Jenni Rusama

Measuring Project Performance and Customer Satisfaction

in a Multidisciplinary Expert Organization

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What a journey. It started over a year ago, with the entrance examination, then during the autumn season very intensive lectures, different kind of assignments and of course this thesis project which is now on the end side, and all this during full-time work. Despite of the amount of work I would definitely do this again without any hesitation.

I couldn't have done this without a great amount of people. I would like to thank Granlund for the encouraging attitude towards postgraduate study and the opportunity to do this thesis for the company. Especially I would like to thank the colleagues who have made this thesis possible and who have supported this journey toward graduation. Thank you Aki, Henri, Joonas, Kimmo, Maila, Teemu, Tommi, Veikko, Pekka ja Jack.

My special thanks go to the brilliant and highly professional Master's in Industrial Management instructor team in the Helsinki Metropolia University of Applied Sciences. Thank you, Dr. James Collins, for keeping me on the right track and for supporting and guiding me through this project. Thank you, Sonja Holappa for your supportive and motivating work that you have done to enable this thesis. Thank you also Dr. Juha Haimala and Dr. Thomas Rohweder for your expertise and feedback that has helped me during this journey. And a special thank you goes to all my super student colleagues who are very smart people. I really appreciate meeting you all.

Finally, I want to thank my family and friends for all your love and support. Special mention belongs to at least the following persons, Anni, Anton, Carita, Daniel, Ellen, Hessu, Janne, Killi, Late, Maarit, Mikko, Riitta, Sanna, Sirpa, Tiina H, Tiina L, Tiiti, Tomi and Ulrika. I understand it was sometimes challenging to listen to my school stories but thank you for your support and understanding during this project. Now it is time for celebration, or at least once the corona situation is over.

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Helsinki
April 19, 2020

Author Title Number of Pages Date	Jenni Rusama Measuring Project Performance and Customer Satisfaction in a Multidisciplinary Expert Organization 64 pages
Degree	Master of Engineering
Degree Program	Industrial Management / Service Management
Instructors	Dr. James Collins, Senior Lecturer

The case company in this thesis has defined in its strategy that its business will grow approximately 100 % during the next 5 years. Several studies and historical data from the company show that it takes at least 10 times as much to gain a new customer as it does to get new orders from existing customers. To be able to meet the strategic goals of the company, with digitalization, sustainability and BIG data in mind, this means that the company's existing customers need focused attention. The overall target has been set, but without more detailed specifications. For this reason, the objective of this study was to propose new key performance indicators for project managers in the case company.

This thesis was conducted as applied action research. Data was collected through interviews and workshops, as well as analysis of existing documents and the new ERP software. Interviews and a workshop were held with several people in the organization and documented as field notes. These interviews and the workshop provided data for the current state analysis and for building the proposal in co-creation with the case company.

The initial proposal for the new key performance indicators for project managers in the case company includes three different elements. These elements include a customer satisfaction survey, an overall customer satisfaction collection process, and a dashboard for project managers to follow-up customer satisfaction and financial values. The outcome of this thesis seeks to help project managers to conduct a customer satisfaction survey as well as follow-up the customer satisfaction. The company decided to take this new proposed model in use as soon as possible.

Keywords	Customer satisfaction, key performance indicators (KPI's), project management

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1   Introduction

Digitalization, sustainability and BIG Data are three forces that bring about development in the Facility Management business. Digitalization provides new ways to measure, follow up and set targets for the "wellbeing" of buildings. In Facility management, sustainability means energy and water consumption, waste management and indoor conditions. Digitalization helps create large amounts of information that generates BIG Data and as a result there is a need for sophisticated analysis, reporting and consultancy services. Combining all this in the Facility Management business is a challenge for the next years.

The case company in this thesis has defined in its strategy that the consultancy business around Facilities Management will grow approximately 100 % during the next 5 years. The case Company has been in the Facility Management business from 1980's and has worked over the years with Finland's biggest real estate owners. The case company has its own developed facility management software which is used in over 1000 organizations. Over the past 10 years, a combination of facility management software and consulting has created added value for customers.

Several studies and historical data from the company show that it takes at least 10 times as much to gain a new customer as it does to get new orders from existing customers. For this reason, it is very important to keep and treat your existing customers as well as possible.

To be able to meet the strategic goals of the company, with digitalization, sustainability and BIG data in mind, this means that the company's existing customers need focused attention. The company has already categorized existing customers into four different categories, but there are no targets for each customer, so there is no target for each account manager. The overall target is set, but without more detailed specifications. For this reason, this study focuses on project managers key performance indicators by exploring and identifying the best and profitable measurements to do that.

1.1   Business Context

The case company in this thesis is Granlund Oy and its subsidiaries. The company is a strongly growing group of companies that specializes in the construction and real estate sector and makes significant investments in innovation and development. The company was established in 1960. Today The company has over 1000 customer organizations in 30 countries, and employs over 900 professionals in Finland, Scandinavia, UK, Asia and the Middle East.

The company's key goal is to make properties more functional and smarter and to improve human well-being in the built environment. The Group's core business areas are technical building services design, consulting and software. The Group's areas of expertise include technical building services design, property, energy and environmental consultation, software and renovation.

This thesis focuses mainly on Software business. Granlund's most known software product is Granlund Manager which is a modern Computer Aided Facility Management system (CAFM) that is used in over 30 countries and by thousands of end-user organizations around the world.

The customers in Finland are large real estate owners or tenants who have maintenance responsibilities. Customer sectors are municipalities, state, university real estates, real estate investors, health care sector, retail and industry, mainly all other sectors than residential real estate owners. All existing customers are divided into four different categories A-D, based on their potential and current revenue. Designated persons, called account managers, are responsible for all customers in categories A-C.

The company's software business goal in Finland is to sell software and/or maintenance management consultancy to new and existing clients.

1.2   Business Challenge, Objective and Outcome

The company's current key performance indicators (KPI) are based on the company's old strategy and goals and they are not easily measurable. The new company strategy also expects significant growth and that cannot be established without excellent customer management. The project managers and key account managers play a significant role in this. There must be a consistent and measurable way to follow up the customer revenue, loyalty and other things.

This Thesis focuses on company's existing software customers in Finland but can be used as a framework to all customers of the company.

The objective of this Thesis is to **propose new key performance indicators for project managers** in the case company. To reach this objective, the study first needs to conduct a current state analysis and identify what improvements are needed and how to fit them to the new customer relation management software (ECRM).

The outcome of this Thesis is a proposal of new key performance indicators for project managers, based on research of the case company's current state of customer management and opportunities given by the new customer relation management software (ECRM).

1.3 Thesis Outline

This thesis is conducted through qualitatively and quantitatively methods and it utilized existing knowledge and best practices of key performance indicators. The scope of the thesis is limited to key account management key performance indicators.

This Thesis is written in eight sections. Section 1 is the Introduction for this thesis. Section 2 overviews the research approach, and the methods and material used in this thesis. Section 3 pre-visits in literature of existing knowledge about key performance indicators to search the key element of key performance indicators to give an understanding of the right themes to ask the right questions in current state analysis in section 4.

Section 5 re-visits the existing knowledge related to key performance indicators to search the key elements for the first proposal of key performance indicators for the case company. Later, in Section 6, the conceptual framework is used for building the initial proposal of new key performance indicators for key account manager for the case company. Section 7 describes the results of the proposal validation and section 8 completes the thesis with conclusions and thesis evaluation.

2   Method and Material

This section describes the research approach, data collection and analysis methods used in this Thesis. First, the selected research approach is presented. Then the research design is described and finally the data collection is presented.

2.1   Research Approach

All business and management research projects can be placed on a continuum according to their purpose and context. At one end of the continuum is research that is done purely to understand the business process and management and their outcome. These kinds of research are conducted mainly in traditional universities and the main objective is the academic agenda and its main consumer is the academic community. These researches are called basic, fundamental or pure research. At the other end of the continuum and on the opposite of theoretical there is a more practical approach which has got relatively little attention. At this end is research that has direct and immediate relevance to managers, which addresses issues that they see as important and which is presented in ways that they understand and can act on. This is termed applied research (Saunders et al. 2019:9-10). These two different approaches are shown in Figure 1.

Basic research	Applied research
Purpose:	**Purpose:**
• expand knowledge of process of business and management	• improve understanding of particular business or management problem
• results in universal principles relating to the process and ots relationship to outcomes	• results in solution to problem
	• new knowledge limited to problem
• findings of significance and value to society in general	• findings of practical relevance and value to manager(s) in organization(s)
Context:	**Context:**
• undertaken by people based in academia	• undertaken by people based in a variety of settings including organizations and academia
• choice of topic and objectives determined by the researcher	• objectives negotiated with originator
• flexible time scales	• tight time scales
Impact:	**Impact:**
• initially academic community and researcher	• initially police and practice community and researcher
• may also impact policy and practice	• may also impact academia

Figure 1 Basic and applied research (Saunders et al. 2019:10)

Figure 1 summarizes the main characteristics of basic research and applied research by Saunders et al. (2019:10). As depicted in figure 1 basic research has a flexible timeline, it has value to society in general and it impacts the academic community and other researchers. On the other hand, applied research has a tight timeline, it has value for the researcher organization, and it impacts in practice the community and researcher.

Other ways of conducting applied research include for example case study (YIN 1981) or action research (Lewin 1946). In action research there are some ground principles such as dealing with organizational issues and working with those who are directly involved in the research object.

Design research, also called applied action research, produces functional and practical solutions, it combines development and research and is conducted in organizations in order to improve the operations. In addition, applied action research blends qualitative and quantitative research methods together to create new knowledge that improves operations, processes, services, activities or situations (Kananen 2013: 20-22). Process-oriented applied action research combines both development and research in a cyclic design process, action or recommendation, and in the follow-up of continuous development. In other words, applied action research consists of cycles, planning, action and follow-up. In addition to give the research wider prerequisite it must be well documented and shared for public debate (Kananen 2013: 44-47).

Research approaches are generally divided into qualitative and quantitative research, which help to investigate a research problem and identify tools that can help solve it (Kananen 2013: 17). The concurrent mixed method research allows both research methods to be used. It provides a richer and more useful response to the research object in comparison of the mono method design (Saunders et al. 2019:182).

The objective of this study is to make a proposal of new key performance indicators for project managers in the Case Company. Due to the objective of this study the applied action research was selected for this thesis. As described above, applied action research produces functional and practical solution to improve operations. In this research approach, the researcher takes an interactive role in the process among the other stakeholders, by being one member of the stakeholders.

2.2 Research Design

The research design used in this thesis is presented in Figure 2. The research design consists of five stages, containing two literature parts and three data collection rounds. Figure 2 illustrates the logic of the research design and points out the outcome of each stage.

Objective To propose new key performance indicators for key account management for the case company

Ideas of Key Performance Indicators. A pre-engage with literature on KPI's

a framework for asking the right questions and finding data

Current state analysis

Current measurements and Data systems

Data 1
- **Interviews** with Chairman of the Board Of Management, Customer strategy group leader, Sales manager, Business developer manager and Account manager. **Software support**: CRM, ERP and customer support service software.

Best Practices from literature. A re-engagement with KPI literature that would pay particular attention to the needs in case organization

Conceptual framework

Building the proposal

Initial proposal of KPI's

Data 2 Co-creation of initial proposal
- **Meetings/workshops** with Team leaders and quality system manager

Validation of the proposal

Final proposal of KPI's

Data 3 Co-creation of final proposal
- **Feedback and validation.** CEO of the case company and Chairman of the Board of Directors

Figure 2. research design used for this thesis

The research design illustrated in Figure 2 started with a literature review for understanding the concept of KPI's. Without proper understanding about key performance indicators it was not possible to ask the right questions or seek the correct data in phase two. Thus, this first phase provides an understanding about KPI's for the next phase, the current state analysis.

The second stage was conducted by exploring the existing measurements through qualitative interviews with the Chairman of the Board of Management, Customer strategy group leader, Sales manager, Business developer manager and Account manager. This

phase also included a qualitative software study that explored all possible support systems, such as ERP, CRM and Customer Support Service Programs, for measuring upcoming metrics and reporting opportunities. The outcome of this phase included knowledge of current measurements and data system opportunities.

The third stage was a revisit to relevant literature. This time the literature research was carried out with the focus on the case organization's needs. This phase was needed to understand which measures to use and how to apply them. This phase provided the conceptual framework for the next phase.

The fourth stage was the building proposal phase, where the conceptual framework and the CSA findings were used to co-create the initial proposal with the team leaders and quality system manager. The goal was to collect all feedback, ideas and insights to create an initial proposal of KPI's to be presented to the decision makers in stage five, validation.

The validation of the proposed KPI's was the final stage of the design research. At this stage, the proposed KPI's were presented to the decision makers, who provided their own perspective and insights, and who decide on possible deployment.

2.3 Data Collection and Analysis

This thesis was conducted by using both qualitative and quantitative data collection methods from three data collection rounds and it utilizes material such as interviews, workshops and system data. The first data collection round was the current state analysis. In the second round, data was collected from the co-creation of the initial proposal. Finally, the third data collection round was formed in the validation stage of the proposal. Table 1 presents in detail all data gathered during the three different data collection rounds.

Table 1. Details of interviews, workshops and discussions in Data1-3 rounds.

	Data 1	Data 2	Data 3
Content	Current state analysis (current KPI's and new software systems)	Improving weakness X, Y and Z in current state analysis	Improvement ideas to initial proposal
Source	Interviews and meetings and software learning	Meeting and workshop	Meeting
Participants	Customer strategy group leader. Account managers. Head of Department. Informant: People responsible of CRM, ERP and customer support service software.	Team leaders and quality system manager	CEO of the case company and Chairman of the Board of Directors
Timing	January-February 2020	March 2020	March 2020
Outcome	Current measurements and Data systems	Initial proposal of KPI's	Final proposal of KPI's

The first round, collecting Data 1, was conducted for the current state analysis to find out current KPI's and to explore the software systems. The data was collected through face-to-face meetings with Chairman of the Board of Management, Customer strategy group leader, Sales manager, Business developer manager and Account manager. These people were selected because they would give a good understanding about the current key account management measurements and project measurements. In this first round it was also very important to gain a good understanding about the software's CRM, ERP and Customer Support Service ticketing system, to understand their possibilities and limitations. This data was collected through a face-to-face meeting with the Leader of Product Management, Customer support center Manager and Main user of ERP / Quality system manager.

 A detailed overview of the researched Data 1 is shown in table 2 below.

Table 2- Details of Data 1 collection used in this thesis.

