Collecting and Integrating Customer Feedback

A Case Study of SaaS Companies Working B2B

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Acknowledgements

Abstract

Title	Collecting and Integrating Customer Feedback: A Case Study of SaaS Companies Working B2B
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Background	Even though companies are aiming for an agile way of working, and by that mainly focusing on providing value to their customers, it is challenging to get accurate customer data. Software companies are struggling in effectively and efficiently integrating customer feedback in their development processes. Moreover, there is a clear gap in the academic literature concerning this area of research. Hence, there is a need to study what structured approaches that can be applied for collecting and taking advantage of user input, thereby increasing the integration of customer feedback into the organisational functions.
Purpose	The purpose of the study is to describe and understand structured approaches whose purpose is to achieve incremental improvements to the company's offer through the integration of customer feedback into different functional units.
Research Questions	The project aims at answering two research questions:
	RQ1: What structured approaches can be applied to collect customer feedback?
	RQ2: What structured approaches can be applied to integrate customer knowledge into software development processes?
Methodology	The project has a multiple-case study approach where the conducted methods consist of a literature review, the selection of five case companies, and semi-structured interviews.
Conclusion	The analysis was conducted based on a table constructed from the theory chapter, where necessary statements that should be true for the company to efficiently and effectively achieve incremental improvements to their offer based on customer feedback were

stated. The analysis showed six general shortcomings pervading the companies. Based on the analysis together with the empirics collected from the interviews at the case companies, five factors were identified that can help to describe and understand potential structured approaches for SaaS companies working B2B.

Key Words   Software-as-a-Service, SaaS, customer feedback collection, B2B, user-input

Sammanfattning

Titel	Insamling och Integrering av Kundåterkoppling: En Casestudie av SaaS-företag som Arbetar B2B
Författare	Oscar Ahlgren & Johanna Dalentoft
Handledare	Ingela Elofsson, Lund Universitet
	Louise Gustafsson, Telavox AB
Bakgrund	Trots att företag siktar på att jobba agilt, med huvudfokus på att tillhandahålla värde till sina kunder, är det utmanade att samla in korrekt kunddata. Programvaruföretag kämpar för att effektivt integrera kundåterkoppling i sina utvecklingsprocesser. Dessutom finns det ett tydligt gap i den akademiska litteraturen när det gäller detta forskningsområde. Därför finns det ett behov av att studera vilka strukturerade tillvägagångssätt som kan tillämpas för att samla in och dra nytta av användarnas input, och därmed öka integrationen av kundåterkoppling i organisationsfunktionerna.
Syfte	Syftet med studien är att beskriva och förstå strukturerade tillvägagångssätt vars syfte är att uppnå stegvisa förbättringar av företagets erbjudande genom integrering av kundåterkoppling i olika funktionella enheter.
Forskningsfrågor	Projektet syftar till att besvara två forskningsfrågor:
	RQ1: Vilka strukturerade metoder kan tillämpas för att samla in feedback från kunder?
	RQ2: Vilka strukturerade tillvägagångssätt kan tillämpas för att integrera kundkunskap i mjukvaruutvecklingsprocesser?
Metodologi	Projektet har ett tillvägagångssätt där flera fallstudier utförs, där de genomförda metoderna består av en genomgång av existerande litteratur, ett urval av fem fallföretag och semistrukturerade intervjuer.
Slutsats	Analysen genomfördes baserat på en tabell konstruerad från teorikapitlet, bestående av olika påståenden som bör vara sanna för ett företag för att effektivt kunna uppnå stegvisa förbättringar av deras

erbjudande baserat på kundåterkoppling. Analysen visade sex generella brister som var mer eller mindre genomgående för företagen. Baserat på analysen tillsammans med empirin som samlats in från intervjuer med fallföretagen identifierades fem faktorer som kan underlätta för att beskriva och förstå potentiella strukturerade tillvägagångssätt för SaaS-företag som arbetar B2B.

List of Abbreviations

30R	Thirty Relationships
ADD	Advisor Driven Development
AI	Artificial Intelligence
ARE	Agile Requirements Engineering
ASD	Agile Software Development
B2B	Business to Business
B2C	Business to Consumer
BI	Business Intelligence
CEO	Chief Executive Officer
CRM	Customer Relationship Management
CSM	Customer Success Management
CTO	Chief Technology Officer
ERP	Enterprise Resource Planning
FTM	Full-Time Marketers
HR	Human Resources
IT	Information Technology
IaaS	Infrastructure as a Service
KIM	Knowledge Integration Mechanisms
KPI	Key Performance Indicator
MVP	Minimum Viable Product
NDA	Non-Disclosure Agreement
NPS	Net Promoter Score
NSD	New Service Development
OEM	Original Equipment Manufacturer

PaaS	Platform as a Service
PBX	Private Brand Exchange
PM	Product Management
PTM	Part-Time Marketers
R&D	Research and Development
RE	Requirement Engineering
RM	Relationship Marketing
RQ	Research Question
SaaS	Software as a Service
SDD	Sales Driven Development
SME	Small and medium sized enterprise
TQM	Total Quality Management
UX	User Experience
VoC	Voice of the Customer
XP	Extreme Programming

List of Definitions

Below, terms that are used throughout the report are defined and explained. These   descriptions are provided to clarify for the reader complex and unfamiliar terms and concepts that are used within the software industry.

Bandwidth: A way of measuring the amount of information that can be sent between computers (Cambridge Dictionary, 2019).

Cloud Computing: A model which provides convenient, universal, and on-demand network access to a shared pool of configurable computing resources that, with minimal service provider interaction or management effort, can be quickly provisioned and released (Mell & Grance, 2011).

Customer Churn: Customer churn is the tendency of customers to stop doing business with a company in a given period (Yu, Guo, Guo, & Huang, 2011).

Infrastructure-as-a-Service (IaaS): The consumer is being able to deploy and run arbitrary software, possibly including operating systems and supplication, by being provided the service of processing, storage, network, and other basic computing resources. The consumer controls the storage, deployed applications and operating systems, but do not manage or control the underlying infrastructure (Mell & Grance, 2011).

Knowledge Integration Mechanisms (KIMs): Refer to the official structures and processes that ensure that market and other types of knowledge in different functional units within the firm gets captured, analysed, interpreted and integrated (Olsson, Walker & Ruckert, 1995).

Platform-as-a-Service (PaaS): The consumer is being able to deploy onto the acquired applications, created or customer-created, cloud infrastructure using libraries, services, programming languages and tools supported by the provider. The consumer has control over the deployed applications and configuration settings for the application-hosting environment but does not manage or control the underlying cloud infrastructure, such as servers, network, storage, and operating systems (Mell & Grance, 2011).

Product Backlog: A product backlog refers to a list of changes and activities, for example, bug fixes, new features, and changes to existing features, that needs to be done to achieve a specific outcome (Agile Alliance, 2019).

Software-as-a-Service (SaaS): The consumer has access to use the provider's applications, from various client devices, running on a cloud infrastructure. The devices could, for example, be web browsers. The underlying cloud infrastructure, such as servers, network, storage, operating systems, is not managed or controlled by the consumer (Mell & Grance, 2011).

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1 Introduction

In this chapter, the general topic of the study is described as an introduction for the reader. Background information is provided, as well as, a problem description, chosen delimitations, and the purpose and research questions of the study. At the end of this chapter, the structure of the report is presented together with a brief description of each chapter.

1.1 Background

The digital revolution, also called the third industrial revolution, is the era of change from analogue, electronic and mechanical technology to digital technology. It started around the 1980s and is still in progress (Clarke, 2012). In an article by McKinsey (Aghina et al., 2018), three current trends that express the transforming industries, societies, and economies brought by the digital revolution are presented. The first trend is considering the rapidly evolving environment. Some characteristics of this trend are that the demand patterns of all stakeholders are quickly evolving. Growth is demanded by investors, resulting in acquisitions and restructuring. Also, needs from customers, partners and regulators are pressing, and action to accommodate fast-changing priorities is demanded from collaborators and competitors. The second trend is the endless introduction of disruptive technology. Machine learning, internet of things and robotics are only a few examples of innovative new solutions that are replacing established companies' solutions. Automatization, digitalisation, bioscience advancements and innovative use of new models are considered the future. The third trend is the acceleration of digitalisation and democratisation of information. In order to keep up with the increasing volume, distribution, and transparency of information, organisations are forced to quickly participate in complex alliances as well as multidirectional communication with partners, customers, and colleagues.

1.1.1 A New IT Infrastructure Paradigm

Aligned with the overall digital changes of society, the information technology industry has been growing vastly during the last decades. Between 1980 and 2011 the part of all invested capital in private business that was invested in information technology (consisting of hardware, software, and communications equipment) increased from 32 percent to 52 percent. The growth in the IT and telecom industry has been significant also in Sweden. The success rate can be seen in global ranking systems where Sweden continuously scores high in both developing and implementing. Thus, Swedish IT and telecom companies have a good reputation internationally (Business Sweden, 2019). With the growing industry, the number of companies, the number of employees, and total revenue (see Figure 1.1) have increased in the past years. In 2017, 6.1 % of all employees

in Sweden were titled IT-specialists, which is almost twice as high as the EU average of 3.5 % (Almega, 2019).
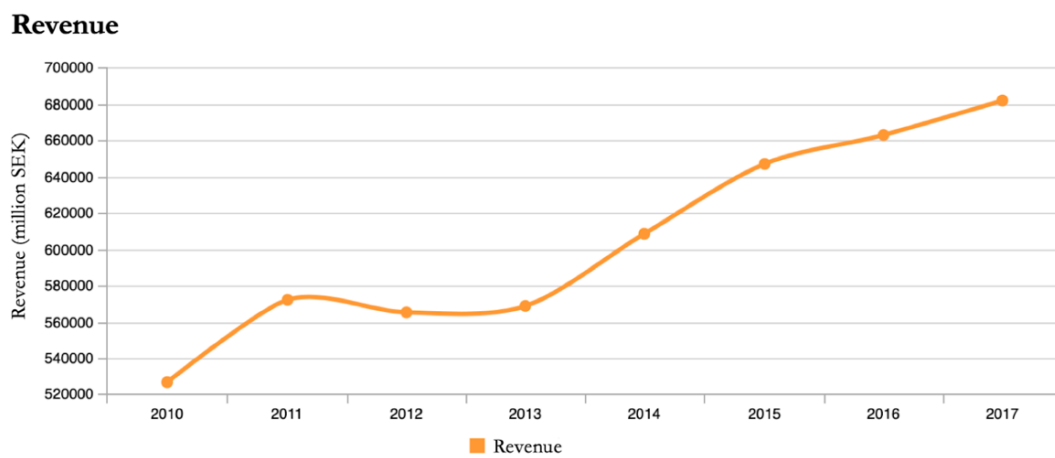
Revenue

Figure 1.1: Revenue in the IT and telecom industry in Sweden (Business Sweden, 2019).

Big growth in this case also means big changes, especially regarding information technology infrastructure. The IT infrastructure has evolved through four stages; namely, Stage 1: General-Purpose Main-frame and Minicomputer Era, Stage 2: Personal Computer Era, Stage 3: Client/Server Era, and Stage 4: Enterprise Computing Era reaching the era of today, Stage 5: Cloud and Mobile Computing Era. The five stages are illustrated in Figure 1.2. The increased bandwidth power of the internet has been the major enabler driving the transition from the traditional client/server model (stage 3) to the cloud computing model (stage 5) (Laudon & Laudon, 2014).

