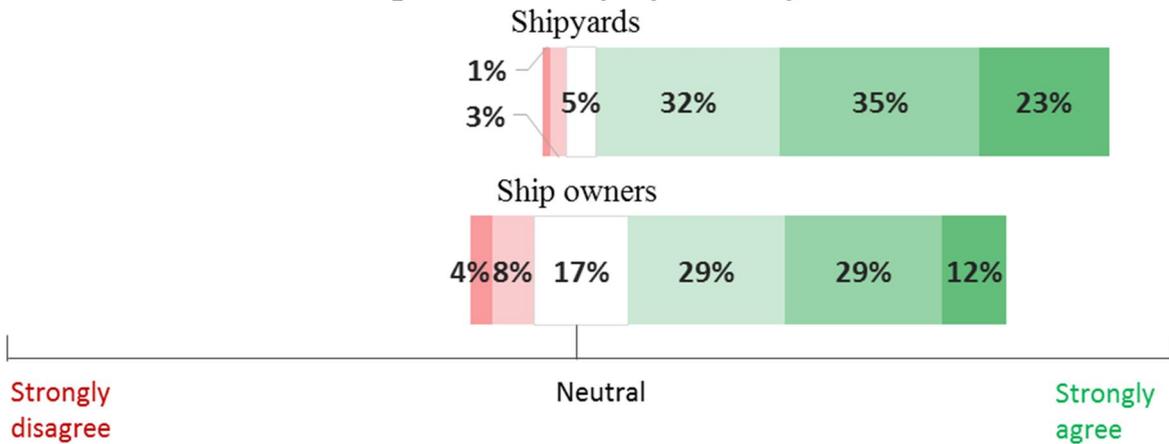


Figure 16. High buyer power drive prices toward competition-based pricing.

The observations clearly signal the presence of fierce competition and high buyer power from both viewpoints. However, the statistical analysis prove the existence of strong statistical difference and acclaim the rejection of null hypothesis. It remains unknown whether the price levels in the case company business market are generally known (due to long history of business trade, for example), which could be one potential reason for slid towards competition-based pricing. To defend the market position calls for strengthening the value propositions. Despite of somewhat parallel view to the value-capture, shipyards are more in the favour pushing prices (supported by the CAPEX assumption).

Table 15. Wilcoxon Signed Ranks Test for “high buyer power”.

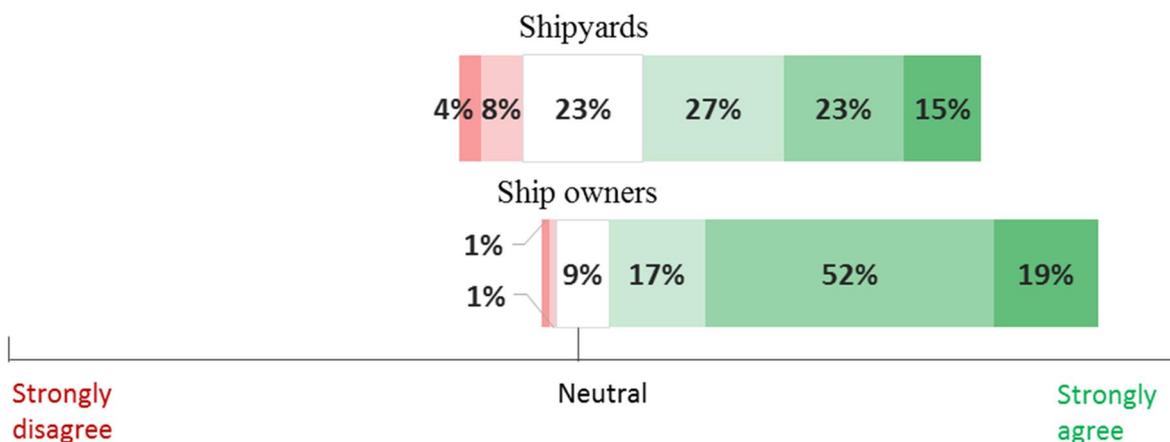
Test Statistics [a]	
	Ship owners - Shipyards
Z [b]	-4,078
Asymptotic significance, 2-tailed	,000

[a Wilcoxon Signed Ranks Test

[b Based on positive ranks.