Datatype	Participants and roles	Agenda	Date	Duration	Documentation style
Face-to-face meeting	Sales Manager, Business developer manager and team leader	-New sales process, target and incentives -Customers	24.1.2020	1 h	Field notes
Face-to-face meeting	Customer strategy group leader	-Current customer performance metrics -Customer Value / Measurement -Production efficiency / measurement -Critical Success Factors -Customer strategy 2025 - status	24.1.2020	1h	Field notes
Face-to-face meeting	Main user of ERP / Quality system manager	-Customer ERP reporting - status -status of current customer satisfaction software	28.1.2020	1h	Field notes
Face-to-face meeting	Customer support center Manager	-Current customer satisfaction metrics	29.1.2020	1h	Field notes
Face-to-face meeting	Sales Manager, Account Manager and team leader	-New sales process, target and incentives -Customers	4.2.2020	1 h	Field notes
Face-to-face meeting	Leader of Product management	-status of current Software Customer satisfaction measurements	10.2.2020	1 h	Field notes
Face-to-face meeting	Chairman of the Board Of Management	-Companys critical success factors -Current measurements	11.2.2020	0,5h	Field notes

As seen in Table 2 the Data 1 for this thesis was conducted in face-to-face meetings in seven interview sessions. These meetings were mainly 1-hour long, and documentation was conducted by writing down field notes of the current state.

In the next round, Data 2 was collected to gather insights from Team leaders and Quality system manager for developing the initial proposal of KPI's. This data collection included a workshop and meeting as seen in Table 3 below.

Table 3- Details of Data 2 collection used in this thesis.

Datatype	Participants and roles	Agenda	Date	Duration	Documentation style
Workshop	4 * team leader	-Customer satisfaction and project measurements -PowerBI Dashboard	10.3.2020	1,5 h	Recording
Face-to-face meeting	Quality system manager	-Customer satisfaction and project measurements -PowerBI Dashboard	12.3.2020	1h	Field notes

As seen in Table YY the Data 3 for this thesis was conducted in a workshop and face-to-face meeting. The workshop was recorded, and the field notes taken.

The final data was collected by receiving feedback for the proposal from the decision makers including, the CEO of the case company and Chairman of the Board of Directors as seen in Table 4 below.

Table 4- Details of Data 3 collection used in this thesis.

Datatype	Participants and roles	Agenda	Date	Duration	Documentation style
Face-to-face meeting	CEO of the case company and Chairman of the Board of Directors	-Customer satisfaction and project measurements -PowerBI Dashboard	17.3.2020	1h	Field notes

As seen in Table 4 the aim was to make the final validation of the proposed customer satisfaction survey and project measurement as well as the new PowerBI dashboard and decide to take those in use.

Furthermore, internal existing documentation on the process were used for qualitative analysis in the current state analysis stage. Additionally, quantitative analysis was conducted using data from project satisfaction surveys for analyzing the current survey results. As a result, Table 5 presents all the internal documentation and data used as a background information for the current state analysis of this thesis.

Table 5 List of internal documents used for the current state analysis in Data 1 round.

	Internal document / source	Description	Other details
1	Granlund_KAM_FINAL_web	Key account manager guidelines, descriptions and roles	44 pages
2	Sales Playbook Version 1.0	New sales process, roles and responsibilities	60 pages
3	Tasks and responsibilities of the project team	Description of project manager responsibilities in a project	2 pages
4	Tasks and Responsibilities of the Department	a description of the roles and responsibilities of the organization	5 pages
5	Project satisfaction surveys from 2017-2019	Project satisfaction surveys	224 project surveys
6	Software satisfaction surveys from 2019 (June and November)	Software satisfaction surveys, including customer support center satisfaction	1001 respondents

As seen in table 5 this thesis also analyzed four different internal documents and two different satisfaction surveys for the current state analysis stage of Data collection.

In the first data collection it was also very important to get a good understanding about the software's CRM, ERP and Customer Support Service ticketing system. These softwares are presented in Table 6.

Table 6. Softwares used in the current state analysis, Data 1.

	Name of the software	Description
A	ValueFrame	ERP, Finance and invoicing. CRM, Customer relationship management software
B	Freshdesh	Customer Support Service Software

As seen in Table 6, this study also analyzed internal softwares. The main softwares included CRM, ERP and Customer Support Service ticketing system. The softwares were analyzed in the current state analysis, Data 1, to collect a good understanding about the software's, and to understand their possibilities and limitations.

To summarize, most of the data collection was carried out in the current state analysis stage to establish a holistic view of the current project measurements and key account measurements. The findings from the current state analysis are discussed in more detail in Section 4.

This completes the Project Plan, methods and material section. The next section is a pre-engagement in literature of key performance indicators.

3   Existing Knowledge on Key Performance Indicators

This section discusses existing knowledge about key performance indicators. The aim to identify the key components of key performance indicators. Existing knowledge includes the areas of critical success factors, customer value and performance measurements as well as key performance indicators. The identified key components are later transformed into a framework, which will be used to perform an analysis of the current state and to make a proposal of key performance indicators for the case company.

3.1   Basic Concepts of Key Performance Indicators

There are two types of metrics and they have different definitions. The first one is result indicators (RI's) which tell the management how teams work together to produce results. The other one is performance indicators (PI's) which tell the management what teams are delivering. Within these metrics, there may be more important ones that are accompanied by the word key (K). (Parmenter 2015:40)

There is also a difference between metrics and performance metrics. Metrics generally focus on achieving performance objectivities. Metrics are the answer for question, where are we today? While a performance metrics focus is on the outcome, and they try to answer to the question, where will we end up? (Kerzner 2013:94)

Key Performance Indicators (KPIs) are important leadership tools that managers use to understand whether their business is on the road to success. The right set of indicators shows performance and highlights areas that require attention. "What is measured gets done" and "if you can't measure it, you can't manage it" are just two popular sayings used to emphasize the critical importance of meters. (Marr 2012)

3.2   The Anatomy of a KPI

Key performance indicators should provide meaningful information to improve performance. The anatomy of KPI's comes from three different elements based on Kerzner (2013:123):

Key= A major contributor to the success or failure of the project. A KPI metric is therefore only "key" when it can make or break the project

Performance= A metric that can be measured, quantified, adjusted and controlled. The metric must be controllable to improve performance.

Indicator= Reasonable representation of present and future performance

Defining and selecting the right KPI's are much easier if critical success factors (CSF) are defined. (Kerzner 2013:123)

3.3 Critical Success Factors

Critical success factors (CSF) were presented first time in Harvard business review in March 1979 (Rockart 1979). Rockart presented the following four types of CSF:

- Industry factors, each industry has its own specific critical success factors and a company in industry must pay attention to these.

- Strategic factors, which can be competitive strategy, industry position or location of the business.

- Environmental factors, such as political, financial or technological.

- Temporal factors, these factors are internal and significant for a certain period.

Since then the whole CSF concept has evolved and nowadays it is widely used in all business management.

3.3.1 Critical Success Factors in SaaS business

There are several ways of measuring information system success factors. One of them was presented by DeLone and McLean in 1992. In the past ten years there have been a large amount of new research around their framework and the information systems have changed and progressed as well. In 2003 DeLone and McLean presented a new and slightly improved information system success model shown in figure 3.

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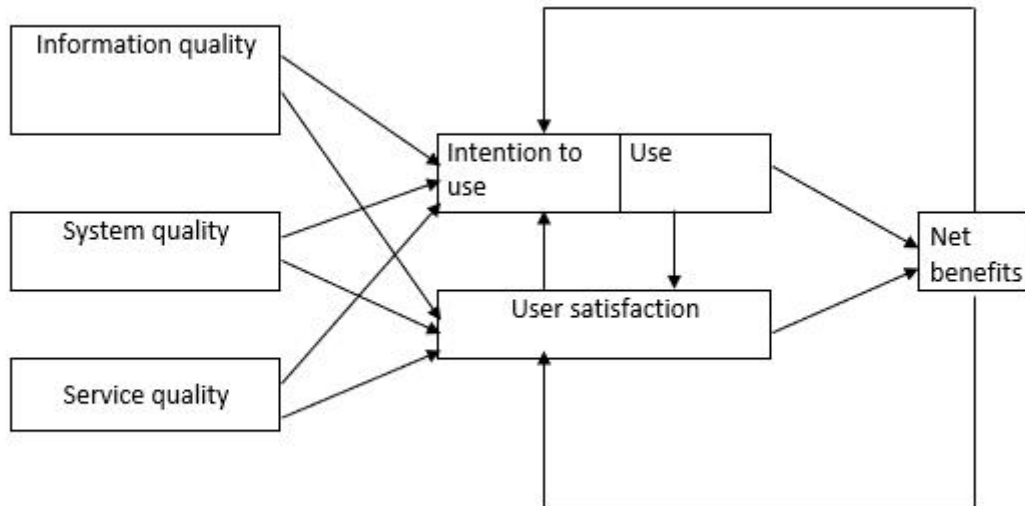
Figure 3 an updated information system success model (DeLone et al. 2003)

As seen in figure 3 it includes three different quality components, namely information, system and service. Information quality means that the content should be relevant and easy to use. System quality means for the system users that the information system is available, reliable and adaptable. Service quality takes care of overall support to the system users.

Intention to use and *Use* measures the usage of the system including how often users are using the system, how they navigate in the system, how they manage to do their tasks in the system. User satisfaction measures customers' opinions of the system and should cover the entire customer experience, the extent to which an information system helps the user to create value.

Net benefits are the most important success measures because they represent a balance between the positive and negative effects of the system on customers, employees, organizations and markets. Net benefits measures must be determined by context and objectives for each system by its nature and relevance.

3.3.2 Critical Success Factors in Service Business

A critical success factor in consulting business is to understand what the customers want and on what level. Turner (1982) has identified eight fundamental objectives in consulting services. These eight objectives of client-consultant relationships are:

(1) providing information to a client;

(2) solving a client's problem;

(3) making a diagnosis, which may necessitate redefinition of the problem;

(4) making recommendations based on the diagnosis;

(5) assisting with implementation of recommended actions;

(6) building a consensus and commitment around a corrective action;

(7) facilitating client learning; and

(8) permanently improving organizational effectiveness.

Objectives 1-5 are called traditional purposes and objectives 6-8 additional goals. The lower levels are better understood and practical and are also more requested by the customers. Objectives 6-8 are best considered by-products of earlier purposes, not additional objectives that become relevant only when the other purposes have been achieved. Moving up the objectives toward more ambitious purposes requires increasing sophistication and skill in the process of consulting and in managing the consultant customer relationship. Regardless of where the relationship starts, the primary and most important task of consultant is to understand the customer's need for the consultant. (Turner 1982)

In all of these critical success factors, the customer is involved, and therefore the next section addresses customer value.

3.4   Customer Value

This section discusses customer value and customer lifetime value. There are several ways of defining these two.

Butz and Goodstein (1996) define customer value as an emotional bond established between a customer and a provider after the customer has used a product or service produced by the provider and found the product or service to provide an added value. This kind of emotional bond leads the customer to buy repeatedly and even recommend that provider to his or her friends.

The customer lifecycle value is the value of the total purchasing flow that the customer generates during the partnership (Kotler 2016). Kotler (2016) also points out that good customer relationship management creates customer satisfaction. Customer satisfaction leads to loyal customers. Loyal customers use more money and stay around longer. Customer relationship management can help the provider to increase their share of the customer. To increase the number of customers firms can offer greater variety, or they can cross-sell and up-sell more products or services to existing customers.

3.4.1   Value of a Customer Relationship

The change from project base thinking or transactional thinking to customer relationship thinking requires much more development in measuring and managing relationships (Spitzer 2007). Spitzer has identified 10 indicators that can be used to measure and manage the value of a healthy customer relationship. These indicators are:

Revenue, cash flow through sales, cross-sales, and up-sales

Profit, the difference between the revenue and the amount used in buying, operating, or producing products and services

Retention, the length of the customer relationship.

Loyalty, Customer loyalty can be measured by longevity, purchase frequency, and expressed loyalty

Communication, the frequency and positive style of communication

Commitment, despite of negative experience or complaints the commitment is strong

Trust, this indicates the depth and quality of the relationship

Input, the willingness to make proactive proposals and participate in the development, improvement and trial of new products

Referral, showing the relationship to others

Community, customers can share together their experiences in user days or customer seminars

3.4.2   Customer Lifetime Value Modelling

Lehmann et al. (2005) have presented a simple calculation for customer lifetime value (CLV). There are only three variables: margin or profit per time period, retention rate and discount rate. These three make an equation for customer lifetime value CLV=margin(retention rate/(1+discount rate – retention rate).

Gupta et al. (2006) have created a framework for modeling customer lifetime value. The framework is presented in Figure 4
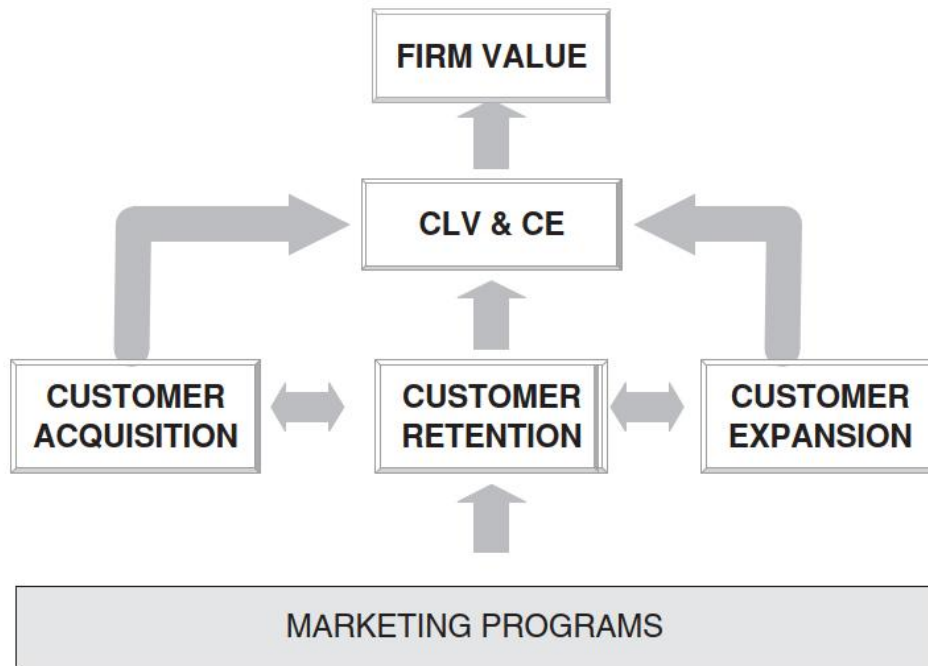
Figure 4 Conceptual framework for modelling Customer Lifetime Value (Gupta et al. 2006)

The model presented in Figure 4 includes three values: customer acquisition, customer retention and customer expansions which are impacting customer lifetime value (CLV) and customer equity (CE) to produce firm value. These different customer values are needed as metrics and models to assess the return on marketing program investments.