Stages in the IT Infrastructure Evolution

Stage 1 — Mainframe/ Minicomputer (1959-present)

Stage 2 — Personal Computer (1981-present)

Stage 3 — Client/Server (1983-present)

Stage 4 — Enterprise Computing (1992-present)

Enterprise Server

Internet

Stage 5 — Cloud Computing (2000-present)
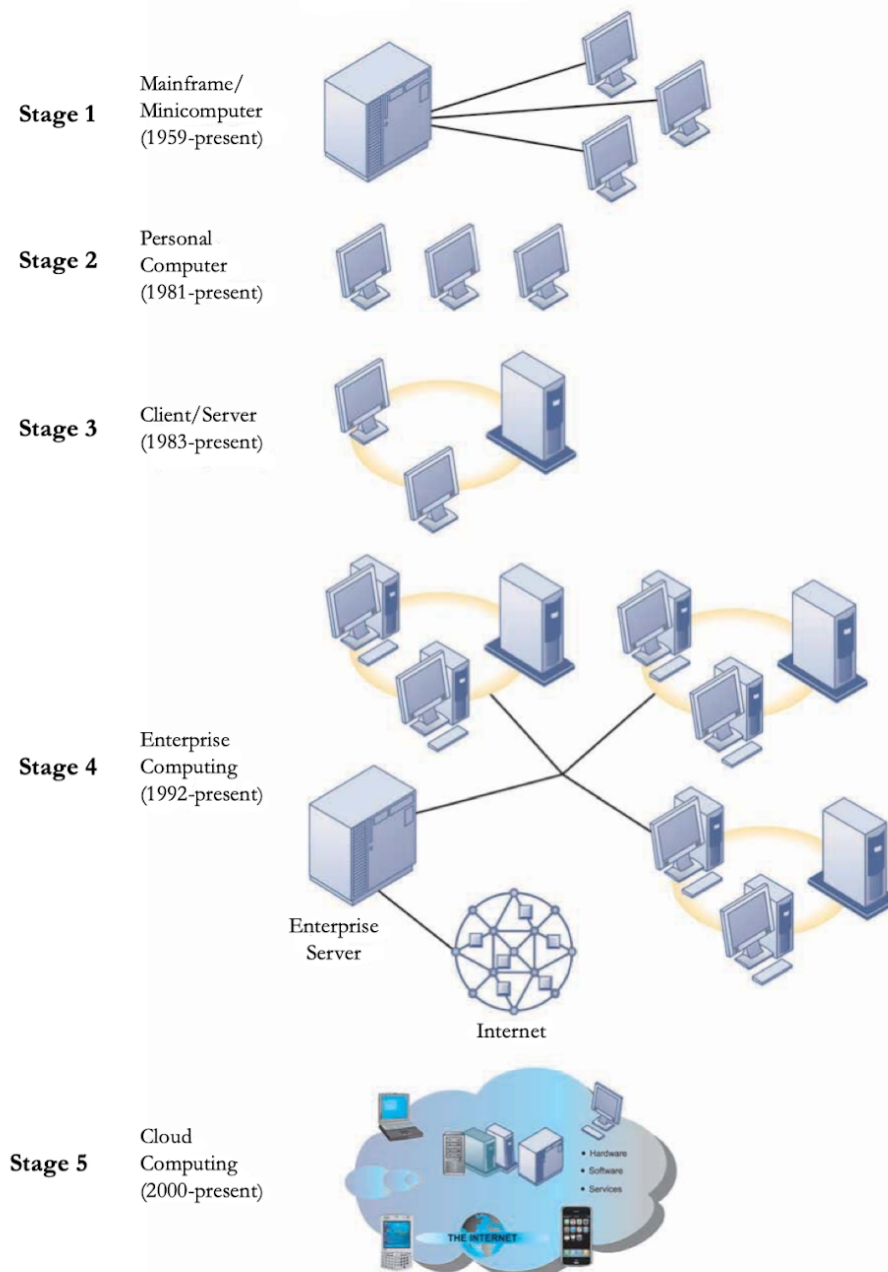
Figure 1.2: Illustration of the computing configurations in the five stages in the IT infrastructure evolution (Laudon & Laudon, 2014).

Stage 5, cloud computing, refers to a model of computing where a remote database, often maintained by a third party, is used to store data, which can be accessed on demand over the internet from any connected device (Bayramusta & Nasir, 2016; Laudon & Laudon, 2014). It is presented as the new technological dawn in IT (Penzel, Kryvinska, Strauss, & Gregu, 2015) and according to Gartner, the worldwide public cloud services market is expected to grow from $182.4 billion in 2018 to $214.3 in 2019, giving an increase of a total of 17.5 percent. A survey conducted

by Gartner also shows that more than a third of all organisations consider cloud investments to be one of their three investments of highest importance (Gartner, 2019).

The transition from the client/server model (stage 3) to cloud computing (stage 5) not only changes the technical environments of the companies but also impacts market offerings. This means that the prevalence of new software distribution models like Software as a Service (SaaS) will increase (Gartner, 2019). As the name tells, SaaS is a cloud-based software deployment model where the software is offered as a service. It is part of the three general architectures of cloud computing (see Figure 1.3), which, in addition to SaaS, include: Infrastructure as a Service (IaaS), where the hardware architecture is offered as service and Platform as a Service (PaaS), where the operating system or development platform is offered as a service (Rumale & Chaudhari, 2017). Gartner expects all of the three architectures to grow heavily coming years. IaaS will be the market segment with the highest growth, as it is projected to grow 27.5 percent in 2019. It is followed by PaaS and last SaaS, which are expected to increase by 21.8 percent and 18.5 percent in 2019 respectively (Gartner, 2019).
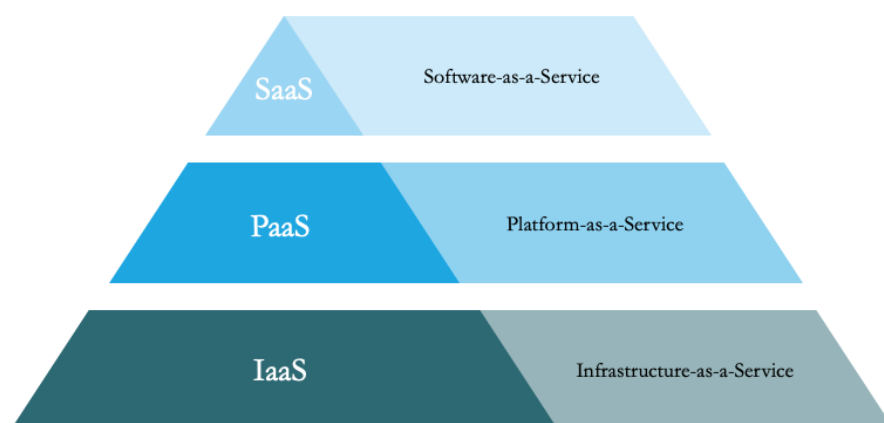
Figure 1.3: The three layers of cloud computing architecture: SaaS, PaaS and IaaS (Sandoval, 2016).

Furthermore, the transition to stage 5 of the IT infrastructure evolution implies that software will no longer be provided through licences, but rather through subscriptions (Gartner, 2019). The new pricing models will hence include regular payments, often on a monthly basis, which either can be fixed or flexible based on the actual usage of the software (Rumale & Chaudhari, 2017). In contrast to the models used in stage 3 and 4, software no longer needs to be installed at a hard drive or local storage device maintained by the user. Instead, the user will access the software (hosted in huge data centres on powerful servers) remotely as a web-based service, which motivates the new pricing models. Consequently, the financial investments for the user needed for buying the software and required hardware decrease (Laudon and Laudon, 2014; Rumale & Chaudhari, 2017).

1.1.2 Digital Evolution Impacting Software Development

The changing environment, described above, forces organisations to change their way of working (Aghina et al., 2018). Traditional methodologies are no longer able to meet the demands of the new IT business environment, including rapidly changing customer needs and preferences, and short product cycles. In order to adapt to these new conditions, new models of software development management, often referred to as Agile software development, have evolved (Zamudio, Aguliar, Tripp, & Misra, 2017). Compared to traditional methods as the Waterfall model, in which the requirements are determined in an early stage and feedback is gathered first after the product has been finalised, the Agile model is faster in responding to the changing requirements. Agile methodologies support dynamic software development by applying incremental changes through short iterations including frequent customer feedback (Dima & Maassen, 2018). Thereby, Racheva, Daneva, Sikkel and Buglione (2010) emphasise that Agile software development has a clear focus on creating value for the customer. According to Baliyan and Kumar (2014) the Agile approach is a suitable way of working for software companies in general and for SaaS-providers in particular. This since the SaaS-providers are cloud-based, which is characterised by the ability to adapt with changing requirements and altering context, as new software updates more rapidly can be distributed to the users.

1.1.3 Challenges in Creating Customer Value

The importance of applying a distinct focus on customer value for software vendors has been proven by empirical studies (Sambinelli & Francisco Borges, 2019). The customer value concept takes the customer's perspective into account, acknowledging their wants and needs when purchasing a product or using a service (Salem Khalifa, 2004). It has been shown that firms, by integrating user input approaches, gain richer understanding not only of their users and markets, but also of their own products and services and their way of working (Bosch-Sijtsema & Bosch, 2015). Factors as growth and profitability (Veryzer, 1998), as well as knowledge and capability development (Iansiti & Clark, 1994), are also confirmed to be improved by user input. Even though modern agile methodologies have a strong focus on creating value for the customer, Racheva et al. (2010) argue that it is challenging to estimate the value of software and that it is unusual to have a structured approach to control value creation throughout software projects. Olsson and Bosch (2015) describes a major challenge, which they name the "open-loop problem". The open-loop problem refers to the difficulties product management experience in achieving accurate customer data, leading to the risk that decisions get based on beliefs of the development team rather than on customer data. Consequently, R&D investments may conceivably not be aligned with customer needs (Olsson & Bosch, 2015). Another issue related to the complexity of integrating customer feedback in software development is that development teams, instead of

focusing on confirming that the perceived value of the customer is high, often focus on delivering solutions with the absence of defects (Sambinelli & Francisco Borges, 2019). Furthermore, Inayat, Salim, Marczak, Daneva, and Shamshirband (2014) claim that an extensive amount of empirical studies has been conducted on overall management of agile software development, but only a few on agile requirements engineering specifically. This is the sub-area of agile software development that consider the procedure of integrating customer input into the development processes (ibid.).

1.2 The Problem

Even though companies are aiming for an agile way of working, and by that mainly focusing on providing value to their customers, it is challenging to get accurate customer data. Software companies are struggling in effectively and efficiently integrating customer feedback in their development processes. Moreover, there is a clear gap in the academic literature concerning this area of research. Hence, there is a need to study what structured approaches that can be applied for collecting and taking advantage of user input, thereby increasing the integration of customer feedback into the organisational functions.

1.3 Delimitations

The selected research area is Software-as-a-Service companies working business-to-business. Within the companies, the areas of study will be delimited to incremental improvements of existing products and the gathering of information from existing customers. The focus will be held on company processes, organisation, and structures, and not on technical details and psychological aspects. Individual collection methods will also not be examined in detail. Lastly, potential future applicable methods such as AI and machine learning or other emerging areas will also be disregarded.

1.4 Purpose and Research Questions

The overall goal is to describe and understand structured approaches whose purpose is to achieve incremental improvements to the company's offer through the integration of customer feedback into different functional units.

More specifically, the project aims at answering two research question, stated below:

> **RQ1:** What structured approaches can be applied to collect customer feedback?