The last question measured the viewpoint towards the application of value-based pricing and whether it will be superior, in the long run, when compared to old pricing strategy, cost-based pricing. The result is extremely positive. For ship owners the view of superiority is strong, 52% of the respondents agree that in the long run it will outrun the old, cost-based pricing. For shipyards, the impression is a bit lower, with some even disagreeing. This could be explained with the price-focused institution, as is supported by the findings of Töytäri et al. (2015) as well as this particular study.

**Value-based pricing will be in the long run superior to old
cost-based (cost-plus) pricing.**

**Figure 17.** Future viewpoint to superiority of value-based pricing.

According to the statistical Wilcoxon Signed Rank Test analysis, there are significant statistical differences in the application of value-based pricing to shipyards and ship owners. The results of the statistical analysis suggest to reject the null hypothesis in all

cases (see appendix 1). Thus, the conclusion is that application of value-based pricing is not equally effective towards shipyards and ship owners.

7 CONCLUSIONS

This empirical study focused on findings based on research articles in touch with the theoretical framework. The findings of these articles were brought to a case company context, and analyzed through an empirical survey and whether the results support the findings of those. The first target was to analyze the factors that potentially affect in management accounting system change. Change resistance and theory of institutions were taken as key focus. On the application of value-based pricing in industrial sector, the relevance of the findings were measured from the case company perspective whether similar barriers are present.

7.1 Research summary and implications

By nature, any change in the daily routines are feared first, as people react to changes differently. Fear arises from the basis of increasing workload, lacking competence or decreasing influential power. This is especially with experienced people, who fear that change could lower their knowledge-related advantage. Change can also cause nervousness on whether it will impact customer or productivity of the individual, group or organization. Thus, it is evident that psychological sensations are present when changes take place. It will require great deal of good leadership skills with enthusiasm and motivation to hype the change. Coaching and continuous training play a huge role in the transition. Institutional routines around cost-based pricing needs to be decoupled and organizational mindset to be changed.

Despite the case company organization admitted the presence of institutionalized cost-based pricing mindset, the survey results signaled high motivation and confidence towards application of value-based pricing. This is very positive signal and as such does not support the institutional theory, that deeply rooted institution oppose changes. The case company organization also believed, that this new pricing strategy will be superior compared to the old pricing strategy. Furthermore, based on the discussions in the case company; management has been active in transforming the mindset towards customer perceived value, and people are generally excited to change the pricing strategy. This is supported by the observations of the applied questionnaire.

The hypotheses regarding the management accounting system change focused on whether work experience, organizational position or education have diverging effect to how people react to change. Based on the theory and research articles, the implication was that grounded institution would be hard to change. Thus, my conclusion and expectation was that people with long work experience would respond negatively to the change, supported by my own experiences as well. However, according to results, work experience does not have any significant effect to change. As such, this result was surprising. But, as said above, case company management has been active in sponsoring and coaching the organization (navigation from cost-led mindset to customer perceived values) and the mindset has seemingly started to turn towards customer perceived values.

Coming back to the revised accounting change model by Kasurinen (2002) and by incorporating the model into this study; I re-revised the model by bringing forward the addition of invisible institution (see figure 18.). Whereas the original factors are mostly visible or concrete, the institution is clearly an invisible subject that can have a tremendous role and impact in the efforts of accounting change (in this study context; management accounting systems change). Due to its invisibility it can be easily left out from planning, analysis and implementation of (all kind of changes).