3.5   Characteristics of Performance Metrics

Eckerson (2011) has defined 12 characteristics of effective performance metrics. These 12 are:

1. Strategic. A good performance metrics shows the company's strategic goal and object.

2. Simple. Performance metrics must be easy to understand. Employees need to know what they can do to influence the outcome in a positive way.

3. Owned. Every performance metric needs an owner who is accountable for its outcome.

4. Actionable. Employees should have the data in timely so they can take actions to improve the performance.

5. Timely. Actionable metrics need timely data.

6. Referenceable. Users must understand from where and when the performance metric is calculated.

7. Accurate. The validity of data should be determined, because poor data creates weak performance metrics that users don't trust.

8. Correlated. Performance metrics are designed to produce the desired outcome. Companies need to constantly update their performance metrics to make sure they are delivering the results they want.

9. Game-proof. Organizers must test performance metrics to make sure employees cannot get around them. Or to make changes, so that the red light turns green, without making real changes.

10. Aligned. All performance metrics should be devised together to avoid sub-optimization.

11. Standardized. In creating performance metrics the challenge is getting people to agree on the definitions of terms, such as sales, profits, or customer, that comprise most of the metrics. Performance metrics should be standardized, so that the rules and calculations are agreed with the people.

12. Relevant. Over time, the performance metric will lose its effect and must be updated, modified or discarded.

3.6 Categories of KPI's

Performance indicators can be segmented per industry and they can also be reported as a group. Performance indicators can be categorized according to what they are indicating (Kerzner 2013:132-133).

Kerzner (2013) has defined two different main categories of KPI's. The first one divided the KPI's to five different categories: Quantitative (is presented in numerical values), Practical (measures improved efficiency), Directional (shows direction for better or worse), Actionable (shows the effectiveness) and Financial (present the performance measurements). The other categorizing includes three different categories: Lagging, Diagnostic and Leading. Lagging measures past performance, diagnostical measures current performance and leading measures drivers for future performance.

3.7 A Framework of Key Performance Indicators

A framework for key performance indicators is built based on existing knowledge discussed in this section. The framework is divided into three different elements, critical success factors, customer value and performance measurements and key performance indicators as shown in Figure 5.

Defining Critical Success Factors

- Parmenter (2015)
- Kerzner (2013)
- Rockart (1979)
- Turner (1982)

Measuring Customer Value and project performance

- Gubta et al. (2006)
- DiJulius III (2008)

What are KPI's

- Spitzer (2007)
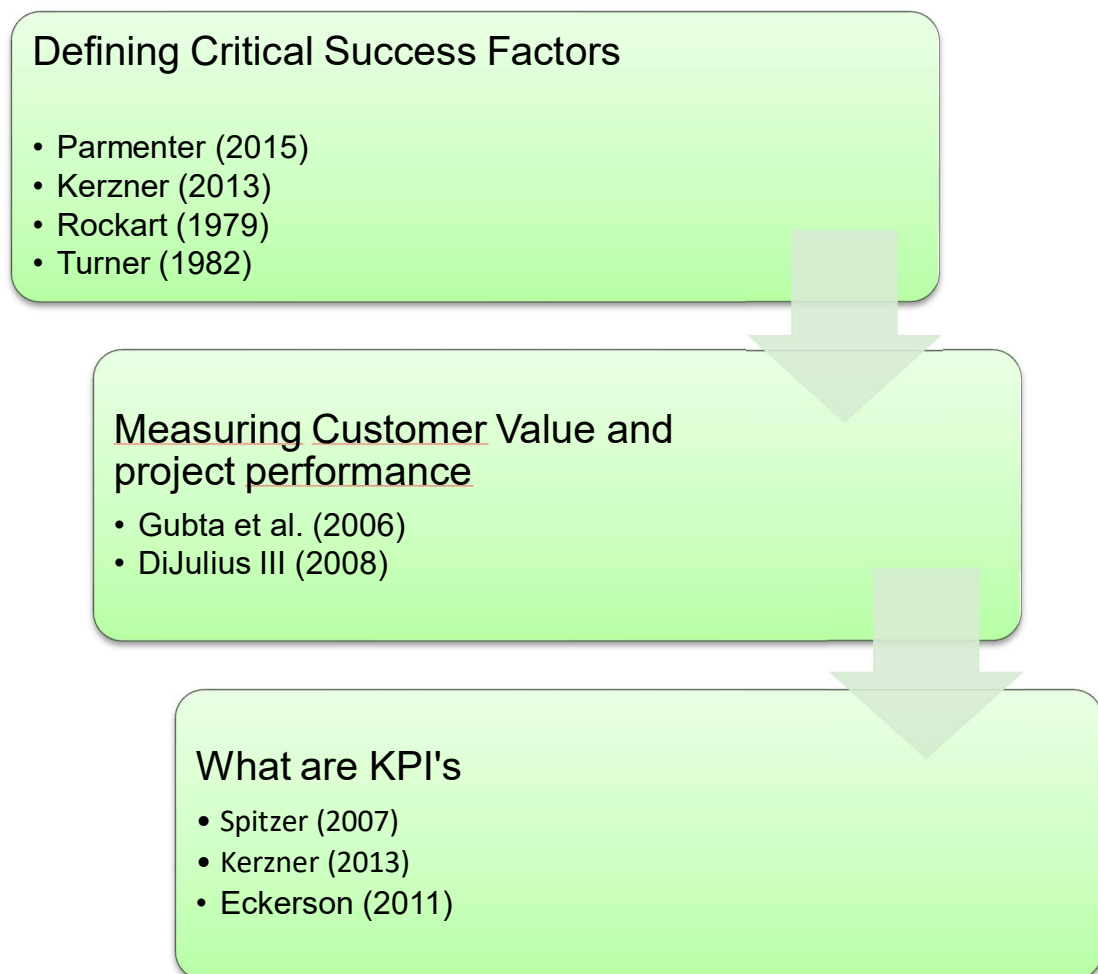- Kerzner (2013)
- Eckerson (2011)

Figure 5 framework of key performance indicators

As seen in Figure 5 this framework provides the themes for asking the right questions and finding data in the next phase, the current state analysis.

This completes the Existing Knowledge on key performance indicators. The next section focuses on carrying out a Current State Analysis in the case company.

4   Current State Analysis

This section discusses the current state of the case company's project measurements and customer satisfaction measurements. The Current State Analysis (CSA) analyzes the current situation in the case company and how the current measurements are conducted and utilized. This current state analysis is done by using the framework created in the section three, to identify what are the case company's critical success factors, current measurements and KPI's. Furthermore, it continues by identifying strengths and weaknesses of these measurements and processes and summarizes the key findings for building a solution later in the study.

4.1   Overview of the Current State Analysis Stage

At the time the current state analysis was conducted the case company had two major things ongoing at the same time. The first one was that the case company was dealing with the biggest system transformation in the company's history. The whole accounting, project management, invoicing and CRM system were renewed. The second thing was that the case company's current strategy was renewed.

Data for this report was collected in five steps. The first step was to investigate the existing documentation of the current project and key account management instructions. The second step was conducted through interviews. The third step was a revisit to the new documents that were found during the interviews. The fourth step was done by analyzing the project satisfaction queries and fifth step was done by analyzing the current software possibilities.

4.2   The Case Company's Critical Success Factors

The case company has in its strategy defined that the real competitive advantage of the company consists of good customer relationships. The case company has also defined their customer promise, as follows: large company's delivery capability combined with small company's service agility.

The Chairman of the Board of Directors stated the following in the interview:

"*A critical success factor is the customer-focused and committed approac*h".
Data 1, the Chairman of the Board of Directors.

According to all interviews and all documentation the customer is the critical success factor for the case company.

4.3 Current Processes and Measurements

In this section the current processes and measurement such as sales process and customer management processes are investigated more deeply.

4.3.1 Sales Process

The case company's new strategy has described a new sales process and defined meters to measure it. This new process is only described in January 2020, so it is not yet fully implemented in action. The new sales process starts when the customer has first made an agreement with the case company. After that it is very important to strengthen the positive image and customer relationship with sales activities to ensure the continuity, profitability, and sustainability for the case company's business.

In the new sales process, it is described how the case company utilizes customer classification. The idea is to focus on large and most potential customers. The classification is not only looking at the sales volume, it also takes into consideration the following criteria:

- The customer attitude towards to the case company

- How well our customer team knows the customer's business

- How well our customer team is aware of the customer's total purchases, additional and cross-selling potential

- How well our customer team is familiar with the customer decision processes and decision makers

- How well our customer team knows the customer's technical and other challenges where the case company could help them with

The new sales process is defined as seen in figure 6.

Figure 6 the new sales process.

As seen in Figure 6 the new sales process starts from *planning*, where the goal is to plan used time to achieve the most effective sales effort. The next phase is *contacting* where the goal is to set a meeting with the right person. *Meeting* is the third phase and there the goal is to find a common will with the customer and understand customer problem. The fourth phase *presents the solution*, and this is to prove to the customer that the solution or service we are providing solves the customer's problem. The fifth phase is the actual *offer* where the goal is to get the deal on good terms and a satisfied customer. The *Follow-up* phase is to ensure the customer satisfaction and loyalty and to ensure good conditions for additional and cross-selling in the future.

In this new sales process, the third phase is currently the only phase where some targets are set. The current target is measured by how many meetings have been held. This follow-up is done in CRM.

The Sales is organized as a virtual organization and it is led by the Sales Management Board. The actual people In this virtual organization are selected from all over the business units and they have the right knowledge, skills, attitude and motivation. The Sales management board have meetings in every quarter, and they report directly to the case company's board of directors.

4.3.2   Key Account Management

The case company has a key account management operating model which is presented in figure 7. It was launched in 2017 and the basic ground was that the key accounts are selected from the case company's largest customers.
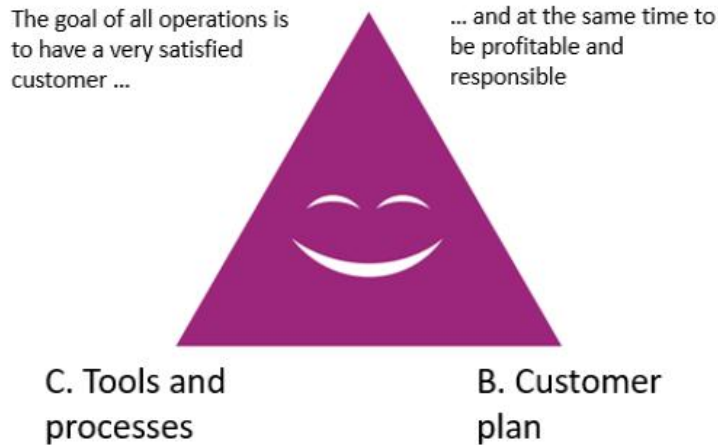
Figure 7 Key account management operating model

As seen in figure 7 every key customer has a named key account organization and the organization makes a yearly customer plan. The customer plan is a tool for the organization to set targets and make follow-up.

Every key customer has its own customer organization, where there is a key account manager and a key account organization which has people from every business area, as illustrated in figure 8.
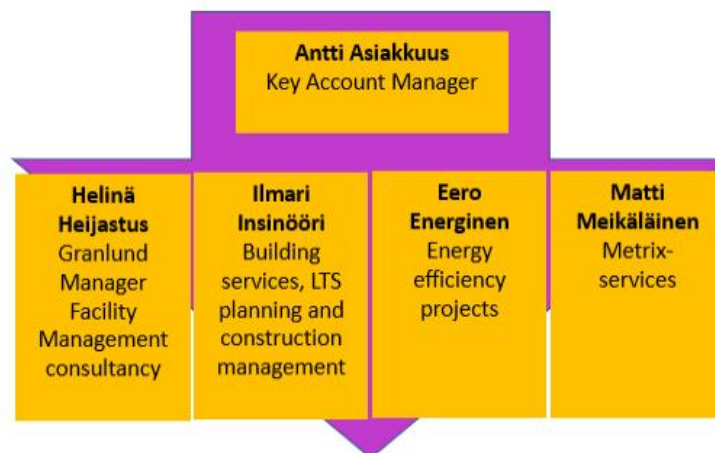
Figure 8 a model of a key account organization

As seen in figure 8 the key account has an organization where are several members from different parts of the organization. The main idea is that the key account manager needs support from different business area to be able to provide all the case company's services to the customer.

A key account manager has the main responsibility for the customer, and the manager is also responsible for supporting the entire organization, providing the case company's full range of services to the customers and caring for the key customer.

The current key account management is measured by simply following (or observing) whether the yearly customer plan has been made. In that plan all three business area set their own written target to the customer for the current year. This plan is created in the customer relation management (CRM) software and it is reported to the key account management board yearly.

This current key account management process is not working in all key customers and this was studied in a thesis by Jarkko Hautala (2019) entitled Customer management development in a multidisciplinary expert organization.

4.3.3   Customer Management in Software Department

In the software department customer management is always the core of operations. The foundation has been the software which have enabled the continuous customer relationship. In the software department all customers have been designated a responsible person.