> **RQ2:** What structured approaches can be applied to integrate customer knowledge into software development processes?

Research question 1 includes the study of existing methods and processes for collecting customer feedback regarding a company offer provided as a Software-as-a-Service. Both customer

input with qualitative and quantitative characteristics will be concerned. Likewise, customer data in terms of suggestions for feature modifications and new product features, as well as feedback on partly or fully implemented features, will be regarded.

Research question 2 refers to investigating what approaches are being used for the internal distribution of gathered information about customer needs and preferences. Hence, this research question also involves how customer data can be structured within the firm and how to promote cross-functional ways of working.

1.5 Disposition

The report consists of seven chapters. Table 1.1 presents the disposition and a brief description of the content that can be expected of each chapter.

Table 1.1: An overview of the disposition of the report and a description of each chapter.

Chapter	Description of Content
Chapter 1: *Introduction*	Background information to the topic of the study is provided together with a problem description, chosen delimitations, and the purpose and research questions of the study.
Chapter 2: *Methodology*	The chosen research strategy, research design, and research method are described and motivated. The prospects of research quality are also discussed, as well as, how these will be managed.
Chapter 3: *Theory*	The theoretical framework is divided into three main parts: the context of the offering, the environment of and around the customer, and existing theories of achieving incremental improvements in the business processes and organisation. A description of how the theory will be used in practice is also provided at the end of the chapter.
Chapter 4: *Empirics*	Empirical data collected from interviews at the five case companies are provided. The data is divided into three parts corresponding to the divisions in the theory chapter: the offering, the customer, and the business processes and organisation. For each company, a figure of an overview of the information process from the customer to the development department is also provided.

Chapter 5: Analysis	The case companies are analysed based on the theoretical framework, according to the approach presented in part 3.6 *Theory in Practice*. The chapter is divided into individual analyses and a comparative analysis. The individual analyses for each company are divided into five parts. First a short introduction of the offering and market is provided, followed by a more elaborate analysis of the market knowledge dimension, cross-functional collaboration, and knowledge integration mechanisms. The last part of the individual analysis consists of a description of the interaction between the three dimensions. The comparative analysis is performed based on identified activities from the theory.
Chapter 6: Summary and Recommendations	A summary and recommendations will be presented based on the analysis conducted in the former chapter. The summary aims to answer the purpose of the study, while the recommendations will be provided both to SaaS companies working B2B in general, but also individually to the five case companies. The recommendations will also discuss answers to research question 1 and 2.
Chapter 7: Contributions and Remarks	Contributions to both academia and to the private sector are presented together with suggestions of future research areas and remarks made by the authors.

2 Methodology

In this chapter, the methodologies used throughout the study are described. The chosen research strategy, research design, and research method are explained and motivated. The chapter ends with a discussion about the prospects of research quality and how this will be managed given the methodology it is based on.

2.1 Research Strategy

The research strategy is the plan of action designed to achieve the purpose of the work (Denscombe, 2010). When choosing a strategy Denscombe (2010) emphasises three key questions that should be considered. These are the feasibility, the suitability and the ethicality of the strategy. The feasibility refers to if the strategy can be executed in an efficient and appropriate way. The suitability refers to it the strategy will produce appropriate kinds of data that can, in turn, answer the purpose and research questions. The ethicality concerns the strategy's ability to allow the researchers to act ethically throughout the research process. These are the three considerations that have been stressed when choosing this study's strategy.

2.1.1 Quantitative vs Qualitative Research Strategy

Research strategy is often divided into two general approaches of doing research: quantitative and qualitative. Quantitative studies emphasise the quantification of data collected and analysed. The relationship between theory and research mainly has a deductive point of view, where research is done to test hypotheses. It has the idea that social reality constitutes an exterior and objective reality (Bryman, 2011).

Qualitative studies emphasise words during the collection and analysis of information. The relationship between theory and research mainly has an inductive point of view, where research is done to generate new theory. How individuals perceive and interpret their social reality is emphasised, as well as the social reality as an ever-changing phenomenon (ibid).

The distinction between quantitative and qualitative research is however not always clear. The two approaches can be combined in a commonly used approach called "mixed methods". There are many arguments for mixed methods being the best way of conducting research. Nonetheless, Bryman emphasises that as for all research strategies, there are complications with the mixed methods approach as well, and if a study is poorly conducted, it does not get any better by the usage of several methods (ibid).

2.1.2 Research Purpose

Research can have different overall purposes, forming the research strategy. Höst, Regnell, & Runesson (2006) proposes four types of overall purposes, presented in Table 2.1.

Table 2.1: Overview of different types of overall purposes in research.

Type of Purpose	Explanation
Descriptive studies	aim to ascertain and describe how something works or is performed.
Exploratory studies	aim to understand in depth how something works or is performed.
Explanatory studies	search for cause relations and explanations on how something works or is performed.
Problem solving studies	aim to find a solution to an identified problem.

2.1.3 Fixed vs Flexible Nature

A research method can be of either a fixed or flexible nature (Robson, 2002). A fixed methodology means that the study is defined from the beginning and cannot be changed in the meantime. A flexible methodology means that the study can be costumed continuously throughout the project. Surveys and experiments are mainly fixed, while case studies and action research are flexible methods (Höst et al., 2006).

2.1.4 Research Approach

There are four different research approaches argued to be best suited for academic reports: surveys, case studies, experiments and action research (Höst et al., 2006). The approaches are presented in Table 2.2 together with its characteristics.

Table 2.2: The characteristics of different research approaches.

Approach	Overall Purpose	Primary Data	Nature
Survey	Descriptive	Quantitative	Fixed
Case Study	Exploratory	Qualitative	Flexible
Experiment	Explanatory	Quantitative	Fixed
Action Research	Problem Solving	Qualitative	Flexible

2.1.5 Chosen Research Strategy

As the research topic of customer feedback collection and integration in SaaS companies is relatively unexplored and the research questions are hard to quantify, a qualitative approach will be the main research strategy of this study. The overall purpose could be explained as the aim to understand in-depth how different approaches and processes for collection and integration works; thus, an exploratory study seems suitable. Moreover, due to the unexplored subject field and the researchers' limited prior knowledge within the topic, a flexible nature is suggested. This together implies a case study to be a suitable research approach.

Furthermore, based on the purpose and the research questions themselves, a case study seems like a suitable research approach for this work. Since the characteristics of a case study as a research approach are an exploratory overall purpose, with qualitative data collection and flexible nature, the choice of case study seems natural from whatever starting position the argumentation takes. The choice of a case study as the research strategy, therefore, seems both suitable, feasible and ethical to fulfil the purpose of this study.

2.2 Research Design

The research design is the logic that connects the collected data and the conclusions drawn from it to the initial questions of the study. Every empirical study, e.g. a case study, has an implicit, if not explicit, research design (Yin, 2003) that together with the choice of methodology is dependent on the objective and character of the research (Höst et al., 2006).

There are four major steps to go through when conducting a case study: case study design, data collection preparation, collection of data, and analysis (Wohlin et al., 2012). This section will start with a general explanation of what a case study is, continuing with a brief explanation of the importance of case study design. The next parts contain a description of the remaining steps together with considerations and actions taken throughout each step. This in order to explain the decisions made on the way in order to connect them to the initial questions of the study.

2.2.1 Case Study

A case study is an inquiry that aims to investigate a contemporary phenomenon within its authentic context, especially when the boundaries between phenomenon and context are not clear. The inquiry handles the technically distinctive situation where the number of interesting variables exceeds the number of data points, i.e. the data is qualitative and not quantitative. The result in a case study needs to rely on triangulated data from multiple sources of evidence. When analysing and discussing data, it should be benefitted from prior development and theoretical propositions in the area (Yin, 2003). This means that case studies will never provide statistically significant

conclusions, but a linkage of different kinds of evidence, figures, documents, statements to support a strong and relevant conclusion (Wohlin et al., 2012).

When designing case studies, the objectives of the study are defined, and the case study is planned (ibid). The design can either be of single-case or a multiple-case character, as well as it can either be holistic (single unit of analysis) or embedded (multiple units of analysis), see Table 2.3. A case study with a single-case design only investigates one case, in this type of work equivalent to one case company, while a study with multiple-case study design investigates multiple case companies. If the study is holistic or embedded depends on if the case company is studied as a whole, or if multiple units of analysis are studied within the case company (Yin, 2003).

Table 2.3: Basic types of case studies.

	Single-Case Design	Multiple-Case Design
Holistic (single unit of analysis)	Type 1	Type 3
Embedded (multiple units of analysis)	Type 2	Type 4

In this study, the objectives are defined through the purpose and research questions in the introduction chapter. The design will be a multiple-case design since more than one company will be investigated. The study will also be somewhere in between holistic and embedded character since multiple subjects (units) will be interviewed within the company in order to be able to analyse the company both as a whole and based on its different functions. Thus, the case-study design will be somewhere between Type 3 and Type 4.

2.2.2 Research Method

A research method is the collection of tools that are used for the collection of relevant data (Denscombe, 2010). The two steps of the research design process connected with the research method are data collection preparation and the actual collection of data (Wholin et al., 2012).

When preparing for the data collection, methods should be chosen in consideration of the objective and the area of investigation. The purpose of the data collection is partly to create a theoretical frame of reference, and partly to collect empirical data (based on the theoretical frame of reference) to analyse (ibid).

When collecting data in a case study, it is important to use several different sources of information in order to avoid conclusions to be drawn from the interpretation of a single data source. Conclusions that can be drawn from several data sources are stronger than conclusions based on

a single source. This can be conducted by, for example, study several sources in a literature review, and by interviewing several subjects in a case company (ibid).

The data collection for this study has been made through a literature review and through interviewing relevant subjects in selected case companies. A detailed explanation of these methods, as well as the method for selecting case companies, is presented below.

2.2.2.1 Literature Review

The objective of a literature review is to identify and organise concepts in the relevant literature and summarise the state of art in the subject field (Wholin et al., 2012). Rowley and Slack (2004) present three different tools that can be used to find information when conducting a literature review. These are presented in Table 2.4.

Table 2.4: Tools that can be used in a literature review.

Tool	Description
Library Catalogues	Used to locate books or journal subscriptions that are held by a library, as well as their availability.
Search Engines	Used to locate web pages with searches based on simple keywords
Online Databases	Provides access to documents such as journal articles, reports, dissertations, theses, and papers in conference proceedings.

When searching for information, it is important to develop a search strategy. There are a number of different approaches that can be useful when searching and developing a search strategy, presented in Table 2.5 (Rowley & Slack, 2004).

Table 2.5: Different approaches to develop a search strategy.

Approach	Description
Citation Pearl Growing	Using suitable terms found in one or a few starting documents in order to find other documents.
Briefsearch	Often used as a starting point by retrieving a few documents quickly and crudely.
Building Blocks	Extending the concepts in search statement by using synonyms and related terms. By doing this with all search terms, creates a thorough and lengthy search process, creating a comprehensive set of documents.
Successive Fractions	Searching within an already retrieved set of documents in order to reduce it, thus eliminating less useful or relevant documents.

When conducting a literature review it is of high importance to evaluate the information sources. Rowley and Slack (2004) present the following questions to be of relevance when evaluating books, web resources, and journal articles:

- ❖ Is the research topic relevant to the subject field of the study?
- ❖ Who published or is the originator of the source?
- ❖ What is the writer's claim of expertise?
- ❖ Who is the source's intended audience?
- ❖ Is the source up to date?
- ❖ Is there an extensive reference list to other associated literature?
- ❖ What do reviews and evaluations say about the source?