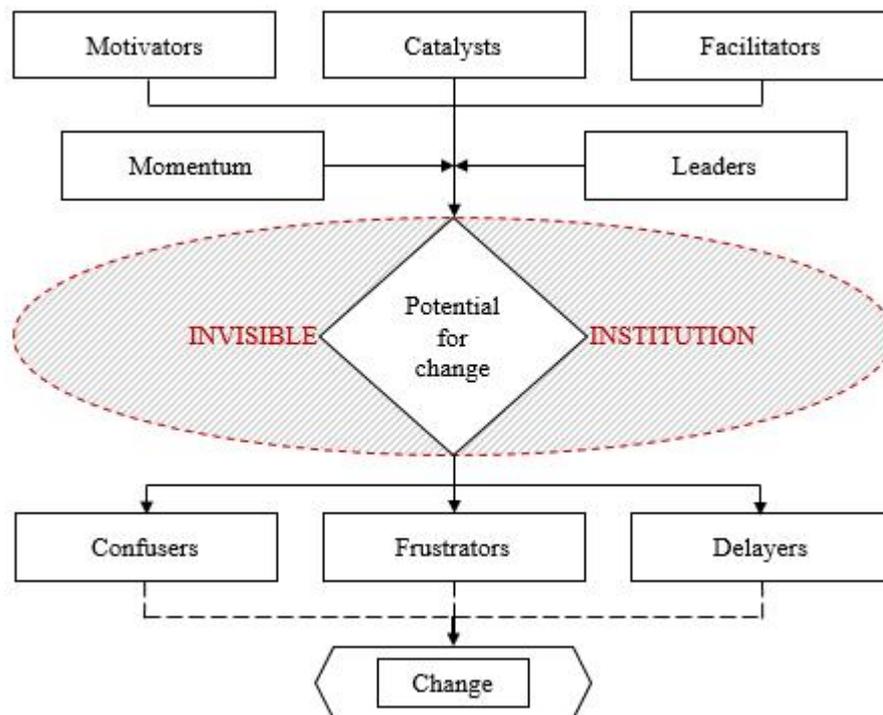


Figure 18. Re-revised accounting change model (Nieminen 2016).

The power of institution must not be underestimated. It can turn out to be the most significant subject that halt changes in the organization or strategies. It is not necessarily the organization itself; it can be a single or multiple individuals (or positions), having influential power at hands that resist change, even though the possible subordinates would be in the favor of the change. To diffuse the institutional power in today's global and culturally mixed organizations might need more than can be achieved with skilled leaders (only). It might call for an organizational realignment by revising the key positions with capable resources to execute the change and refresh the mindset. In addition, tools in key position of the producing, can be the inception for institution that have retardant effect to changes.

Whether organizational position or education would have an effect to how change is sensed didn't get any support either. With reference to people fearing changes by default doesn't get support based on the results of this study.

The industrial business in which the case company is embedded is represented with competitive alternatives and fierce competition. As a result of this the buyer power is seen strong. Furthermore, due to long existence of the business market it is potential that the cost levels are to some extent known. Market position could be strengthened through strong value propositions. If the value propositions contribute significantly to the customer's perceived values, it should naturally have an influence to the willingness of a customer to enter into the relationship with the supplier. Despite of fierce competition and bidding contests, the market position should be defended with the strong value propositions. If bidding contests ignite price wars, the value offering should come down along the price. This is easier said than done, but making bad deals with great value proposition offerings signals that prices are negotiable and value is easily captured.

Changing pricing strategy from cost-based to subjective, value-based pricing, is a tremendous change. When comparing the implementation and ease of use of cost- or competition-based pricing approaches, with value-based pricing it is evident that a lot more effort is needed to set it up and keep the strategy under execution. There are no easy formulas nor tool features that would provide the right price for the right customer at the right time. To find the customer specific price in the changing environment and business situation asks for coaching and continuous support, from the whole organization. All major deals should be analysed with key account managers and to find the value proposition and take the sessions as a learning and training possibility. Value-based

pricing is hardly a concept that sales function can independently execute, moreover it is a case by case exercise with inclusion of key stakeholders.

7.2 Limitations of the study

This is a case study, focusing to observations arising from a case company. The weight in case study is more on explaining the research topic rather than interpreting. The results of this study should not be generalized back to the case company industry, but to take it as a case company specific research study. The used variables and measures were derived from academic research articles, and the compatibleness of those in the case company context are subject for careful interpretation.