In the year 2019 the department's all customers were categorized based on their potential and yearly sales volume. The categorization is uses A-D segmentation as presented in Figure 9.
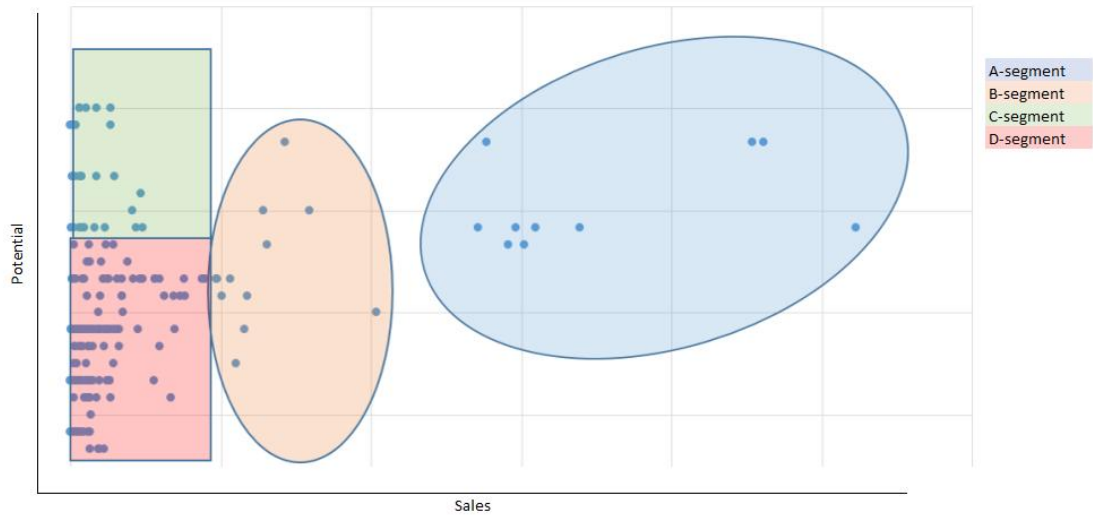
Figure 9 shows the relationship between customer sales and potential. Picture from Master's Thesis by Joonatan Uuspelto, Customer segmentation and management of customer work in real estate and software business (2019:67)

As seen in Figure 9 A-segment customers are the key customers that are the most significant in size and potential. B-segment customers are medium-sized and are important to the business. C-segment customers are small in turnover, but they have potential, and D-segment customers are small in turnover and potential.

In the beginning of 2020, the software department took in use the customer categorization which was done in 2019. The customers which were in D-segment were moved to the product management, so that the account managers could have more time to focus on customers in A-C segments. And at the same time the software department took the new sales process in use and appointed people for this virtual team. The new organization chart can be seen in Figure 10 below.
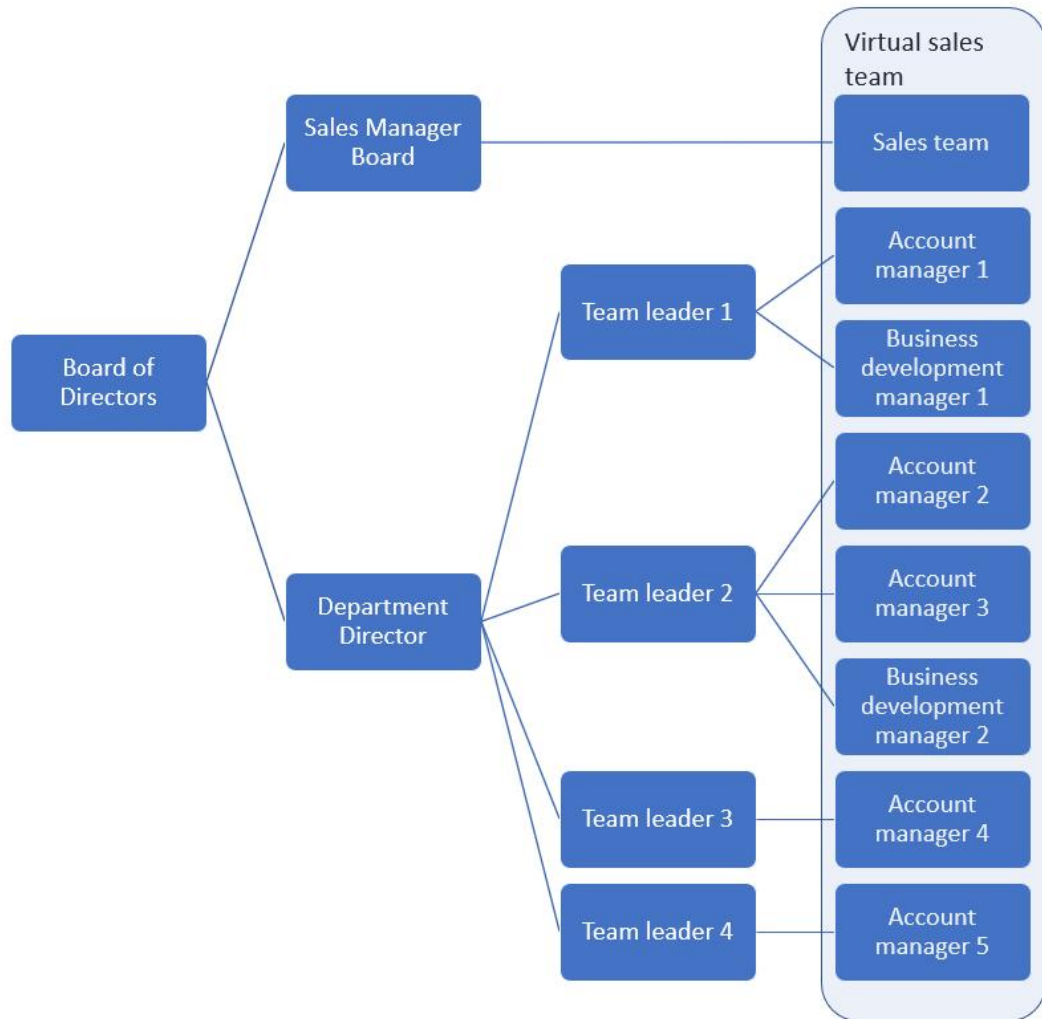
Figure 10 Organization chart

As seen in Figure 10 the people who were named for this new virtual team are also sitting in the organization business units. The business units have their own structure and the team leader is responsible for the result of the unit. This result is measured by net sales and earnings before interest, taxes, depreciation and amortization (EDITBA).

4.3.4 Project Management

The core for all operations is the project work. The case company's projects vary depending of the business area. Major design projects include hospitals, metro stations and arenas, with a budget of millions and employing 10 industry experts who plan the project for a full year. At the other end, there are many small projects where one person makes a comprehensive service book for the customer in one week.

Depending on the project size the case company creates a project organization to assure the customer that the end result is what the customer wanted. The project organization could look like in Figure 11 below.
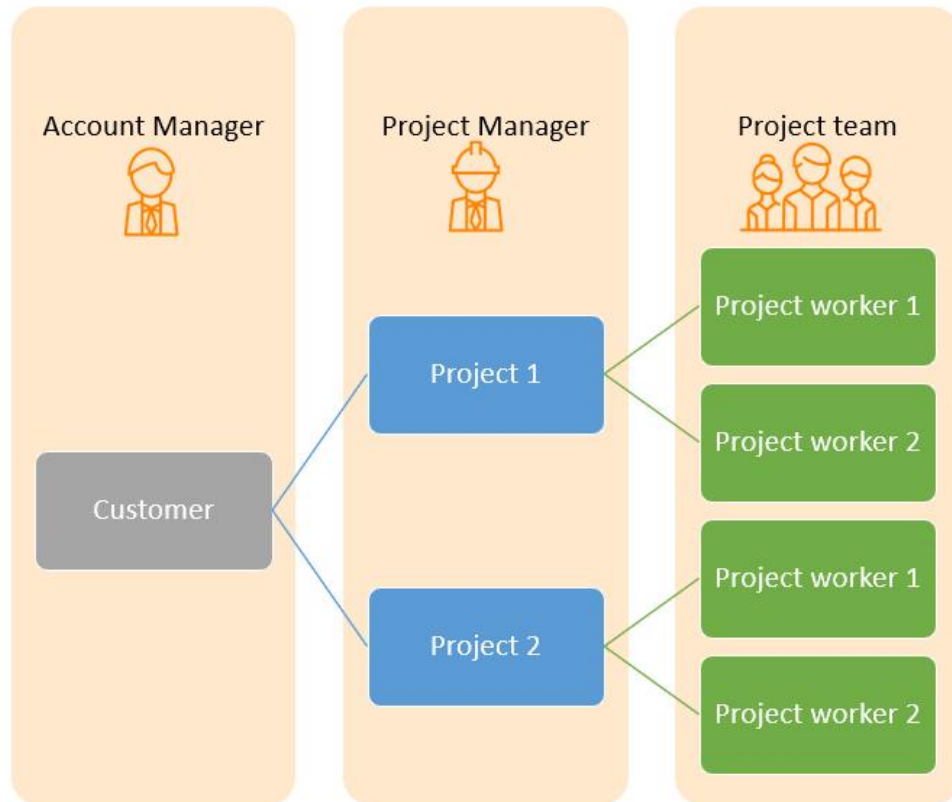
Figure 11 a project organization

As seen in Figure 11 every project has a project manager who is responsible for the outcome of that project. Depending on the size and complexity of the project it might include also a project team.

It is written in the case company's project instructions that the project manager is responsible for the project regarding technical, quality, timing and economical aspects for the customer. The project manager is also responsible for receiving customer feedback and communicating the feedback to the entire project organization.

4.4 Customer Satisfaction Measurements

The interviews showed that the customer satisfaction measurements are performed using several tools and several levels and that they are used for different purposes. The next subsections investigate these more deeply.

4.4.1 Project Satisfaction

The case company has an ongoing project tracking system that gathers feedback from the customers. The Project Managers can make a request by a web formula to the survey company to collect feedback through telephone interviews. All the instructions and total scores are shown on the case company's intranet. There are totally 11 questions and some of those also ask about the importance of that factor for the customer. The survey company promises to get a response at least from 45 % and history shows that the responses have been in 2019: 67,4%, 2018: 73,8%, 2017: 47%, 2016: 56,5 %.

At the current system the project manager fills manually the background data form which asks background information about the project and customer. The background questions are: Project name, project number, customer company name, customer name, customer phone number, customer email address, customer industry (selection of 16 options + other), the case company's business area (selection of three options + other), customer role (selection of 8 options), project type (selection of 5 options + other). In addition there are questions about the project manager (name, company) and finally a free text box where the project manager can fill in the description about the project.

After the survey company gets the background information, they begin to reach the customer for a telephone interview.

The current questions in the survey are:

Question	Answer scale
1.Evaluate how actively the expert worked on project issues and produced solutions,	1-5
2. How the case company succeeded in areas of a) Keeping to the schedule, b) expert's knowledge, c) visibility of energy efficiency in all activities, d) versatility of services and e) smooth cooperation. These 5 questions are also evaluated by the importance of each to the customer.	1-5
3. Total score of the case company's actions	1-5
4. Did the project go according to plan? And there is an extra question if not, why not?	Yes/No
5. Were the services of the case company more widely presented during the project?	Yes/No
6. Based on your own experience, would you recommend the case company? - This question has also a reasoning field, where the interviewer can write free text	• Yes, I have done that already • Yes, I would recommend • Yes, with certain restrictions • No, I would probably not recommend
7. Is there something going on in your company that the case company could help you? -If yes, there is an extra question, "where the case company could help"	Yes/No

There is also an extra field, where the interviewer can write their comments about the interview.

When the survey company gets the answers, they send the results to the project manager who had made the original requests. If the survey company does not get the answers from the customers (because the customer is not answering the telephone calls or does not have time to answer to the survey) the project manager does not get any response and actually is not even sure about the situation.

Metropolia

"The current model becomes the feeling that when they (the survey company) reach the promised 45 percent response rate, they will stop working." Data 1, Team leader.

There are also three scores that are presented on the case company's intranet. These are willingness to recommend the case company, experts' activity and overall appreciation for the case company.

This survey is used very differently throughout the organization. Some subsidiaries are using this very actively, some not at all, the same is true inside different departments. Some of the departments are using this survey and some are not using as can be seen in Figure 12 below.

Department	Surveys	Employees	Surveys %	Employees %
Consturction	15	69	24 %	15 %
HVAC	12	82	19 %	18 %
Software	19	77	30 %	17 %
Building automation	4	39	6 %	9 %
Electrical	6	79	10 %	17 %
Hospital	6	74	10 %	16 %
Datacenter	1	32	2 %	7 %
Total	**63**	**452**	**100 %**	**100 %**

Figure 12 number of surveys and employees in the case company's different departments

As seen in Figure 12 for example in year 2019 the case company received over 50 % of the answers for project satisfaction from departments that have 32 % of the company's total employees. This data is missing the number of projects because that information is not available from the old project management system. This would have given maybe some other conclusions.

The case company will change the survey company to another company, but the idea was to keep the questions as they are. At the same time there has been no discussion whether this survey should be changed to more dynamic and maybe even automize it somehow. There was discussion about the questions and the possibilities to change the way surveys are now done. This is dealt with in the second literature part, where different customer satisfaction queries are explored in the literature.

4.4.2 Software Satisfaction

The case company has carried out yearly software satisfaction survey to the software users. This survey is done separately, and the main focus has been the overall software satisfaction. In the last survey there was also a question about the software support center. The last survey included 5 questions, overall satisfaction with the software and the satisfaction of the various support channels in the Support center. These results are used by the product management to analyze the strength and weaknesses of the software and to get an idea of the competitors for the software. These results are shared also with the project managers in overall level, not in individual answers level.

4.4.3 Support Service Center- Customer Satisfaction

At the moment the customer support center has an ongoing survey in the chat channel. The results are only linked to the chat channel user and the result are used to supervise the support center operational activities. This survey uses the 5-level star rating.

4.5 Data Systems

The case company is taking in use a new Enterprise Resource Planning (ERP) system. The same system will be a master for customers and customer relationship management (CRM).

4.5.1 ERP and CRM

The new Enterprise Resource Planning (ERP) system will be a master for customer information, project management and invoicing. The new system will provide to project managers better visibility to their projects and customers. The ERP was took in use in the beginning of January, for that reason all the sub-processes are not yet described and/or implemented to the end users.

In the new system it is possible to make a customer satisfaction survey but the case company has not yet made any decision to take that in use.