In this literature review, primary research tools have been online databases, more specifically LUBsearch, Google Scholar, and Web of Science. Secondary tools have been Lund University library catalogue, used to find relevant books, and search engines, such as Google, used to find words or subjects of interest to search for in online databases. In order to use relevant sources, online databases suggested by Lund University library site, have been preferred.

When developing the searching strategy, the initial approach was briefsearching in order to find some suitable words to start from. Briefsearching has been conducted both in online databases and search engines. From the words found, continuing approaches used were both citation pearl growing and building blocks. These two approaches combined resulted in a generous number of relevant documents.

To evaluate the sources found, the following checkpoints, presented in Table 2.6, have been made to assure the relevance, based on the questions presented by Rowley and Slack (2004):

Table 2.6: Checkpoints to assure a source's relevance.

Criteria	Checkpoint
Relevant topic?	Assuring that the key words presented are associated with the subject field.
Publisher or Originator?	For journals: checking the journal's reputation on the Norwegian centre for data research. For books: checking that the publisher is well-recognised. For web-sources: checking evaluations of the accuracy of the source.
Writers expertise?	For journals and books, the writer's expertise is supposed to be high if the reputation of the publisher is high. For web-sources, the writer's expertise should be presented.

Intended audience?	By mainly using online databases suggested by the library at Lund University, the sources are regarded to be intended for either an academic or a research purpose.
Up to date?	Depending on the depth of the general knowledge within the area the up to date criteria has been managed differently. Well known areas are less up to date while more newly researched areas are more up to date.
Reference list?	Assuring that the information in the sources used was referenced to if it was not a result
Reviews and evaluations?	Trying to use references with numerous recitations.

2.2.2.2 Selection of Case Companies

In case studies, the ability to act ethically is central. Denscombe (2010) describes standard measures that researchers are expected to address to minimise the risk of harm. These concerns that participants should understand the nature of the research and their involvement, voluntarily participate and be kept anonymous, as well as the data should be treated as confidential.

When conducting a case study, the selection of cases and units of analysis should be made intentionally. The selection should be made accordingly to the study and may be typical, revelatory, critical or unique in some respect. In practice, however, case company selection is usually made based on availability (Benbasat, Goldstein, & Mead, 1987).

In this case study, a number of criteria were set that should be achieved by the selected case companies. Companies were then identified and contacted. The final selection was then made based on which companies responded positively to participating in the case study. The criteria set were:

- ❖ The company must provide a SaaS solution
- ❖ The company work (at least to some extent) B2B
- ❖ The company has a process for collecting and retrieving customer feedback
- ❖ The company is preferably located in the local area
- ❖ The company has at least one accessible subject of relevance to be interviewed

From these criteria, the selected case companies and a few key facts about them are presented in Table 2.7.

Table 2.7: An overview of selected case companies.

Company	Industry	Active Since	Approximately Number of Employees
Alpha	IT/Telecom Communication Solutions	2002	250
Beta	IT/CRM	1990	250
Gamma	Online Marketplaces	2012	600+
Delta	Business Intelligence and Information Visualisation	1993	2000+
Epsilon	Business Intelligence and Performance Management	2000	180

2.2.2.3 Interviews

The research interview constitutes an important and frequently used strategy for collecting data in both qualitative and quantitative research (Bryman, 2008). In case studies, researchers ask a series of questions about the area of interest to a set of subjects. The interview questions are based on the research questions but should not be phrased the same way, and can be either open, inviting the interviewee a broad range of answering possibilities, or closed, limiting the answering alternatives (Wohlin et al., 2012).

Interviews can be divided into three groups: fully structured, semi-structured, and unstructured interviews. Fully structured interviews consist of close questions that are planned in advance. The questions are asked in the exact order as they were planned, and therefore reminds of a questionnaire-based survey since the questions could have been asked without an interviewer. Regarding a semi-structured interview, questions are also prepared in advance, but at the interview, they are not necessarily asked in the same order as they were listed. The questions are used more like a checklist and thereby allow for improvisation and explorations. For unstructured interviews, the questions are formed as general interests and concerns allowing the interview to evolve according to the interest of the subject (Robson, 2002).

When selecting the interviewees in case studies, it is recommended to do this based on differences instead of trying to replicate similarities. The number of interviewees should be based on when the area of interest is saturated, i.e. interviews should be held until no new information can be gained from new subjects (Wohlin et al., 2012).

In this study, semi-structured interviews will primarily be held to collect empiric data to analyse. Interview questions will be prepared in advance based on the purpose and the theory chapter, working as a checklist to assure that all areas of interest will be covered. At the interviews, there

will be room for improvising with follow-up questions and further exploring the subject's area of interest and expertise. The interviews will be recorded and afterwards the information will be transcribed to make it easier overviewed. The interview guide with questions used at the interviews can be found in Appendix A.

The selection of interviewees will partly be made based on the interview guide to get a perspicuous view of the area, and partly based on the availability of suitable interviewees on the case companies. The goal will be to interview at least one subject from each company with insight into the areas of customer feedback gathering and its integration process. The interviewees will participate voluntarily and understand both the nature of the research and their involvement. A summary of the interviews held at the different case companies is presented in Table 2.8.

Table 2.8: An overview of the interviews held.

Company	Interviewee	Length of Interview
Alpha	UX and Product Vision Manager	1 hour
	Business Analyst in Commercial Excellence	1 hour
	Product and Development Manager	1 hour
	Product Marketing Manager	1 hour
Beta	Head of UX	1 hour
Gamma	CTO	1,5 hours
Delta	Global Voice of the Customer Manager	1 hour
	Usability and User Researcher	1 hour
Epsilon	Head of Professional Services and Head of Development	1 hour

The empirics will be described based on the interviews held with subjects at the case companies. In order to minimise the risk of harm, data will be treated as confidential, and both the subjects and companies will be kept anonymous.

2.2.3 Analysis of Collected Data

The main objective with the fourth step, analysis of collected data, is to derive conclusions from the data while keeping a clear chain of evidence (Wohlin et al., 2012). When analysing qualitative data, there is no single, structured approach to doing it. It tends to reflect the particular type of data that has been collected and the particular study purposes. However, qualitative data analysis is commonly associated with some general principles that address facts to be concerned by the researchers (Denscombe 2010). The principles are described in Table 2.9.

Table 2.9: The principles of qualitative data analysis.

Principle	Description
Iterative	The analysis tends to be an evolving process, rather than taking place at a single point in time. The data collection and data analysis phases occur simultaneously, alongside each other.
Inductive	The analysis tends to go from a particular to a general perspective. The analysis attempts to work from a detailed study of data to more abstract and generalised statements about the topic.
Researcher-Centred	The analysis tends to be influenced by the values and experiences of the researchers.

The analysis will partly be made comparing and evaluating the case companies with the existing literature and theory section, but also in contrast to the other case companies. It will be done iteratively, alongside the data collection, assuring that essential data gets collected in order to successfully carry out the analysis. A more thorough explanation of how the empirics will be analysed based on the theory can be found in part 3.6 *Theory in Practice*.

2.2.4 Summary and Recommendations

The summary aims to be held with a focus on answering the purpose with regard to the two research questions. Based on the analysis on structured approaches whose purpose is to achieve incremental improvements of the company's offer through the integration of customer feedback into different functional units, recommendations will be set for the case companies.

2.3 Research Quality

Commonly used criteria when evaluating the quality of business research are the level of validity, reliability, and generalisability (Bryman & Bell, 2015). However, according to Guba & Lincoln (1994), these criteria are aimed at evaluating quantitative studies and are therefore not suited for evaluating qualitative studies. Instead, they propose that the criteria of trustworthiness are more appropriate when evaluating studies with a qualitative character. More specifically, Guba address that trustworthiness is especially suitable for evaluating naturalistic inquiries (Guba, 1981), where case studies are how naturalistic inquiries often take form (Stake, 1975). Guba & Lincoln (1994) also propose authenticity as a suitable criterion to evaluate qualitative research. By satisfying the criteria of trustworthiness and authenticity, the research will be considered to be of good quality.

2.3.1 Trustworthiness

Trustworthiness consists of four criteria: credibility, transferability, dependability, and confirmability. In Table 2.10 the different criteria will be described in short from how Guba (1981) describes them. Thereafter, a description of the actions taken by the researchers to satisfy the specific criteria will be provided, in order to satisfy the criteria of trustworthiness as a whole.

Table 2.10: The four criteria of trustworthiness.

Criterion	Description	Actions Taken
Credibility	Seek to ensure that the study measures what is intended. This by incorporating correct operational measures for the studied concepts. Another way of assuring credibility is by a triangulation approach of data by using different sources and methods for collecting information.	Literature reviews have been made to assure that case study is the most appropriate way of studying the area. Triangulation has been made, both when searching for information, but also when interviewing subjects, assuring facts from different sources.
Transferability	Refers to which extent the findings of the study can be applied to other situations, contexts, times, and populations. The researcher needs to provide the data base that enables transferability judgement for potential appliers.	The researchers have provided relevant information about the data collection process and interviews presenting the prerequisites. This to make transferability judgement possible but at the same time restrictions of information have been made not to take focus from the main intention of the study.
Dependability	Verifies that the findings are consistent and that other researchers would obtain similar results if the work were repeated in the same context, with the same methods and participants. One way to establish dependability is to have an external researcher conducting an audit, assuring that data collection, analysis, and processes are suitable and appropriate.	The study process has been described in the methodology section in order to enable other researchers to conduct the same process. Moreover, supervisors both at the university and at the company has ensured that the data collection, analysis, and processes chosen have been suitable and appropriate for the study.
Confirmability	Concerns the level of the researcher's objectivity in the study. It is important to assure that the findings of the study are a result of the ideas and experiences of the interview subjects, and not from the preferences and characteristics of the researchers.	The researchers have been meticulous with referencing throughout the report in order to assure the reader that statements are based on facts. In the analysis, focus has been held on comparison to theory, trying to minimise personal opinions from the researchers.

2.3.2 Authenticity

In order to assure the authenticity of research, the findings must be considered credible not only from the participant's experience with a worthy topic to study but also from a larger perspective and the potential to benefit society (James, 2008). Lincoln & Guba (1985) present five dimensions of authenticity to consider when evaluating research. The dimensions focus on different types of possible change in systems, participants, or power structures that may be related to the inquiry process. They are described, based on the explanation of Lincoln & Guba (1985), in table 2.11 together with the actions taken by the researchers to assure the authenticity of the work.

Table 2.11: The five dimensions of authenticity.

Dimension	Description	Actions Taken
Fairness	Concerns the assessment of how well all potential viewpoints are represented fairly. Authenticity is achieved when several different perspectives are considered in the study.	Different functions and departments have been represented in interviews regarding the different case companies in order to understand potentially different viewpoints of the subject.
Ontological Authenticity & Educative Authenticity	Refers to the degree to which participants increase awareness of both the social environment's complexity (ontological), as well as the viewpoints of others (educative). Authenticity is achieved when a dialogue with stakeholders is held continuously through the inquiry process.	Regular discussions have been held with key functions at the primary case company to verify that the project is proceeding in a desirable direction to understand the complexity of the problem. If not, changes have been made accordingly.
Catalytic Authenticity & Tactical Authenticity	Addresses whether the stakeholders get stimulated to act (catalytic), as well as whether a power redistribution occurred among stakeholders (tactical) based on the inquiry process. These types of authenticity are, due to the change in engagement, difficult to assess.	When formulating the purpose and research questions as well as developing the theoretical framework of the study, the potential for the case company to act and redistribute due to the findings was highly considered.