Also, even though the results are considered reliable and valid, the applied survey method leaves room for measuring errors due to its nature. It cannot be guaranteed that all respondents have been thorough or truthful when responding. Furthermore, intentional misreporting cannot be controlled in the applied survey questionnaire.

It should be noted that the results of this study are dependent on the composition of the questions applied in the questionnaire and of the selected statistical analysis methods.

7.3 Suggestions for further research

To better understand and measure the factors that affect in the organization related to pricing strategy change, and in the application of value-based pricing in industrial sector would call for a longitudinal study. By taking multiple companies from the same industry and to analyse the pricing strategy change of these companies from the planning phase, through implementation to execution should provide extensive results of the factors affecting to change in management accounting systems, implementation of new pricing strategy and its effectiveness in the specific industry.

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9 APPENDIXES

9.1 Appendix 1; Summary of statistical analysis of Wilcoxon Signed Rank Test

Wilcoxon Signed Rank Test			
Ranks			
Test Statistics			
	<u>N</u>	<u>Mean Rank</u>	<u>Sum of Ranks</u>
<hr/>			
Q5 Ship owners - Q5 Shipyards			
Negative Ranks	65	36,36	2363,5
Positive Ranks	4	12,88	51,5
Ties	5		
Total	74		
	Z	-6,958	p
	A. Sig.	,000	
<hr/>			
Q6 Ship owners - Q6 Shipyards			
Negative Ranks	60	30,77	1846
Positive Ranks	1	45	45
Ties	12		
Total	73		
	Z	-6,505	p
	A. Sig.	,000	
<hr/>			
Q7 Ship owners - Q7 Shipyards			
Negative Ranks	6	25	150
Positive Ranks	39	22,69	885
Ties	26		
Total	71		
	Z	-4,195	n
	A. Sig.	,000	
<hr/>			
Q8 Ship owners - Q8 Shipyards			
Negative Ranks	2	8,5	17
Positive Ranks	40	22,15	886
Ties	31		
Total	73		
	Z	-5,516	n
	A. Sig.	,000	

Q9 Ship owners - Q9 Shipyards			
Negative Ranks	13	13,04	169,5
Positive Ranks	15	15,77	236,5
Ties	44		
Total	72		
	Z	-.779	n
	A. Sig.	0,436	
Q10 Ship owners - Q10 Shipyards			
Negative Ranks	29	18,28	530
Positive Ranks	5	13	65
Ties	40		
Total	74		
	Z	-4,076	p
	A. Sig.	,000	
Q11 Ship owners - Q11 Shipyards			
Negative Ranks	2	16,5	33
Positive Ranks	33	18,09	597
Ties	39		
Total	74		
	Z	-4,715	n
	A. Sig.	,000	
A. Sig.	Asymptotic significance value (2-tailed)		
p	Based on positive ranks		
n	Based on negative ranks		

9.2 Appendix 2; Applied questionnaire

Dear respondent,

My name is Teppo Nieminen. I am currently writing my master's thesis which deals with application of value-based pricing. Through this brief questionnaire, which is built on Likert-scale that measures the level of agreement or disagreement, your responses will be used to analyze the accuracy against the given statements.

Then, please consider the below statements from the practical use of value-based pricing. Please response to a statement from both of the aspects; selling to a Shipyard (SY) and to an Owner (OW).

- 5. Buyers favor a reduction in price more than an increase in value (for example total cost of ownership (OPEX), quality, delivery time etc.).

SY							
OW							

- 6. Buyers focus more on short-term goals than long-term benefits.

SY							
OW							

- 7. Buyers are willing to share their baseline data of value perceptions for Suppliers' value analysis and quantification.

SY							
OW							

- 8. Influencing Buyers value perceptions at the early stage of the Buyers definition of scope enables selling of value propositions.

SY							
OW							

- 9. An increase in the value Buyer receives (benefits) is non-linear with the price the Buyer pays.

SY							
OW							

- 10. High buyer power and competitive alternatives drive prices toward competition-based pricing, where the value is captured mainly by the Buyer.

SY							
OW							

- 11. Value-based pricing will be in the long run superior to old cost-based (cost-plus) pricing.

SY							
OW							