Inside the ERP is CRM where every customer can be categorized. The ERP is illustrated in Figure 13 below:
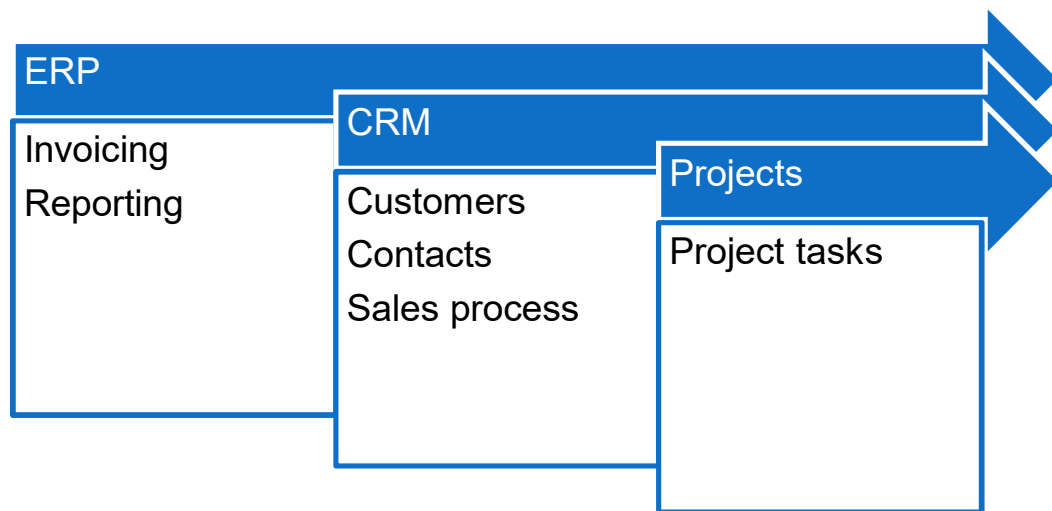
Figure 13 of the ERP relation to the CRM

As seen in figure 13 ERP is the master system, and inside it is the CRM and Project Management. Project Management is using the same customer information as the whole system. Therefore all the case company's projects are linked to the customers.

4.5.2 Customer Support Service Ticketing System

The Customer Support Service ticketing system is in use in the software department to ensure good and accurate customer support. The software enables to report to the customers on the implementation of the Service Level Agreement (SLA).

The process of Customer Support Center and the lifecycle of the support tickets is shown in figure 14 below.

Customer support center

Customer support process
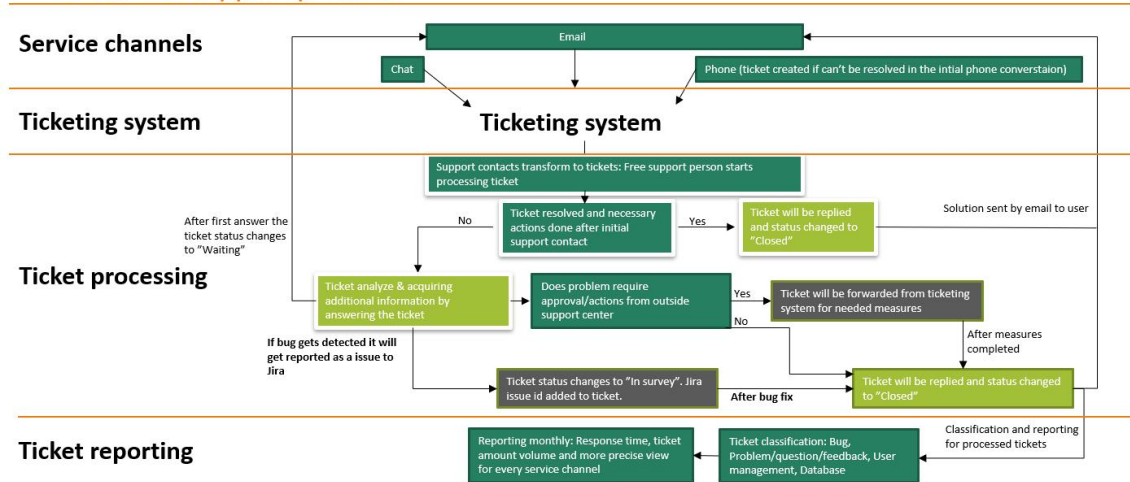
Figure 14 the Customer Support process

As seen in figure 14 all customer contacts are reported to the ticketing system except those phone calls which are resolved during the phone call. All tickets are linked to an end user and most of them are also linked to a customer. The customer information might be also something else than the software department customer, for example a mainte-nance company who is using the case company's system at the customer's request. Depending on the issue this process for resolving the ticket can take from hours to weeks.

In the Customer Support Service ticketing system, the customers are manually entered to the system based on the information that is the new customer databases in the case company's Software as a Service (SaaS) environment. There has not been discussion should these customers use the same master as all other customers, the CRM system. There was discussion to take the customers from the CRM master, but there must be a good reason to do that due to it will be manual work and by that also the amount of customers would grow significantly, due to all the case company's customers are not software department customers.

The Customer Support service customer satisfaction is measured inside the Software Customer Satisfaction yearly survey. These survey results are not linked to the customer as mentioned in section 4.4.2. In customer support service ticketing system has the op-portunity to take the customer satisfaction survey in use. That would mean that after a support ticket is closed it would automatically send an email survey to the customer who had originally left in the ticket.

4.6 Key Findings from the Current State Analysis

Several strengths and weaknesses were identified in the current state analysis conducted in the Data 1 collection stage. The key findings from the current state analysis were that there are a good understanding about the customer satisfaction but the way how it is measured is mismatching and confusing. There is also a wide variety of instructions, reports and software available to measure and report the customer data and satisfaction.

The key strengths and weaknesses of the current state are summarized in figure 15.

Critical Success Factors

Customers and customer satisfaction and their importance to the business

Customer Value and project performance

| Project level customer satisfaction is measured | Project satisfaction is not linked to the customer and it is based on volunteer manual work from the project manager | In addition, there are several satisfaction surveys / measurements that are not linked to the customer. |

KPI's

| Project level customer satisfaction | Project / account /customer level measurements don't exist |

Figure 15 the current state strengths and weaknesses

As seen in figure 15 all the strengths are marked in green and weaknesses are marked in red. The main strength is the case company's understanding about the customer value and customer satisfaction and their meaning to the business, although there is no proper way to measure customer satisfaction. A strength is that the project satisfaction is measured, although the project satisfaction survey is very manually conducted, and the results are not linked to the customer.

In summary, the current state analysis revealed that customer satisfaction measurement is the area most in need of reform.

This completes the current state analysis. The next section 5 is a re-visit to existing knowledge of measurements. The findings are then used to form the conceptual framework for this thesis.

5   Existing Knowledge about Measurements

This section discusses the two main weakness categories discovered in the previous section of the current state analysis. This section is divided into two chapters, one for each weakness category, followed by the conceptual framework. The first chapter focuses on project measurements and the second chapter then focuses on the customer satisfaction measurements. The identified key elements are subsequently transformed into the conceptual framework, later used for building the initial proposal.

5.1   Project Measurements

In project management success is usually measured by the triple constraints. The triple constraints include time, cost and performance, where performance can mean quality, scope or technical performance. This has been the basic definition for success in project management. Kerzner (2013) points out that when the project is to be implemented for the customer, the project has a fourth constraint: customer satisfaction which is illustrated in figure 16.

Figure 16 an illustration of triple constraint with the fourth constrain, customer satisfaction (Kerzner 2013)

As seen in Figure 16 the basic three triple constraints are placed in a triangle, but customer satisfaction can be achieved in all levels, depending on a project, service provided or customer demand.

5.1.1 Scorecard and Dashboard

Kaplan et al. (1992) presented a balanced scorecard model which includes elements of both financial and operational measurements. Their model contains four different elements which are presented below:

- The financial perspective, such as profitability, growth and shareholder value.

- The customer perspective, which can be divided into four different categories time, quality, performance and service, and cost.

- The business process perspective. This measures what the company must do internally to meet the customer expectations.

- The innovation and learning perspective, this measures the company's capability to grow and increase shareholder by launching new products or services, capability to create more value for the customers and overall improve operational efficiency

Scorecards are the highest and most strategic level of the business decision making hierarchy. Scorecards have a goal to keep the business focused on a common strategy while dashboard fall one level down in the business decision making hierarchy. Dashboard is less focused on strategic objectives and more focused on specific operational objectives. An operational objective can directly contribute to higher level strategic objectives. Within a dashboard, the focus is on achieving the operational objective itself, not the higher-level strategy. The purpose of a dashboard is to provide the user with actionable business information in a format that is both intuitive and understandable. Dashboard utilizes operational information primarily in KPI format. (Kerzner 2017)

Based on Eckerson (2011) dashboards give leaders a way to **monitor** critical business processes and activities, **analyze** the situation by giving relevant and timely information and to **manage** people and processes to improve performance and steer the organization in the right direction.

5.1.2 Financial Measurements

According to Al-Najjar et al. (2012) the accurate and timely financial information is essential for the effective and smooth running of the organization. Getting the right and timely financial information to the right person in the organization helps making the right decision at the right time. In this perspective, the most common performance measures are ROI, Cash Flow, Net Operating Income and Revenue Growth.

Babson et al. (2007) state that the primary key performance measurement for a for-profit organization is net earnings. Net income is not a good indicator because it is too easy to manipulate. Every financial measurement can be misused, but If an organization takes one measurement and manages it skillfully, no other measurements are needed.

Financial performance measures are used to track and monitor the performance of an organization. However, it must be emphasized that financial performance is a by-product of satisfying the customer. Financial numbers do not give a complete picture of the organization's operations and future. Customers do not buy products and services because of the financial performance of the company. (Babson et al. 2007)

Nevertheless, whatever you want to measure or to accomplish there is always a customer perspective and, in the end, customer is the one who defines the ultimate project success. The next section discusses the customer satisfaction.

5.2 Customer Satisfaction Measurements

This section discusses the reason to measure customer satisfaction, what is value of a long-time customers, and last what are the different ways to measure customer satisfaction.

5.2.1 Reasons to Measure

Based on Gerson (1993) there are seven reasons to conduct customer satisfaction measurement:

1. To learn about the customer perceptions

2. To know what the customer needs, wants, requires and expects

3. To minimize the gaps between customer expectations and supplier performance

4. To inspect what the company should do in order to improve service and customer satisfaction

5. Because improved performance leads to increased profits

6. To learn how business is doing

7. To apply the process of continuous improvements

The benefits of measuring quality and customer satisfaction can be summarized in these five items based on Gerson (1993).

1. Measurements provide people feedback of their achievements and accomplishments

2. Measurement provides people a baseline of performance and sets a standard of excellence which they need to achieve, which will lead to improved quality and increased customer satisfaction.

3. Measurements offer people immediate feedback of their job

4. Measurements tell where to improve quality and customer satisfaction

5. Measurement motive people to perform and achieve even higher goals

Based on Inghilleri et al. (2010) customer satisfaction is built from four different elements. These elements are:

1. A perfect product or service. Companies must design their product and/or service in such a way that it can be expected to operate within predictable limits. Incomplete product or service is intolerable from customer perspective.

2. Delivered or served by a friendly person. It doesn't matter if your product or service is excellent if its supplier is unfriendly or unprofessional.

3. Timing. Companies must know their customers' expectations and definitions of the time.

4. Effective support and problem solving. Efficiency cannot be measured if the company has returned to its previous state. Effectiveness is measured if the supplier has returned customer satisfaction. By solving a service problem efficiently, the customer is more likely to be loyal than if the customer never got into the problem.

5.2.2 Value of a Long-time Customers

Based on Reichheld et al. (1990) companies with loyal, long-time customers can financially outperform competitors with lower unit costs and high market share. Companies with long-time customers can often charge more for their products or services. When customers have confidence in the company the company can charge a premium. A long-time customer also does free advertising over the years. And, when the company knows the customers and their needs it can serve them more efficiently. These cost savings and additional revenues combine to produce a steadily increasing stream of profits over the time as can be seen in figure 17
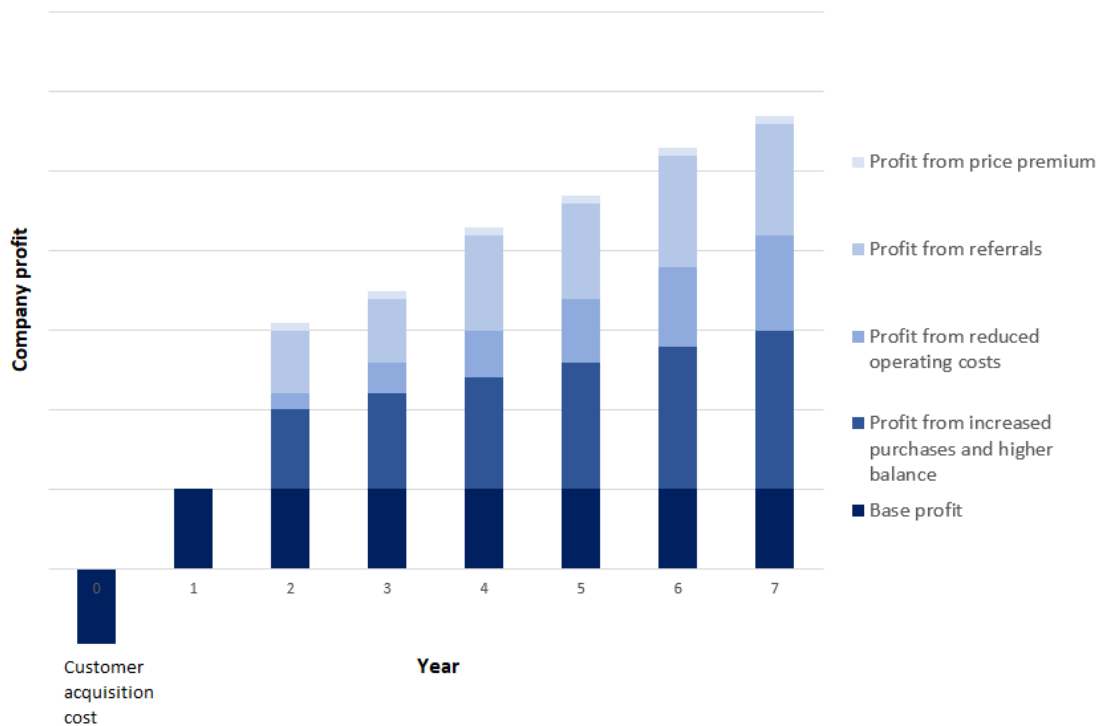

Figure 17 Why customers are more profitable over time. Reichheld et al. (1990)

As seen in figure 17 company to calculate a customer's real value, a company must take all these different profit streams into account.

In the service-profit chain, Heskett et al. (1994) showed a relationship between profitability, customer loyalty and employee satisfaction and productivity, as can be seen in the figure 18 below.