2.4 Summary of Methodology

The methodology is a consequence of the purpose and theoretical framework of this study and aims to provide the best possible research design suitable for these. A visual representation summarising the chosen methodology is presented in figure 2.1. The figure shows the chosen alternatives for research strategy, design, and method but omits the criteria of research quality, which the reader should have in mind while studying the figure and chosen methodology.
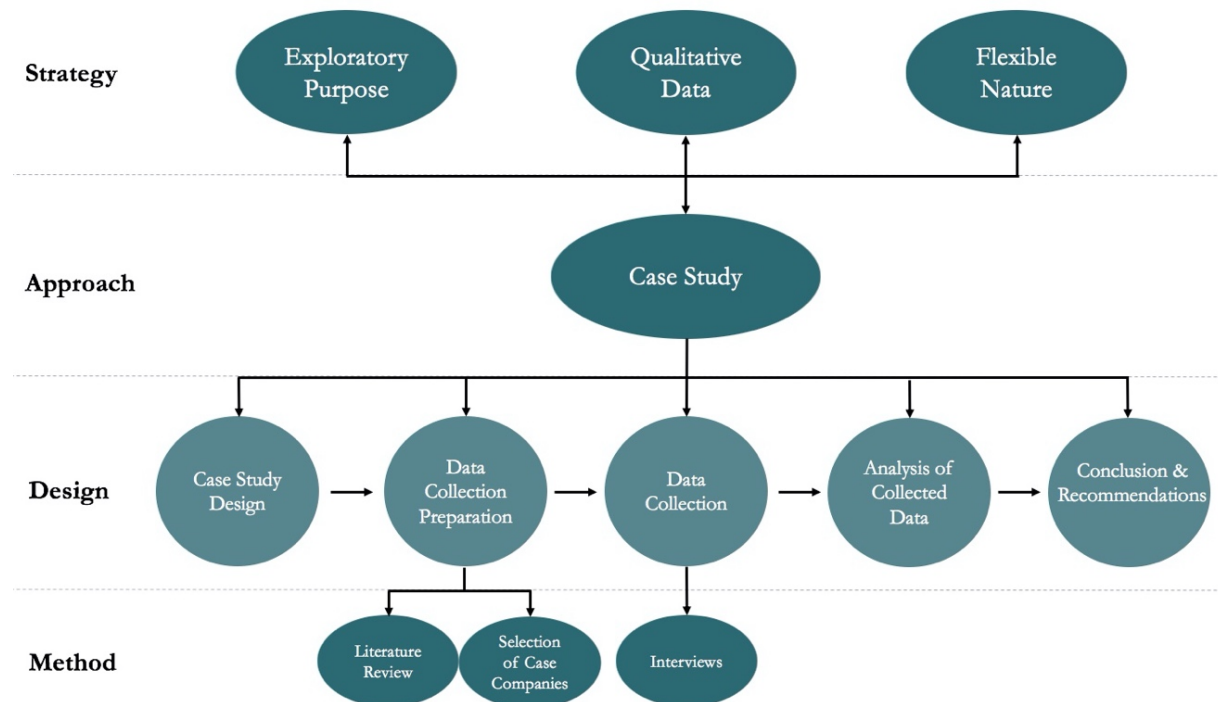
Figure 2.1: Summary of the chosen methodology.

3 Theory

This chapter provides the theoretical framework that the research of this study is based on. It consists of three main parts, the context of the offering, the environment of and around the customer, and existing theories of achieving incremental improvements in the business processes and organisation. The chapter ends with a summary of the theoretical framework and a description of how it will be used in practice.

3.1 Introduction

Many areas can be studied in order to analyse and understand the environment for achieving incremental improvements. In order to answer the purpose of this work, that is to describe and understand structured approaches whose purpose is to achieve incremental improvements of the company's offer through the integration of customer feedback into different functional units, the theory chapter has been divided into three parts, each representing one fundamental aspect of the purpose. The chapter will, in the order mentioned, describe the offering, the customer from a business perspective, and lastly the business processes and organisation enabling the integration of the customer feedback into the functional units. Figure 3.1 shows the connection between the three parts and how they contribute with theories to help to achieve incremental improvement.
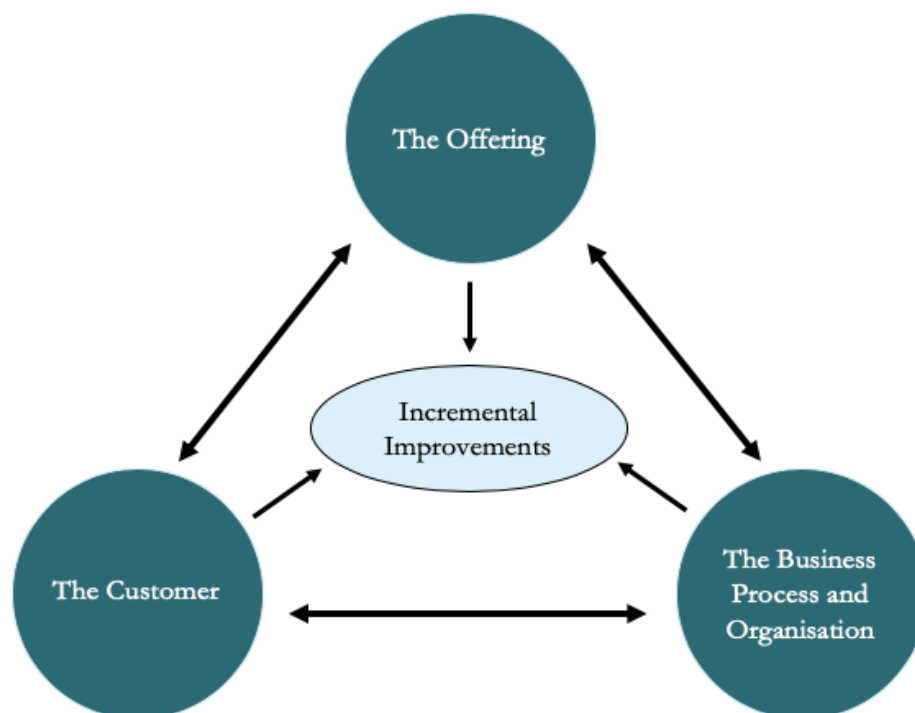
Figure 3.1: The three parts of the theory chapter.

The first part, *the Offering,* aims to describe the context of what software as a service is, by describing both software, SaaS, and service on their own, as well as describing classic service

marketing. This part has a primary purpose of creating an understanding of the basic offering, in order to further understand what will be improved by an incremental structured approach.

The second part, *the Customer*, describes theories of the environment in which, and from whom, the feedback will be collected. The chosen focus areas are the special conditions when working B2B, relationship marketing through the model 30R, and the importance of CRM.

The third part, *the Business Processes and Organisation*, aims to describe existing theories on how an organisation can achieve incremental improvements of their offerings. More specifically, this part will describe theories about new service development, cross-functional collaboration, agile principles, requirements engineering, and customer data and feedback collection.

3.2 The Offering

3.2.1 Software

Software can be described as a set of instructions, data or programs executing explicit functions operated by computers. It is often divided into application software and system software. Application software refers to the program downloaded by the user aiming to perform the tasks, fulfilling their wants and needs. System software acts as the supporting base for application software, including utilities and programs such as operating systems, compilers, device drivers (Rouse, 2019). Software can be characterised both as a product (Rajala, Rossi, & Tuunainen, 2003) and as a service (Mell & Grance, 2011). Hereinafter software will only be regarded as a service, due to the purpose and delimitations of this work.

3.2.2 Software as a Service

The general concept of cloud computing includes the subcategories Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), and Infrastructure-as-a-Service (IaaS) (Stuckenberg, Kude, & Heinzl, 2014). SaaS could simply be described as a term describing applications that only need a web browser to be used from the client's side (Mehta, Steinman, & Murphy, 2016). The underlying cloud infrastructure, such as servers, network, storage, operating systems, is not managed or controlled by the consumer (Mell & Grance, 2011). Today we are surrounded by thousands of SaaS applications, among which Facebook, Amazon, eBay, and Dropbox are just a few examples (Mehta et al., 2016). However, in order to better understand SaaS as a phenomenon, it is essential to have a definition, making it possible for customers to evaluate the provider's capability to contribute with long-term value, and for the providers to establish unleashed business potential (Mäkilä, Järvi, Rönkkö, & Nissilä, 2010). Mäkilä et al. present examples of definitions from which they discuss the main characteristics of SaaS solutions. Based on these definitions the following five characteristics typically associated with SaaS are identified:

- ❖ A web browser is needed to use the product
- ❖ The product is not tailor-made for each customer
- ❖ The customer does not need to install software at its location in order to use the product
- ❖ Special integration and installation work are not required by the product
- ❖ The product's price is based on actual usage of the software

Taking advantage of SaaS offerings may lead to many opportunities and advantages for the user. Given that software solutions no longer need to be installed on the user's servers, there is no longer need for development, testing or maintenance, and since there are no licensing costs, users can reduce costs and improve cash flow. Due to reduced dependence and short notice periods, customers also have a greater opportunity to change provider, which forces providers to continuously deliver high service quality (Buxmann, Diefenbach, & Hess, 2013).

3.2.3 Service

The service concept is a complicated phenomenon. The word itself has many different meanings and there are many different definitions. Instead of focusing on the definition, services are preferably described by different characteristic features (Grönroos, 2013). Grönroos identifies three more or less typical features for services in general. The first and most important one is that services are processes, consisting of activities or a series of activities. Secondly, a service is produced and consumed at the same time, and lastly, the customer participates to some extent as a co-producer in the production process of the service.

Other common features used to describe services are lack of ownership, intangibility, variability, and perishability. Lack of ownership refers to the fact that you cannot store a service as you can with a product, and hence you cannot own it. Intangibility means that a service cannot be felt, heard, seen, tasted, or smelled before you have bought it, which makes it impossible to try before usage. Variability addresses the fact that depending on when, how, where and by whom a service is provided, the quality can vary greatly. Perishability refers to the fact that a service cannot be inventoried or stored for later use (Claessens, 2015).

Beyond these features, some service characteristics from the electronic service perspective are commonly referred to. In addition to the already mentioned features, interactive nature, self-service, and non-rivalry are emphasised. Interactive nature refers, in electronic services studies, to the interplay between organisations and customers, where users interact with electronic interfaces, called automated interaction, instead of with other humans. Self-service, i.e. service where there is no direct interaction with or direct assistance provided by a human service agent, dominates e-services. This means that customers must learn from interface. The non-rival feature points out

that e-services could be used simultaneously by different consumers without reducing the other consumer's utility (Taherdoost, Sahibuddin, & Jalaliyoon, 2014).

3.2.4 Classic Services Marketing

Since services differ from tangible products, additional marketing approaches are often required. When designing services marketing programs, companies must consider the characteristics of services (explained in section 3.1.2) as they position themselves in chosen target markets. Due to the increasing competition, service companies face the tasks of increasing service differentiation, service quality, and service productivity. The key to differentiation is to develop an offer, delivery, and image unlike and superior to the ones of the competitors. Companies can also differentiate by constantly deliver higher service quality than their competitors. Most service companies are customer-driven and need to identify what customers expect concerning service quality. Compared to product quality, service quality is much harder to measure and judge. A way of measuring service quality is by customer retention, i.e. a company's ability to keep its customers, which is highly dependent on the extent of consistent quality delivered. Companies also need to increase the productivity of their services in order to manage rapidly rising costs. This could, for example, be done by training employees or harness the power of technology (Armstrong, Kotler, Harker, & Brennan, 2009).