Operating Strategy and Service Delivery System

- workplace design
- job design
- employee selection and development
- employee rewards and recognition
- tools for serving customers

- service concept: results for customers

- service designed and delivered to meet targeted customers' needs

- retention
- repeat business
- referral
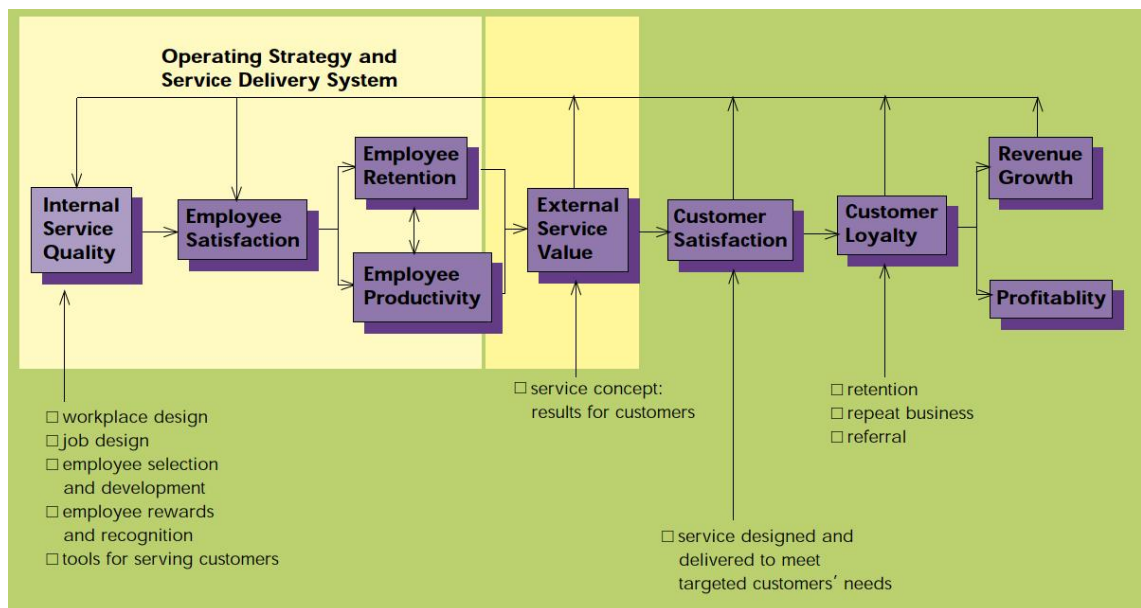
Figure 18 The links in the service-profit chain by Heskett et al. (1994)

As seen in Figure 18 customer loyalty is a direct result of customer satisfaction. Customer satisfaction is a result of the services provided to customers. The services provided to the customers are created by satisfied and effective employees.

Therefore without any hesitations it is reasonable to say that customer satisfaction gives the organization an excellent way to measure the performance, and people in the organization a good understanding of their own performance and its meaning to the customers.

5.2.3 Different Ways to Measure

There are many ways to measure customer satisfaction. One of those is Net Promoter Score (NPS) developed by Reichheld (2004). NPS measures the customer's willingness to recommend the company's products or services to others. It is used as a customer's overall satisfaction with a company's product or service and overall loyalty to the brand

and it predicts business growth. The one question is "How likely it is that you would recommend Company X to a friend or colleague"? This survey is rated on a scale from 0-10, where there are promoters, passives, and detractors. **Promoters** (score 9-10) are loyal enthusiasts who will keep buying and refer others. **Passives** (score 7-8) are satisfied but unenthusiastic customers who are vulnerable to competitive offerings. **Detractors** (score 0-6) are unhappy customers who can damage your brand and impede growth through negative word-of-mouth.

This NPS survey is clear and simple, but it won't tell the reason why customers would or would not recommend the company, service or product. A very good addon to this survey is a set of open questions such as why do you like this company or what areas could be improved. By these additional questions the company will get insight into areas that are working well or that need to be improved. (Marr 2014)

One other way to measure customer loyalty is called RAPID (Hayes 2011). This method is based on Gupta's (2006) modelling customer lifetime value presented in section 3.4.2. RAPID method includes three different loyalty components, retention, advocacy and purchasing.

The **Retention Loyalty Index (RLI)**: Degree to which customers will remain as customers or not leave to competitors. This predicts the future churn rate. The **Advocacy Loyalty Index (ALI)**: Degree to which customers feel positively toward/will advocate your product/service/brand. This measures customer growth. The **Purchasing Loyalty Index (PLI)**: Degree to which customers will increase their purchasing behavior. This predicts revenue growth.

Questions within these categories could be

Retention

1. Likelihood to stop purchasing from the company

2. Likelihood to switch to a different provider

3. Likelihood to stop purchasing

Advocacy

4. Overall satisfaction.

5. Likelihood to choose again for the first time.

6. Likelihood to recommend.

7. Likelihood to continue purchasing same products or services.

Purchasing

8. Likelihood to purchase different products or services.

9. Likelihood to increase frequency of purchasing.

10. Likelihood to increase amount of purchases.

11. Likelihood to purchase more expensive offerings

All questions are rated from 0-10 and scores for each index can range from zero (low loyalty) to 10 (high loyalty).

In between these there are various ways on making customer satisfaction surveys. Most important regardless of the measurement way is that it provides good and reliable information for the company to measure and lead customer satisfaction. To be successful in measuring customer satisfaction, a company needs to know who to measure, what to measure, when to measure, where to measure, how to measure and why to measure. (Gerson 1993)

5.3   Conceptual Framework of This Thesis

The conceptual framework of this thesis is formed based on the two main weakness categories discovered in the current state analysis, which are firstly lack of internal pro-

ject / account / customer management metrics, and secondly, weak and unclear customer satisfaction measurements The conceptual framework of this thesis is presented in Figure 19.
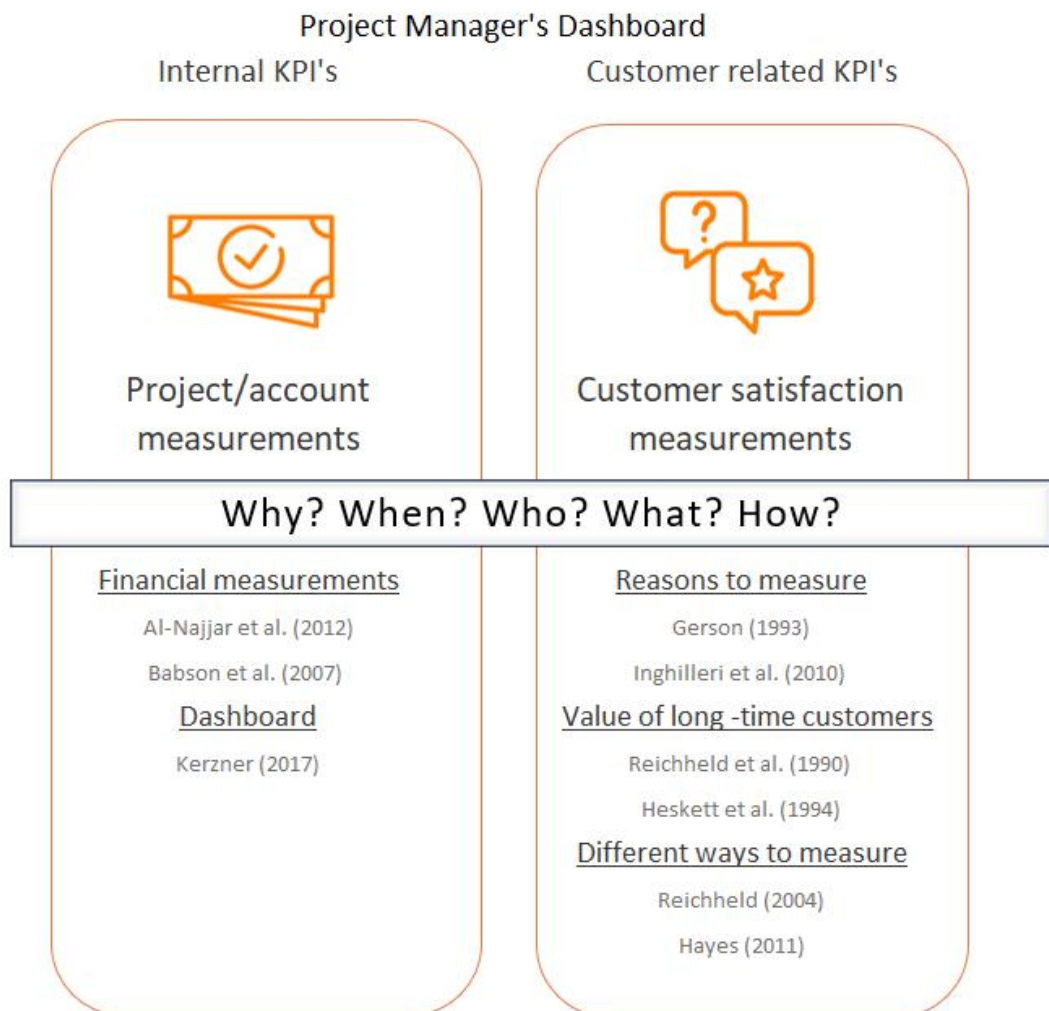
Figure 19 Conceptual framework of this thesis

Figure 19 describes the components of the conceptual framework of this thesis. The framework is divided into two main categories and five sub-elements. The first category focuses on internal KPI's such as financial measurements and dashboard. The second category on the other hand focuses on the customer satisfaction measurements and customer related KPI's.

The findings from the current state discussed in Section 4 and insights gathered from the conceptual framework are utilized in Section 6 of this thesis for building the initial proposal for the new key performance indicators for project managers in the case company.

6 Building Initial Proposal of New Key Performance Indicators for Project Managers in the Case Company

This section merges the results of the current state analysis, discussed in section 4, and the conceptual framework from section 5 towards the building of the initial proposal of new key performance indicators for project managers in the case company. The proposal is co-created together with the stakeholders and findings from this stage form the second round of data, Data 2, as presented in section 2.

This section is divided into four subsections. The first subsection provides an overview of the proposal building phase. The second subsection presents the co-created initial proposal for the new key performance indicators for project managers in the case company and the third section describes the proposal building phase. The fourth subsection summarize this section, thus fulfilling the objective of this thesis. The co-created initial proposal is validated in Section 7.

6.1 Overview of the Proposal Building Stage

The initial proposal was built to tackle the two main weaknesses revealed by the current state analysis in section 4. The first identified weakness was that the current project measurement does not exist, and the second weakness was that the customer satisfaction survey is not linked to the customer and it requires a great amount of manual work from the project manager.

The initial proposal of the new key performance indicators for project managers in the case company was co-created in six stages by conducting one workshop and one meeting to gather insights, ideas and feedback from all relevant stakeholders. The first stage was to make a proposal of the new customer satisfaction survey questions. The second stage was to suggest when and how to collect information on customer satisfaction. The third stage was to make a proposal of the new customer satisfaction survey process. The fourth stage was to make a proposal of the financial key performance indicators. The fifth stage was to create an initial proposal for the project managers' dashboard. Finally, the sixth stage was to analyze all feedback and ideas gathered from the workshop together with the quality system manager to form the initial proposal for management validation.

The findings of the Data 2 collection are discussed in more detail in the following subsections.

6.2 Initial Proposal for the New Key Performance Indicators for Project Managers in the Case Company

The initial proposal for the new key performance indicators for project managers in the case company includes three different elements. These elements include a customer satisfaction survey, an overall customer satisfaction collection process, and a dashboard for project managers to follow-up customer satisfaction and financial values.

The first element is the customer satisfaction survey questions. The new proposed model is more simple than the current one and there are two different surveys. Both surveys have one question which can be used to measure overall satisfaction and can be presented in project level, customer level as well as in company level. The new proposed survey is presented in Figure 20 below.

Customer Satisfaction measurement

Net Promoter Score (NPS) by Reichheld (2004)

- Email survey
  - How likely it is that you would recommend Company X to a friend or colleague? Grading from 0-10
  - And an open question . Why you gave us X?
- Telephone survey
  1. How well the project succeeded in timetable
  2. How good was expertise of experts
  3. How good was cooperation fluency
  4. Were the services of the case company more widely presented during the project?
  5. How likely it is that you would recommend Company X to a friend or colleague?

     Grading from 0-10 and a free text

Figure 20 the new proposed customer satisfaction surveys

As seen in Figure 20, the main question "How likely it is that you would recommend Company X to a friend or colleague?" is based on Reichhelds (2014) Net Promoter Score (NPS). The survey can be done in two different ways by email or telephone. The telephone survey contains more detailed questions about the project to provide more detailed information to the project manager. Both surveys have also an open-ended question where the customer or telephone interviewer can write the reason for the given

grade. The open question provides more detailed information of the project to the project manager.

The second element is the overall process, how and when customer satisfaction is surveyed. The new proposed process is illustrated in figure 21.
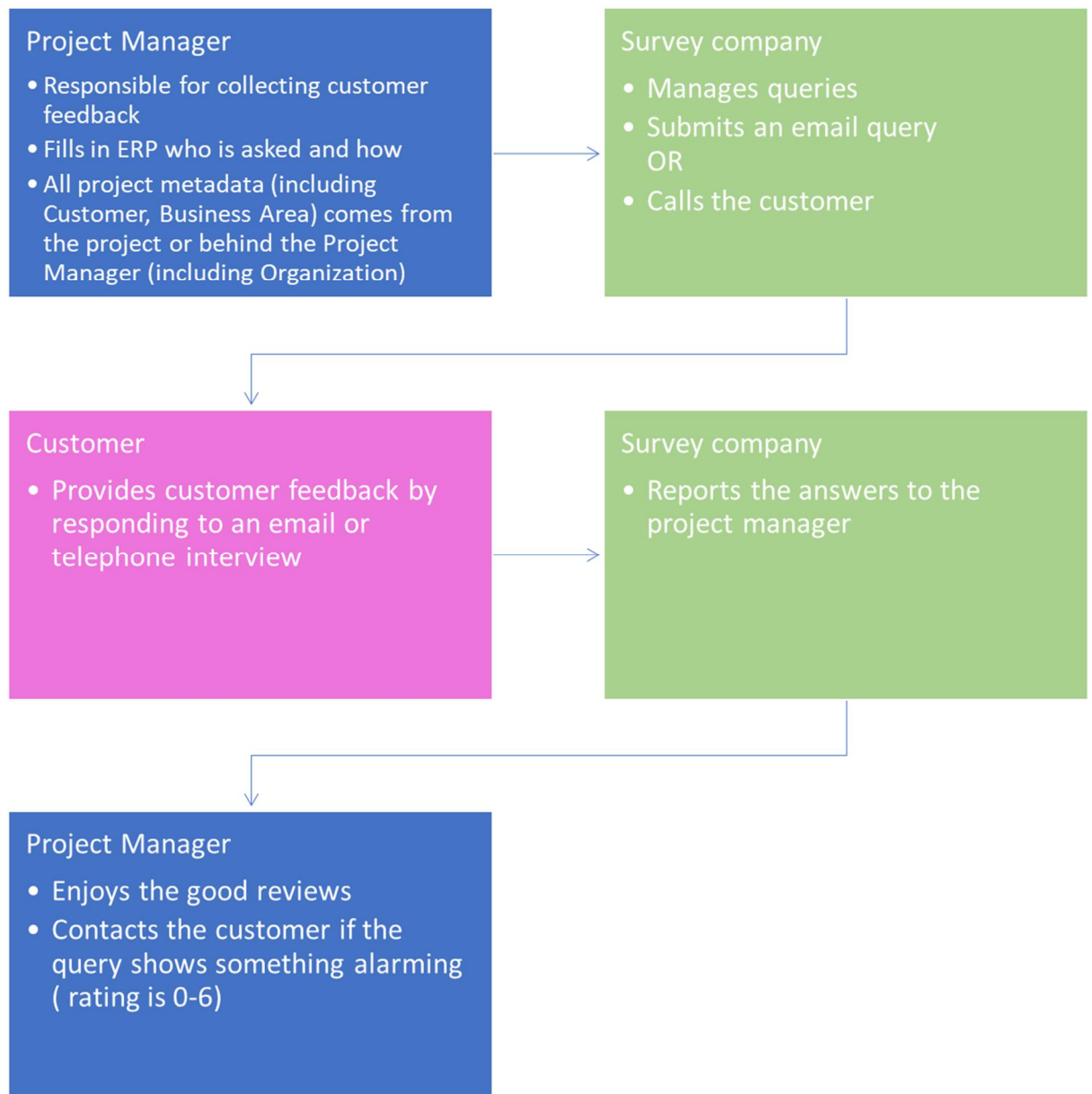

Figure 21 the new proposed process for customer satisfaction survey

As see in Figure 21, the customer satisfaction survey process starts automatically when the project manager closes the project in the ERP. The project manager fills only the information about the contact person or persons, who will be asked for feedback, and at

this stage also the type of query (email or telephone or no survey) will be filled in. All other information comes automatically to the reporting based on the project meta data and the project manager's organizational information. The project manager is also responsible for contacting the customer if the grade is between 0-6.