Unlike traditional manufacturing companies, service companies need to focus their attention both on their customers and their employees. Service companies can not only focus on traditional external marketing using the four Ps (product, place, price, and promotion) but also need to embrace interactive marketing and internal marketing. Interactive marketing means that service quality is highly dependent on the service encounter, and the interaction between the buyer and the seller. Interactive marketing skills are therefore required of service marketers. Internal marketing refers to that service firms must motivate their employees to work as a team in order to provide customer satisfaction (Armstrong et al., 2009).

3.3 The Customer

3.3.1 Business-to-Business

When a company works business-to-business (B2B), they address their offer to other companies, apart from business-to-consumer (B2C), the more traditional way of working, where the offer is addressed to individual consumers (Armstrong et al., 2009).

3.3.1.1 Business Markets

Both business markets and consumer markets involve people who adopt buying roles and make buying choices to satisfy needs. However, there are many differences between business markets and consumer markets. One difference is the market structure and demand, where business marketers often deal with fewer but larger buyers, and the markets are generally more geographically concentrated. Another difference is the nature of the buying unit, where the purchase process often involves more decision participants and a more professional procurement effort in the business market. Types of decisions and the decision process also differs between business and consumer markets. Business buyers generally face more complex buying decisions, involving more money, interactions between many people at many levels and complex technical and economic considerations. In general, the buyer and the seller are often more dependent on each other in business buying processes (Armstrong et al., 2009).

3.3.1.2 Business Buyer Behaviour

There are many factors affecting businesses' buyer decisions that need to be considered by the selling company. Environmental factors, such as economic, technological, political and competitive development, play a major role. Business buyer behaviour is also strongly influenced by organisational factors. Every organisation has its own policies, procedures, objectives, structures, and systems. The decisions are made by the buying centre, which includes many participants who can have different opinions and influence each other. Hence, interpersonal factors can further affect buying decisions. Moreover, individual factors such as personal motives, perceptions, and preferences may affect purchasing decisions (Armstrong et al., 2009).

3.3.2 Relationship Marketing and Thirty Relationships

Based on the different business markets and differing buyer behaviour, it is of high interest for organisations to know which relationships that are of importance. Relationship marketing (RM) is defined as marketing based on interaction within relationships or markets (Gummesson, 2008) and has central roots in services marketing, B2B as networks and traditional marketing management. RM is based on the philosophy of cooperating and trusting customer relationships (Grönroos, 2013) and its purpose is to effectively manage customer relationships in order to

improve long-run profitability (Christopher, Payne, & Ballantyne, 1991). Reichheld (1996) states some underlying reasons why maintaining customers are more profitable than acquiring new ones. He argues that customers may not become profitable until after some time since the acquisition costs may be high. But when acquisition costs are covered, there will be a stream of profit from the customer each year. Also, customers buy more over time, at the same time as, companies become more efficient, which leads to increased revenue and decreased costs. Additionally, a good relationship has value to the customer as well, which can result in the customer becoming less price-sensitive and prone to recommending the provider to other potential customers.

By defining thirty relationships, relationship marketing has become a part of an organisation's business and marketing planning. The thirty relationships (30R) are divided into 4 groups: classic market relationships, special market relationships, mega relationships, and nano relationships (see Figure 3.2). The classic market relationships (R1-R3) contain three relationships that are the central relationships of marketing among the customer, the supplier, and its competitors. The special market relationships (R4-R17) describe relationships with certain aspects of the classic relationships and are therefore more specific. Above the market relationships are the mega relationships (R18-R23), generally concerning the society and economy. Below the market relationships are the nano relationships (R24-R30), describing the relationships within the organisation that affect the externally bound relationships. Apart from the first relationship, R1, all relationships are seen as equally important and are thereby not ranked in order (Gummesson, 2008). A description of the relevant relationships, based on the problem and purpose stated in chapter 1, is presented below.
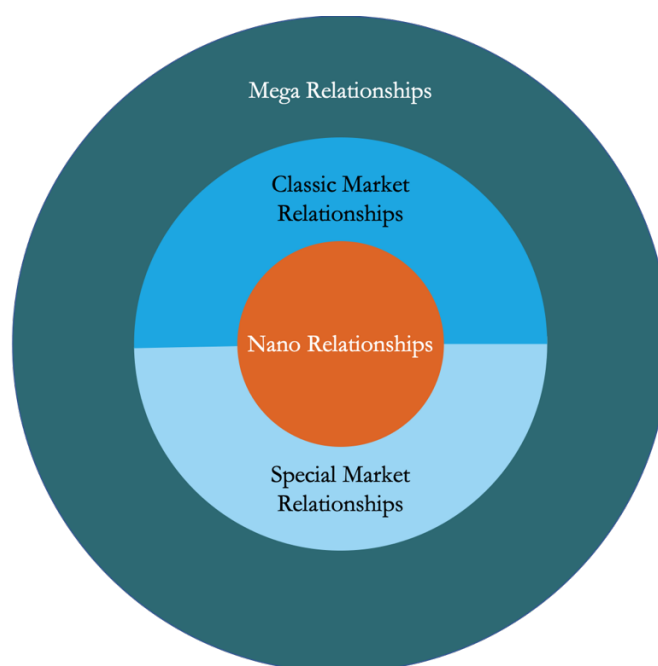
Figure 3.2: The four groups of Thirty Relationships (Gummesson, 2008).

3.3.2.1 R1 the Classic Dyad

The classic dyad refers to the relationship between the seller and the buyer. This is the foundation of marketing and is therefore referred to as the parent relationship (ibid. p. 35).

3.3.2.2 R2 the Classic Triad

The classic triad refers to the relationship between the customer, the customer's present supplier, and the competing suppliers. The presence of competition gives the customer a choice and the possibility of forming relationships with many suppliers. For companies, this opens for the possibility of winning customers but also for the risk of losing them (ibid. pp.46-48).

3.3.2.3 R3 the Classic Network

The classic marketing network refers to the physical distribution channels. These are complex, numerous and interwoven and can distribute everything from goods and services to information, and people or other living organisms. RM views distribution as a complex network of interactive and varying relationships with a focus on the total offering (ibid. pp. 52-58).

3.3.2.4 R4 Relationships via Full-Time Marketers and Part-Time Marketers

Gummesson (2008) identifies two types of marketers: full-time marketers (FTMs) and part-time marketers (PTMs). These could be found both inside the company and in its surrounding environment. All employees in a company are either an FTM or a PTM. Internally, FTMs are located in the marketing and sales departments, and externally in providers of marketing services such as market research institutes and advertising agencies. Within the organisation, PTMs are everyone else except the FTMs, for example, employees in management, R&D, production and finance. The most important PTM outside the organisation is the customer but others could, for example, be suppliers, media, investors and other stakeholders. Gummesson further argues that FTMs cannot create successful relationships on their own. They need help from the PTMs, by being at the right place, with the right knowledge, with the right customer, at the right time. In order to build great customer relationships, CRM needs to support the FTMs but also facilitate the PTMs' roles. Those employees who do not have an impact on relationships with customers, either full-time or part-time, indirectly or directly, should be considered redundant for the company (ibid. pp. 61-66).

3.3.2.5 R5 the Service Encounter

The service encounter refers to the interaction between the provider and the customer, and its importance increases for all types of companies. Two examples of service encounters are when the customer interacts with the provider's service personnel or with the provider's service system. Quality is developed in these types of relationships when the two parties are considered equal, where each party contributes with their insights and knowledge (ibid. pp. 67-73).

3.3.2.6 R6 the Many-Headed Customer and the Many-Headed Supplier

In order to make relationships between companies intelligible, they must get tied to people. Individuals represent different functions in both the selling and the buying company, participating in the marketing and purchasing process. Thereby, B2B relationships are increasingly complex since companies do not buy and sell, the representing individuals do. Being able to find a way in these networks requires persistence and knowledge from systematic studies, concepts, and long-term strategies (ibid. pp. 73-78).

3.3.2.7 R7 the Relationship to the Customer's Customer

Even if it is indirect and not recognised, all suppliers have a relationship with their customer's customer. Because of the many stages products and services could go through, the dilemma of whose needs and specifications that should be focused on satisfying, and the question of who the customer is, arise. If the supplier chooses the mission to 'help our customers doing business with their customers, they must focus on understanding the customers' customers. Since the supplier's customer focus on satisfying their customers, this is seen as an intelligent marketing strategy (ibid. pp.79-83).

3.3.2.8 R12 the E-Relationship

Information Technology (IT) offers both new opportunities for marketers and introduces a new infrastructure in our economies. E-relationships embrace, just like RM, the interactions, networks, and relationships based on IT, and creates new ways to run businesses. Market, mega and nano relationships get linked by the internet that works as an electronic network of relationships and as a market for commerce, as well as an arena for social contact and experiences. This has, supported by the e-relationship, affected the market strategy of 'any time, any place' as the internet is everywhere, yet nowhere (ibid. pp. 101-111).

3.3.2.9 R26 Quality and Customer Orientation: The Relationship Between Operations Management and Marketing

The relationship between the mutually dependent functions marketing and operations management (e.g. engineering, design, R&D, purchasing and manufacturing) is specifically essential and modern quality management particularly addresses the gap between them. Total quality management (TQM) is based on a mix of the external approach, driven by the market, and the internal approach from the organisation, driven by technology or systems. Definitions of quality that emphasises the relationship between operations and market management are the conformance of requirement often expressed as "do things right", and the emphasis on fitness for use, often expressed as "do the right things". Strategies combining these two mindsets, focusing on understanding customer needs and designing offerings satisfying these needs, often results in success for organisations (ibid. pp. 190-197).

When marketing knowledge, originally developed for external marketing, is applied to the internal market, i.e. the employees, it is referred to as internal marketing. Within RM, the objective of internal marketing is to build relationships among employees, management and different functions. In order to prepare the personnel for external contact, they must be reached efficiently by internal marketing since internal marketing works as an anterior to external marketing. Techniques that can be applied can, for instance, come from communication and promotion areas, with the partial goal to prepare employees for changes in organisational structures and business missions (ibid. pp.197-203).

3.3.3 Customer Relationship Management

When acknowledging important relationships for the company, it is of high interest to manage these effectively (Gummesson, 2008). Customer Relationship Management (CRM) has its origin in relationship marketing (RM) (Ryals & Knox, 2001) and aims to turn the strategies and values of RM into practical application, with particular emphasis on customer relationships (Gummesson, 2008).

At the same time as the competition is growing in most businesses, due to technology innovation lowering entry barriers, customers are becoming more demanding and less loyal. This makes it even more crucial for companies to work more efficiently with customer maintenance than their competitors, being more productive and effective, at the same time as products and services need to be better aligned with the customer needs (Kostojohn, Johnson, & Paulen, 2011).

From a customer value perspective, CRM aims at determining organisational methods and practices that maximise the lifetime value of each customer by leveraging communication technologies and analysing and using marketing databases. From a business strategy perspective, CRM is the strategic process with the purpose of selecting the most profitable customers and shaping the interaction between the company and them. Optimising the present and future value of customers for the company is the ultimate goal (Kumar & Reinartz, 2012). By integrating CRM into the organisation, the focus on developing, preserving, and extracting ultimate value from customer relationships will increase by engaging people, technology components and business processes (Kostojohn et al., 2011).

Apart from addressing the trends of growing competition and more demanding customers, a well-implemented CRM program has proven to bring value to the organisation in additional ways. These include increased business insight, improved employee efficiency, and productivity, better customer experiences, as well as the development of a data-driven, learning culture (Kostojohn et al., 2011).

3.4 The Business Processes and Organisation

3.4.1 New Service Development

The New Service Development (NSD) process cycle (see Figure 3.3) represents a development approach consisting of planning, analysis and execution actions (Johnson, Menor, Roth, & Chase, 2000). The cyclic nature is meant to emphasise the non-linear and iterative processes characteristically used in most NSD efforts (Menor, Tatikonda, & Sampson, 2002). The planning phase of the NSD process cycle is represented by the two first stages, design and analysis, where decisions of internal resources, capabilities, and market viability are considered. The execution phase is represented by the final two stages, development and launch, where the design of the service delivery system, use of enablers, and cross-functional development efforts become critical managerial matters (Johnson et al., 2000). Additionally, the NSD process cycle recognises that assets, such as tools and development teams, have an empowering role in the development process and that the fundamental NSD stages resolve around the design and configuration of the service concept elements (Menor et al., 2002).
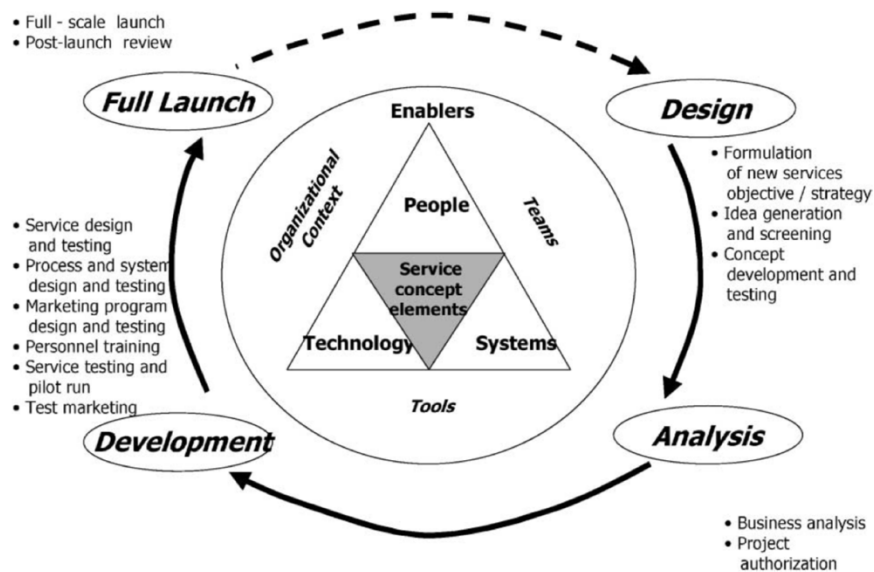
Figure 3.3: The NSD process cycle (Johnson et al., 2000).

3.4.2 Cross-Functional Collaboration

Cross-functional collaboration refers to the extent of representation and cooperation between marketing, R&D and other functional units in the product innovation process (de Luca & Atuahene-Gima, 2007). Cross-functional collaboration is well-documented to have a positive

effect on product innovation performance (Griffin & Hauser, 1996; Luo, Slotegraaf & Pan, 2006; Song & Parry, 1997). Pinto, Pinto, & Prescott (1993) argue that it is crucial for successful implementation of projects and for effective overall performance of organisations to adopt cross-functional collaboration. Thereby, the combination of marketing, technical, and other functional capabilities to develop a product, aiming at satisfying customer needs, is ensured. This by allowing new product project teams to make quality decisions and by improving the efficiency of knowledge (Madhavan & Grover, 1998).

3.4.2.1 The Importance of Knowledge Integration Mechanisms

Market knowledge, cross-functional collaboration, and knowledge integration mechanisms have been established as the three distinct factors enhancing product innovation performance (Day, 1994; Griffin & Hauser, 1996; Madhavan & Grover, 1998). Market knowledge refers to the organisation's knowledge regarding its customers and competitors (de Luca & Atuahene-Gima, 2007). Knowledge integration mechanisms (KIMs) refer to the official structures and processes that ensure that market and other types of knowledge in different functional units within the firm get captured, analysed, interpreted and integrated (Olsson, Walker & Ruckert, 1995).

De Luca & Atuahene-Gima (2007) used the conceptual model shown in Figure 3.4, to examine the complex relationship between cross-functional collaboration, market knowledge dimensions, knowledge integration mechanisms, and product innovation performance. They found that market knowledge depth and specificity, as well as cross-functional collaboration, have a positive effect on product innovation performance managed through KIMs. However, both cross-functional collaboration and KIMs show a small positive effect on its own, but linked together, they are a valuable resource. These results show the importance of designing KIMs properly in order to gain positive effects of cross-functional collaboration.
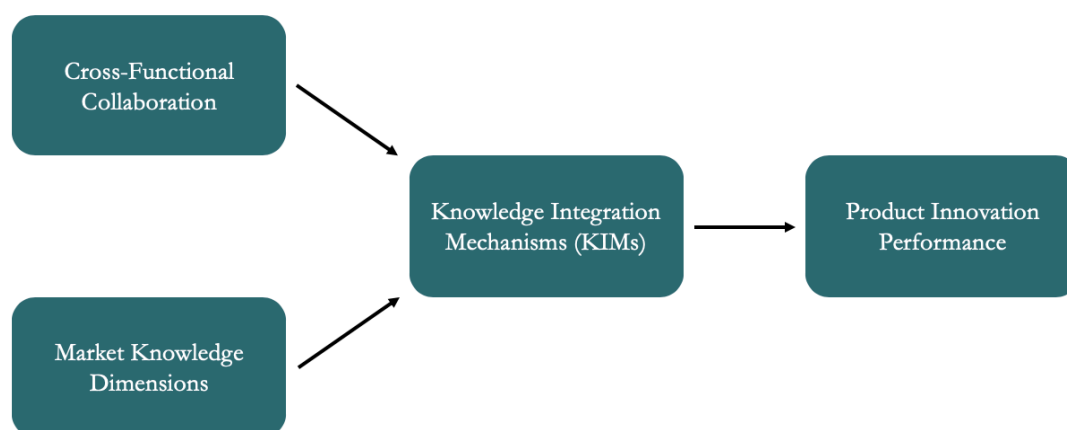
Figure 3.4: Conceptual model of the role of cross-functional collaboration, market knowledge dimensions, and knowledge integration mechanisms in product innovation (de Luca & Atuahene-Gima, 2007).

3.4.2.2 Communication is Key

Lovelace, Shapiro, & Weingart (2001) found that the higher level of functional diversity in a team, the higher the level of task disagreement. However, task disagreement is not a critical factor regarding the innovativeness and productivity as long as the communication is managed by both members and leaders. Consequently, they argue that communication is key to an efficient team.

Pinto et al. (1993) present additional factors that affect the performance of cross-functional collaboration and achievement in project teams. Factors that were shown to have a significant impact were superordinate goals, project team rules and procedures, and physical proximity. The findings also support that intergroup conflicts could be limited and defused by superordinate goals. Thereby, superordinate goals could help to achieve high levels of collaboration and by that providing positive psychosocial outcomes and high task performance. Nevertheless, the superordinate goals need to be successfully communicated throughout the teams to show a positive effect.

Martin (2017) argues that a collaborative environment can be created for software companies by working in cross-functional teams that include both end-users and developers. This approach enables ideas to be quickly discussed and evaluated, and since elements of the entire system are present together, errors, defaults, and missing design components can be caught and fixed quickly. However, it is important for cross-functional software teams to have a formal structure for communication, where all communication should be recorded for future purposes. This is necessary to keep track of information, facilitate development and avoid misunderstandings among team members and between different teams (Marczak, Kwan, & Damian, 2009).

3.4.3 Agile Principles

The principles of Agile Software Development (ASD) were created as a reaction to the strictly planned linear methods, which had been widely used in software development. These traditional methods were considered unfit for the new market conditions, including rapidly changing requirements (Dybå & Dingsøyr, 2008). Practitioners realised the importance of working according to new philosophies, and therefore established the "agile manifesto", containing four core values ("Manifesto for Agile Software Development," 2001):

Individuals and interactions over processes and tools.

Working software over comprehensive documentation.

Customer collaboration over contract negotiation.

Responding to change over following a plan.

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These values express a change in mind from plan-driven to value-driven software development (Schön, Thomaschewski, & Escalona, 2017). Since the manifesto was published in 2001, several different agile software methods have appeared, including Extreme Programming (XP), Scrum, Lean Software Development, Feature-Driven Development, and Crystal Methodologies among others. Although there are differences between these methods, they all have in common that they view software development as a series of several short iterations rather than a clear linear process (Dingsøyr et al., 2012). The software development should be performed incrementally and empirically, meaning that each iteration should result in some functioning software. By this approach, ASD is claimed to contribute to higher customer satisfaction and on-time deliveries (Schön et al., 2017). Moreover, it has been stated in literature that agile software projects experience higher productivity (Eberlein & Julio Cesar, 2002), less rework (Bin, Xiaohu, Zhijun, & Maddineni, 2004), and more efficient defect fixing (Lagerberg & Skude, 2013).

The principles of ASD can be compared to the traditional waterfall model, which is characterised by well-planned projects consisting of a linear sequence of project phases (concept, requirements, design, implementation, testing, and deployment). In projects according to the waterfall model, functioning software is obtained first at a later stage of the project (Westfall, 2010). Figure 3.5 shows a comparison of the main characteristics of projects performed according to the waterfall model and the agile model.
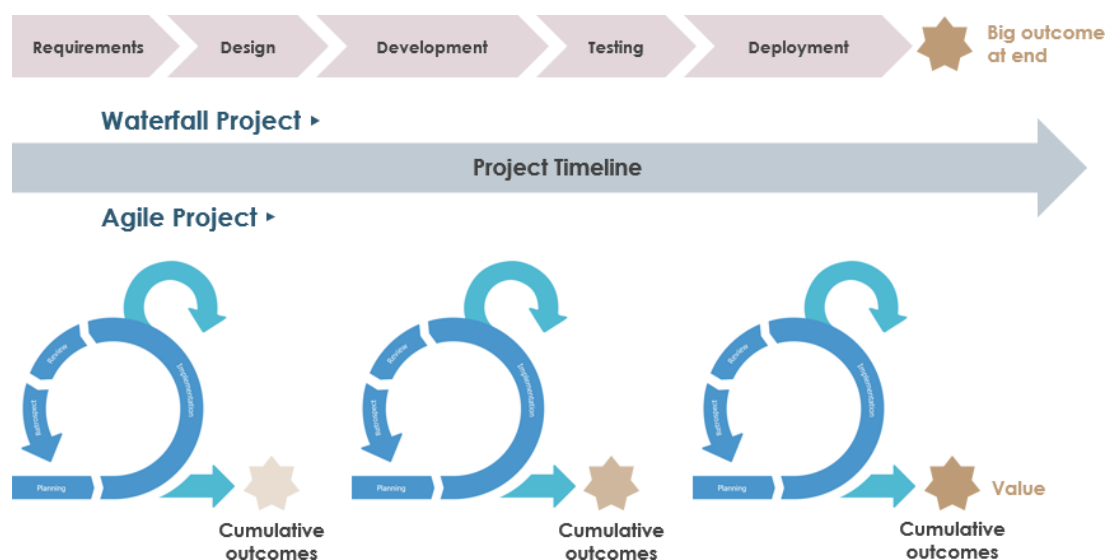
Figure 3.5: The main characteristics of the waterfall model and the agile model ("Scrum vs Waterfall vs Agile vs Lean vs Kanban," n.d.).