The third element is the project manager's KPI dashboard, illustrated in Figure 22 below.
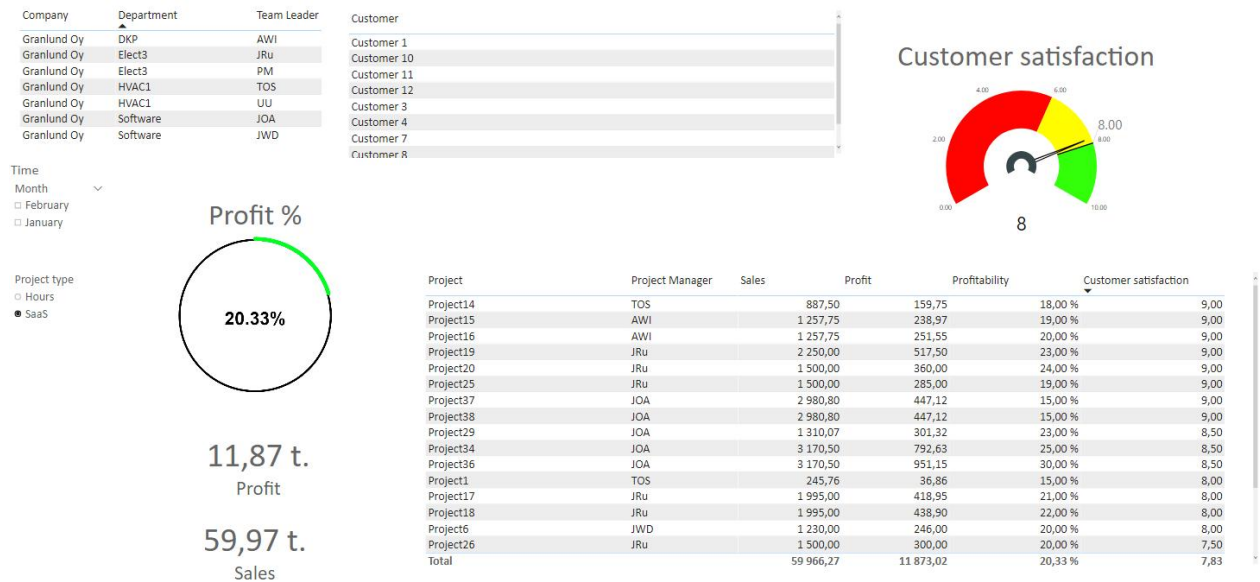
Figure 22. Illustration of the proposed project manager's dashboard

As seen in Figure 22, the proposed dashboard contains elements from project financial values as well as customer satisfaction. The project type is an important metadata from the projects because there are some project types where there is only invoicing and no actual project costs such as project hours. These projects are typically SaaS invoicing and these sales have to be eliminated from the profit account because 100% profit would distort the customer's overall profitability.

6.3   Findings of Data Collection 2

This subsection presents the findings of the data 2 collection stage. Figure 23 illustrates the proposal building process which started by presenting the findings of the CSA and insights of the CF to the stakeholders. This information was then used to co-create the initial proposal for new key performance indicators

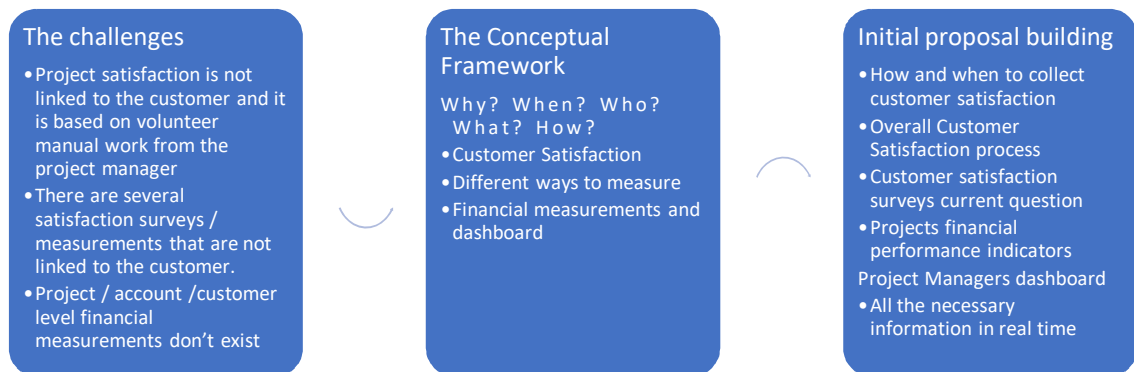| The challenges	The Conceptual Framework	Initial proposal building
• Project satisfaction is not linked to the customer and it is based on volunteer manual work from the project manager • There are several satisfaction surveys / measurements that are not linked to the customer. • Project / account /customer level financial measurements don't exist	Why? When? Who? What? How? • Customer Satisfaction • Different ways to measure • Financial measurements and dashboard	• How and when to collect customer satisfaction • Overall Customer Satisfaction process • Customer satisfaction surveys current question • Projects financial performance indicators Project Managers dashboard • All the necessary information in real time

Figure 23 an illustration of the initial proposal building stages.

As seen in Figure 23 the initial proposal building phase included several themes around customer satisfaction measurements, project financial measurements as well as a project manager's dashboard, to visualize the measurements. They are explained in more detail in the following subsections.

6.3.1   Customer Satisfaction Survey Questions

The co-creation for the customer satisfaction survey questions started with identifying the current survey questions. It was noticed that among the question there were some good ones and then there were some questions whose answers are not exploited, or they were very similar and for that reason they are confusing. The Net Promoter Score (NPS) question, "*How likely it is that you would recommend Company X to a friend or colleague?*" was recognized and considered by the stakeholders to be a good and simple survey. The stakeholders also felt that seeing the survey at a glance would make it easier to answer rather than a longer survey with multiple-page questions.

A research on the internet revealed that some of the case company's competitors are using the NPS score. They have reported the results in their web pages. Couple of examples of these: Ramboll 45 (Ramboll) and Visma over 70 (Visma).

6.3.2 How and When to Collect Customer Satisfaction

The second stage was when and how the customer satisfaction survey should be done. There was lively discussion about whether it should be totally automated and made mandatory for every project when the projects end. The reason for not automating and making it mandatory was clear in the stakeholder arguments. The case company has different kind of customers and some projects are small, but still the customer may have even 100 projects during one year. The stakeholder's felt that an automated and mandatory survey would be quite annoying for the customer if one contact person from the customer's side would get 100 phone interviews during a year. There was also discussion whether telephone survey is the only alternative, or could there be also some other ways to make the survey. All the stakeholders suggested that there should be also an email option to collect the customer satisfaction because it would allow answering the survey anywhere anytime.

There was also discussion of the Customer Support Center customer satisfaction survey and the stakeholder's thought that would be good but not a mandatory first step during this development project.

6.3.3 Overall Customer Satisfaction Process

In the third stage, the overall customer satisfaction process was under scrutiny. All the stakeholders were unanimous that the ultimate need was to get the background information of the project, customer and organization in some other way than manually inputted. The stakeholders also pointed that there was also a need to make a survey to several contact persons in one project or also other stakeholders in the project. These people are not necessarily contact persons in the ERP/CRM system. It should also be possible to conduct a survey during the project, and therefore the process should be automated, but it is also necessary to start the survey manually.

6.3.4 Projects Financial Performance Indicators

The fourth stage was the financial measurements. There was a discussion about different kind of projects and how the financial values such as profit should be calculated. There are projects, where the sales effort is big and some other projects where the cost of product development is big. Therefore, the question is how these costs can be linked

to the actual project. Without these costs, comparison between projects is difficult. There was also a discussion about Software as a Service (SaaS) sales. The stakeholders felt that these sales should be marked differently because the actual Product Management and Development costs are not linked directly to these sales objects.

6.3.5 Project Managers Dashboard

The fifth stage was to go through all the measurements and how these could be reported to different levels in the organization. All stakeholders considered the idea that measurements should be visible and linked to the real projects so that the project managers and key account managers can see their projects and follow up the values. The team leaders also liked the idea of using the dashboard in development discussions to evaluate the previous year and to set new goals for the current year.

The sixth stage was to go through all the workshop comments and suggestions with the quality system manager. She pointed out that the ideas and concepts were good and logical and that the stakeholders from the workshop had good and solid argumentations. She suggested that this survey would only make sense if the whole case company Group would use it. She also pointed out that the survey can be automated as described in stage four.

6.4 Summary of the Initial Proposal Building Phase

The outcome of the proposal building stage is the co-created initial proposal of new performance indicators for project managers for the case company. In Table 7 is a summary of the stakeholders' suggestions to the initial proposal.

Table 7 a summary of the stakeholders' suggestions to the initial proposal

	Key focus area from CS (from Data 1) or/and the element of CF	Suggestions from stakeholders, categorized into groups (Data 2)
1	Customer satisfaction surveys current questions are too complex, and the information gathered is not used	It is good to have also a more deeply questionnaire and some customers want to talk about the project.
2	How and when to collect customer satisfaction	Not only by telephone. An email survey option would be good
3	Overall Customer Satisfaction process	Make it more automatized, but still leave the project manager the possibility not to send the survey manually when needed
4	Projects financial performance indicators	How could it be possible to also show marketing and product development costs in accounts
5	Project Managers dashboard	Certain project types must be removed from the financial values and sales and marketing costs should be linked to the projects

As seen in Table 7, the improvement ideas and suggestions from the key stakeholders (Data 2) were significant and co-creation had an impact on the end result presented in section 6.2.

This ends section 6, building the initial proposal of the new key performance indicators for project managers in the case company. Next, section 7 validates the proposal.

7   Validation of the Proposal

This section reports the results of the validation stage of the co-created initial proposal of key performance indicators for project managers in the case company. This section is divided into four subsections, starting from overview of the validation stage. In this section, the final proposal is presented.

7.1   Overview of the Validation Stage

This section validates the co-created initial proposal developed in Section 6. This validation forms the third data collection, Data 3, round for this thesis and the findings are described in the following subsections in more detail.

This validation step was carried out by reviewing the results of section 6 of the initial proposal in a face-to-face presentation and discussion with the case company's CEO and the Chairman of the Board and collecting feedback from them. An executive summary of the co-created initial proposal was sent to the participants beforehand in an email in order to ensure an efficient meeting.

It was emphasized that the interviews done for the current state analysis, the data collected, and the co-created proposal revealed the need to improve the current customer satisfaction surveys as well the project measurements as well as the transparency and reporting of these.

7.2   Validation Feedback

The validation meeting stated with a discussion of the Net Promoter Score and the decision-makers knew that some of the case company's competitors are using it. There was lively discussion of the NPS score, and the decision-makers believed that the case company's rating will be good. There was also a discussion about the different kind of projects and how to avoid overloading the project manager's work with the customer satisfaction surveys. There are project managers who can have hundreds of small projects. The decision-makers also pointed out that transparent reporting of the customer satisfaction as well as the financial measurements are very important.

During the meeting there came up one disclaimer of the current customer satisfaction survey. The CEO said, "*it has been better than nothing*".

Table 8 shows a summary of the suggestions the stakeholders made to improve the initial proposal.

Table 8. Summary of the decision-makers' suggestions to the proposal

	Key focus area from CS (from Data 1&2) or/and the element of CF	Suggestions from stakeholders, categorized into groups (Data 3)
1	Customer satisfaction surveys current question are too complex, and the information gathered is not used	The NPS survey was approved partly because it is widely used by competitors
2	How and when to collect customer satisfaction	The opportunity to respond to the survey also by SMS
3	Overall Customer Satisfaction process	Transparent reporting of NPS in the company's home page, intranet and in info screen
4	Projects financial performance indicators	Financial targets should be defined for different kind of project types
5	Project Managers dashboard	Financial targets should be defined for different kind of project types

As seen is Table 8, the improvement ideas and suggestions from the decision-makers (Data 3) were significant and co-creation had an impact on the result presented in section 7.2. The transparent reporting of the NPS gives it more significance and it is a good benchmark value for the competitors.

Reporting the financial values and customer satisfaction on the project manager's dashboard was considered good for monitoring and measuring. The decision-makers discussed the financial targets and pointed out that these should be divided at least into project types and customer segments. But these were excluded from this thesis due to time constraints.

7.3   The Final Proposal

The final proposal includes three different elements. The overall process to collect the customer satisfaction is seen in Figure 24 below.

Project Manager
- Responsible for collecting customer feedback
- Fills in ERP who is asked and how
- All project metadata (including Customer, Business Area) comes from the project or behind the Project Manager (including Organization)

Survey company
- Manages queries
- Submits an email / SMS query OR
- Calls the customer

Customer
- Provides customer feedback by responding to an email or telephone interview

Survey company
- Reports the answers to the project manager

Project Manager
- Enjoys the good reviews
- Contacts the customer if the query shows something alarming (rating is 0-6)

NPS reporting
- Intranet
- Company's home page
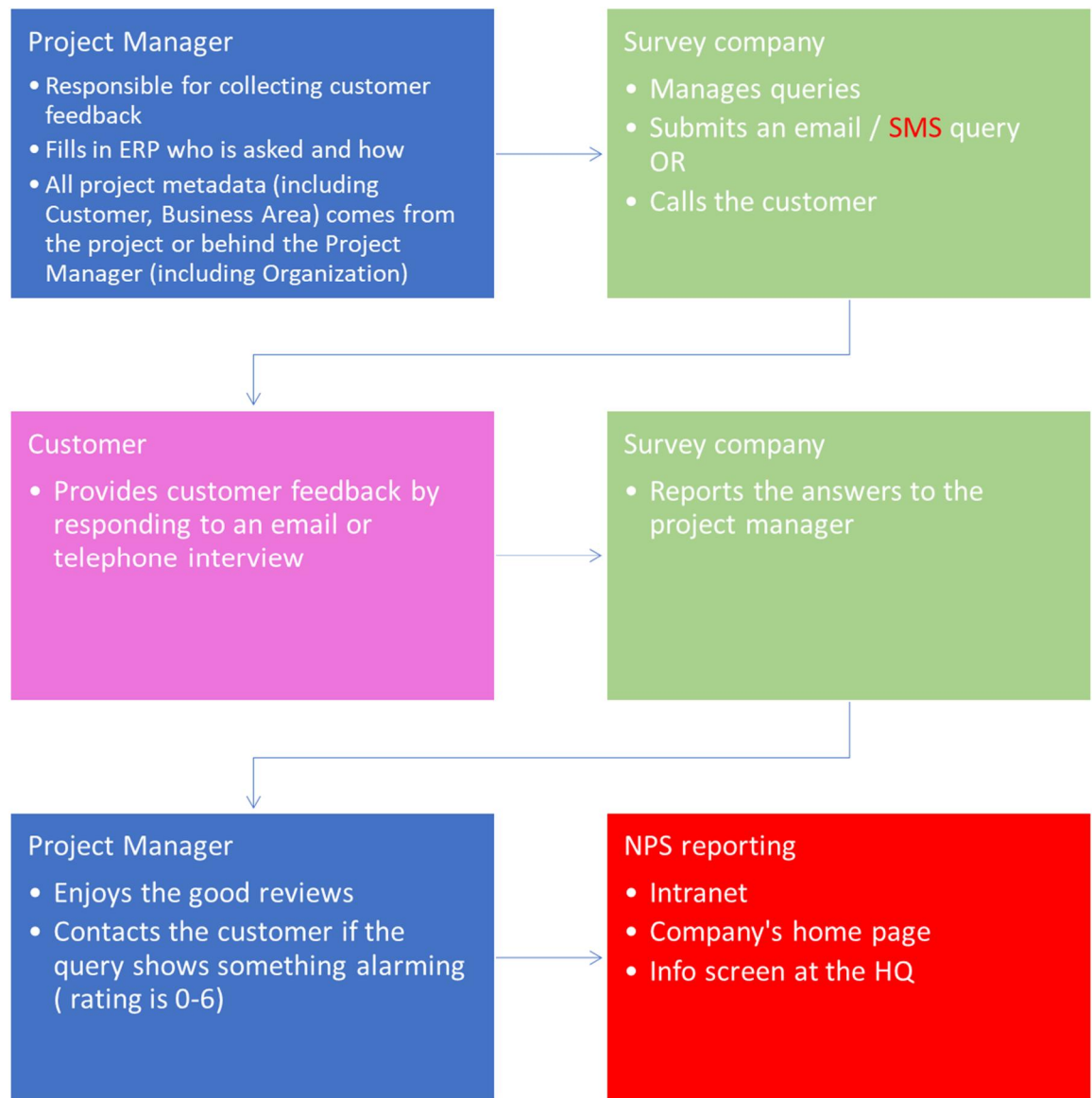- Info screen at the HQ

Figure 24 the new Customer satisfaction measurement process

As seen in Figure 24, the new customer satisfaction process also includes the NPS reporting in the case company's home page, intranet page as well as in the headquarters info screen at the lobby. The decision-makers wanted to increase the importance of customer satisfaction and emphasize transparency in reporting.

The decision-makers appreciated the idea of gathering all the metadata automatically as well as the idea that survey request would be a mandatory step for project managers. In this way, the survey would become more comprehensive and cover more projects than the current one, which was found to be deficient. It was also noticed that the project manager should contact the customer who gave rating from 0 to 6.

The new customer satisfaction survey includes the proposed questions as can been seen in the Figure 25 below.

Customer Satisfaction measurement

Net Promoter Score (NPS) by Reichheld (2004)

- Email or SMS survey
  - How likely it is that you would recommend Company X to a friend or colleague? Grading from 0-10
  - And an open question . Why you gave us X?
- Telephone survey
  1. How well the project succeeded in timetable
  2. How good was expertise of experts
  3. How good was cooperation fluency
  4. Were the services of the case company more widely presented during the project?
  5. How likely it is that you would recommend Company X to a friend or colleague?

  Grading from 0-10 and a free text

Figure 25. The new customer satisfaction survey questions.

As seen in Figure 25, the proposed survey questions were accepted, the only addition was the SMS survey. The decision-makers wanted to add more easy channels to submit the feedback.

The new dashboard to present the customer satisfaction and the project financial values for the project managers is illustrated in Figure 26 below.
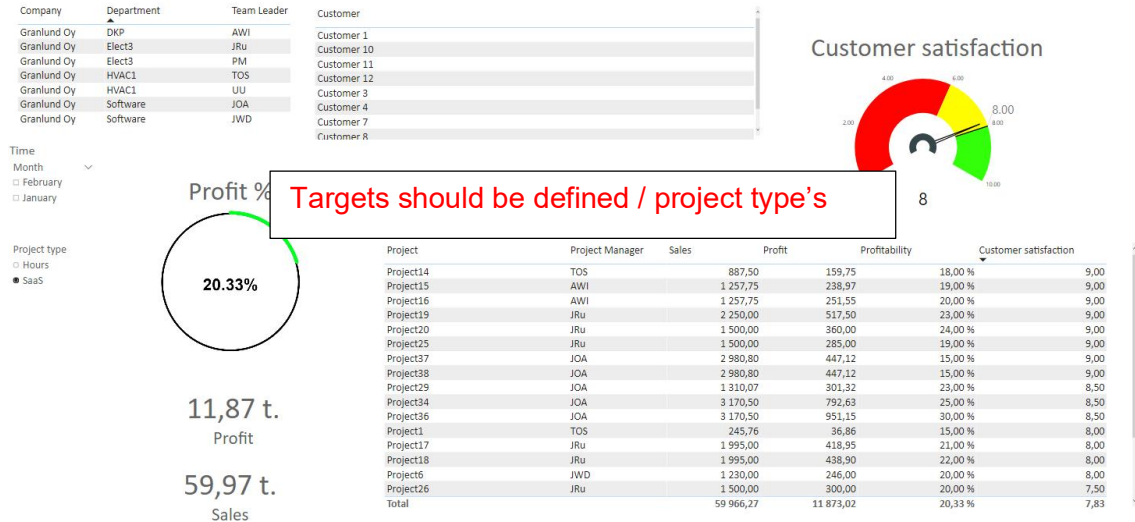
Figure 26. The new dashboard to present the customer satisfaction and the project financial values for the project managers

As seen in Figure 26, the projects financial values are lacking targets. The decision-makers discussed targets and pointed out that these should be divided at least into project types and customer segments. This was however excluded from this thesis due to time constraints.

7.4   Implementation

In the end of the meeting the decision-makers decided to take this validated proposal to the Corporate Group Executive Team for decision to implement this new process and customer satisfaction survey as soon as possible.

8 Conclusions

This final section interprets the results of the thesis in respect to the research challenge and thesis objective. It also evaluates the thesis and express the conclusions about the findings.

8.1 Executive Summary

This thesis focuses on the development of the project success measurements for the case company. This thesis was carried out to find out how, when, why, what and where to measure the project financial performance as well as the customer satisfaction. This thesis also strives to develop and offer a new way to make a customer satisfaction survey for the case company. Therefore, this thesis developed a proposal of new performance indicators for project managers for successful project management.

The project managers are an important part of the business of the case company because without successful projects there will be no satisfied customer, and there will be no profitable business. Presently, the case company does not have a transparent project success measurement.

This thesis was conducted as applied action research. The data collection mainly relied on interviews and discussions, as well as an analysis of the relevant internal documents as well as the internal softwares. The interviews were held with key stakeholders, and the interviews were documented by field notes. These interviews provided data for the current state analysis and building the proposal.

The current state analysis revealed that the current project satisfaction surveys was the area most in need of reform.

After the current state analysis, the first initial proposal of the new key performance indicators for the project managers was co-created. The final proposal was validated and finalized with the case company's CEO and Chairman of the Board of Directors. The co-creation and validation process for the development of the final proposal included three different elements:

1) The overall process of customer satisfaction survey in the projects

2) The questions and methods to conduct the customer satisfaction survey

3) A Dashboard for project managers to follow up the project financial values and the customer satisfaction

The outcome of this thesis is new key performance indicators for project managers in the case company which includes a dashboard with projects financial values as well as customer satisfaction measurements. The outcome of this thesis will help the case company's project manager's daily job as well as give the company a new way to measure customer satisfaction.

8.2 Thesis Evaluation

The objective of this thesis was to propose new key performance indicators for the project managers in the case company. This thesis aimed to find the performance measurements for project managers to make the project follow up easier on a daily basis. The outcome of this thesis is a proposal of new key performance indicators for the project managers. The proposed performance measurements provide a clear and simple way to follow-up financial values, conduct a customer satisfaction survey as well as follow up the customer satisfaction. The proposed new customer satisfaction survey as well the new process was found clear and simple, and it was decided to implement the new model as soon as possible.

The wider significance of this thesis for the case company should have been seen at the beginning. Initially, this thesis was limited to one department only and not the entire case company. Fortunately, as the work progressed, the scope was also considered, so the result can be implemented immediately throughout the case company.

This thesis was conducted by first developing the research design to address the methods and material used to collect the needed data for the business development issue. Existing knowledge used in this thesis is an outcome of best practice research of different way to measure project performance as well as customer satisfaction. This existing knowledge was transformed first into a framework of performance indicators and in the second phase into a conceptual framework. Without the first framework the current state analysis would have been questionable and might lack some important aspects of performance measurements. The conceptual framework was done to collect all relevant information from literature to achieve best practices of the performance measurements

and customer satisfaction measurements for the case company. With this research design, the first initial proposal of the key performance indicators for project managers was co-created by basing it on the findings of the conceptual framework and the current state analysis. Co-creation of the initial proposals were held to get all insights and to get as good as possible end solution for the case company. The final step was the validation of the proposal, which confirmed the relevance and significance of the outcome for the case company.

8.2.1 Validity and Reliability

The evaluation of the quality of this thesis was done by considering four criteria, namely validity, reliability, logic and relevance. These terms are explained and then this thesis is evaluated based on this criteria.

The quality of the thesis is examined with help of credibility that is divided into two concepts, named reliability, which includes the consistency of research results and validity, which covers the research competence so that all correct issues are subjected to research (Kananen 2013:180).

An applied action research, mixes both qualitative and quantitative research approaches to create new knowledge that improves operations, processes, services, activities or situations (Kananen 2013: 20-22). Applied action research is not a research method of its own as it combines many methods this means that credibility should be evaluated for each method used for the research (Kananen 2013:181)

In quantitative research credibility is measured by validity and reliability. In the context of quantitative research, validity expects that the right issues are investigated by using the right measures, while reliability means that the result should be consistent and possible to replicate (Kananen 2013: 183-185).

A quantitative analysis was conducted in this thesis for analyzing existing documentation for the current project satisfaction surveys from 2017-2019 as well as analyzing the current project performance data from the ERP system. In this thesis validity and reliability was ensured by analyzing a sufficient number of project satisfaction responses that has been available from the system. The used performance data was not enough to set targets for financial values, because the new system was in use only a month, and that was

excluded from this thesis. The project satisfaction survey results were consistent throughout the data.

In qualitative research reliability means the results can be replicated, the same results are obtained, and validity includes that correct things are researched (Kananen 2013:188-189).

In this study qualitative data was collected through interviews, workshops and presentations which were conducted as semi-structured face-to-face meetings and the questions or the themes of questions created in advance. The interviews were documented as field notes and the workshop were recorded for future reference. The field notes and workshop recording were analyzed utilizing the thematic analyses method to get a holistic understanding of the strengths, weaknesses and development needs of the current project performance and customer satisfaction survey for the proposal co-creation in addition to collect feedback in the proposal building and validation stage. Results from the qualitative research were comprehensive and reached a saturation point. In addition, the main stakeholders validated the results of this study. Nevertheless, the data collection could have included more participants from other departments to ensure more viewpoints for the current state analysis.

8.2.2   Logic & Relevance

The logic of the thesis determines whether the research is structured in an understandable and logical way. The logic of this study was planned well in advance with the help of a research design plan, and the plan was followed throughout the thesis project. The research started with first identifying the objective of the thesis project based on the case company's business challenge. Second, the pre-visit to KPI literature was done to figure out themes to search in the current state analysis phase. Third, a current state analysis was conducted, identifying two areas needed for development. The conceptual framework was done in a fourth phase to get proper literature review for the case company's challenges, performance measurements as well as customer satisfaction. The fifth step was co-creation of the initial proposal of performance indicators for the project managers. Finally, the case company's decision-makers validated the proposal.

The relevance of the study was confirmed by choosing a business challenge that is urgent to solve and has significance for the case company's business. This thesis ensured

the selection of the right, transparent, measurable and relevant project managers' performance indicators for the case company.

8.3   Closing Words

Business development project, such as this thesis, are highly important for the companies. Business development is needed because the companies do not have the ability and the time to transform themselves as fast as the customers require and the researchers recommend.

There may not exist a perfect solution and process for monitoring customer satisfaction, but it is the most important thing companies should monitor and measure. Because ultimately, the customers determine the future of business. Companies need to cope with the change, to grow and be profitable now and in the future, especially under these special circumstances.

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