Although the principles of agile are especially justified for software companies, they have been spreading and can now be seen in management challenges in a range of different sectors. Some examples are agile organisation culture, agile in retail, agile in manufacturing, agile auditing, and

agile human resources (Denning, 2019). According to Denning (2016), there are now more than 70 different agile practices, and it continues to evolve. In another article (2019), he emphasises that agile is not a methodology for software exclusively, but rather a revolutionary mindset that is spreading across all types of businesses and business functions. It is, therefore, a matter of judgement if agile is an applicable way of working. It is crucial that there is a fundamental obsession with delivering value to the customer and that the industry is somehow changing. This makes agile working applicable for all contexts and all organisations at any time, except when there is a small amount of change or there are no customers in the picture.

In relation to the four core values of agile (although originally formulated for software development), agile working can be described as a combination of three elements. The first element concerns that work should be done by small self-organising teams working in short cycles. The second is the constant focus and core purpose of delivering value to the customer. The last and perhaps the most significant element is the organisation operating as an interactive network of teams, all focused on working together and delivering value. As a consequence, bureaucracy and top-down hierarchy are demolished. When an organisation manages to combine these three elements successfully, at the same time as they focus on a common external goal, agile working could truly be embraced (Denning, 2016). By adopting this approach, the agile organisation can be described as a living organism, rather than a machine. This is illustrated in Figure 3.6 below (Aghina et al., 2018).
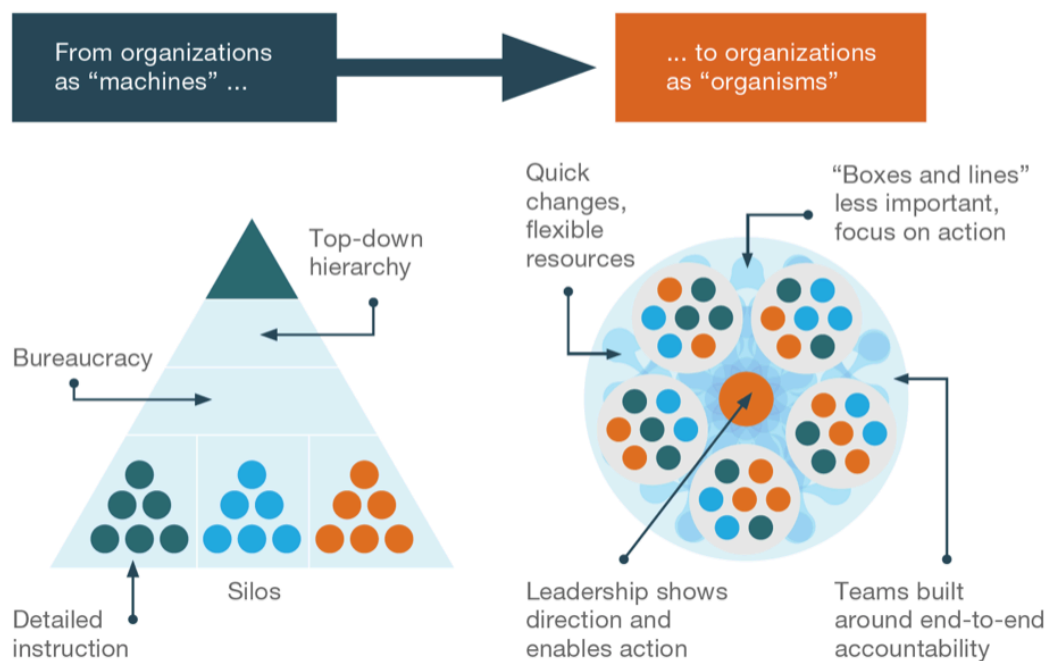
Figure 3.6: The priorities in agile organisations compared to non-agile organisations (Aghina et al., 2018).

3.4.4 Requirements Engineering

Requirements Engineering (RE) refers to the activities related to the integration of customer data and feedback into the development processes (Inayat, Salim, Marczak, Daneva, & Shamshirband, 2014). The activities of traditional RE are still relevant in modern agile methods, though performed in other phases of the development process than in traditional software development (Schön et al., 2017). In section 3.4.4.1, a description of traditional RE and its activities will be made, followed by an explanation of differences seen in Agile Requirements Engineering (ARE) in section 3.4.4.2.

3.4.4.1 Traditional Requirements Engineering

Traditionally, when being devoted to the waterfall model, requirement gathering was performed and completed at a very early stage. This was a consequence of the philosophy that the development should be executed in a linear way with explicit phases from requirements collection to deployment of the software (Batool et al., 2013). Requirements engineering (RE), in its classic meaning, thereby consist of a few, clearly separated, activities. These activities usually include elicitation, documentation, validation, and management (Schön et al., 2017). These will be further described below.

The first activity, *requirement elicitation,* involves understanding the requirements and system boundaries through dialogues with the stakeholders. This can include different techniques such as interviews, use cases, prototyping, and brainstorming. The requirements also need to be prioritised due to the limitations (e.g. resources, time and technical capabilities) of the project. The activity should be performed in close collaboration with the customer in order to ensure that the features yielding the highest value are prioritised (Batool et al., 2013).

In the second activity, *requirements documentation,* related to documentation, the requirements are written in a standardised way that should make it easy to access and review the requirements. The requirements document, usually referred to as specification, aims at specifying the software that should be developed and should contain both functional and non-functional requirements (ibid.) Functional requirements are requirements describing what the system should do, as well as describing the behaviour of the system in terms of inputs and outputs. The non-functional requirements, on the other hand, describe how the system should work, by setting attributes and constraints. These can be performance requirements (describing e.g. timing, speed, and throughput) or specific quality requirements (concerning e.g. usability, reliability and security) (Glinz, 2007).

The third activity, *requirement validation,* includes ensuring that the specification corresponds to the needs of the customer. It should also be controlled that the written requirements are complete and

consistent. In this phase, test cases are usually written to discover specification elements expressed indistinctly or ambiguously (Batool et al., 2013).

The final activity, *requirement management,* concerns storing and monitoring the specifications, as well as managing necessary changes to the agreement with the stakeholders (ibid.).

An illustration of a traditional requirements engineering model can be seen in Figure 3.7. This model, proposed by Loucopoulos and Karakostas (1995), consists of three phases; elicitation, specification (corresponding to requirements documentation), and validation. Traditional requirements engineering models are many times illustrated as a fully linear process. However, the model by Loucopoulos and Karakostas includes, despite its linear elementary form, iterative elements as well, symbolising the cause and effect relationship between the phases. For example, if the validation activities indicate some issues, both specification activities and elicitation activities might have to be repeated to some extent (Martin, Aurum, Jeffery, & Paech, 2002). User Involvement only appears in the elicitation and validation phase in this traditional model. The problem domain is determined from the user requirements obtained in the elicitation phase and validated by the assistance of user feedback in the validation phase. In the traditional waterfall model, this process of requirements engineering is completed at an early stage of the software development project, meaning that it is important to ensure that all necessary input data have been gathered and interpreted correctly before moving on to the next step of the project (usually the design phase). The outcome of the process, the specification document will be the basis of the rest of the project, making it difficult for the customer to change its requirements at a later stage (Batool et al., 2013).
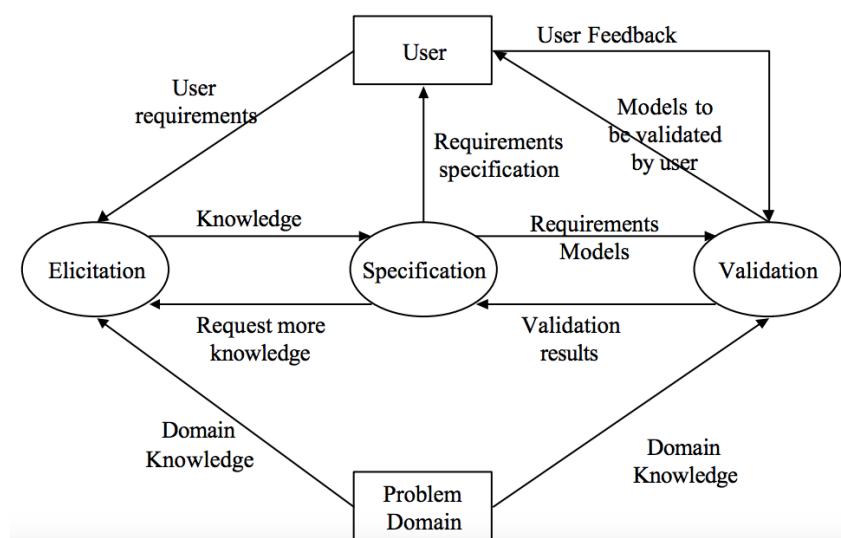
Figure 3.7: A traditional requirements engineering model proposed by Loucopoulos and Karakostas (1995).

3.4.4.2 Agile Requirements Engineering

ARE refers to the agile approach of planning and performing requirements engineering activities (Inayat, Salim, Marczak, Daneva, & Shamshirband, 2014). However, Inayat et al. argue that the software development community is unfamiliar with how to effectively apply requirements engineering practices when working according to agile methodologies. Consequently, as ARE is an emerging area (Batool et al., 2013), best practices for ARE have not yet been established (Inayat et al., 2014).

The main difference to traditional RE is the fact that the requirements engineering activities mentioned above (elicitation, documentation, validation, and management) are not as clearly separated in ARE as in traditional RE. In contrast to the waterfall model, these activities are performed iteratively along the whole software development process. Hence, a just-in-time approach is applied, where only the information necessary to finish the current iteration is gathered and analysed. Instead of a static specification document, as used in the waterfall model, a dynamic *product backlog* is used to document the elements to be implemented. The backlog contains the prioritised requirements and is being reviewed and updated in each iteration (Schön et al., 2017). Initially, a high-level scope of the system to be developed is defined (Inayat et al., 2014). This scope is then revised in all iterations and the high-level requirements are transformed into low-level tasks that should be implemented by the developers in the specific iteration. In order to be able to reprioritise the requirements regularly, there should be a close collaboration between businesspeople, stakeholders, users, and developers, thereby promoting cross-functional collaboration (see section 3.4.2 for further elaboration on cross-functional collaboration) (Schön et al., 2017).

Figure 3.8 illustrates an agile framework, proposed by Jyothi and Rao (2011), which promotes a collaborative and iterative way of working. The framework combines elements from two of the most common agile approaches; Scrum and Extreme Programming (XP). The incentive for interconnecting the two approaches is the fact that Scrum mainly is a project management approach, whereas XP is a development methodology. XP thereby adds engineering practices (pair programming, collective code ownership, continuous integration, etc.) to the more high-level Scrum approach. The basis of the framework is the execution of software projects in iterations (in Scrum terminology referred to as *sprints*) where new product increments are developed. Each sprint involves the traditional stages of software development, including requirements engineering, designing, development, testing, and delivery. Thereby, the requirements, which can be gathered from the customer directly, or indirectly from customer support or sales and marketing division, are reviewed regularly. In this process, the items in the product backlog are reprioritised and new estimates of the effort to complete an item are conducted. The items that are decided to be

implemented in the next iteration are transferred to a *sprint backlog* list, which is static until the iteration is finished (Jyothi & Rao, 2011). In addition to the product backlog and sprint backlog, several other artefacts are frequently used in agile projects to communicate about, elaborate on, validate and document requirements. Some of the most common artefacts are user stories, prototypes, use cases and scenarios (Schön et al., 2017).
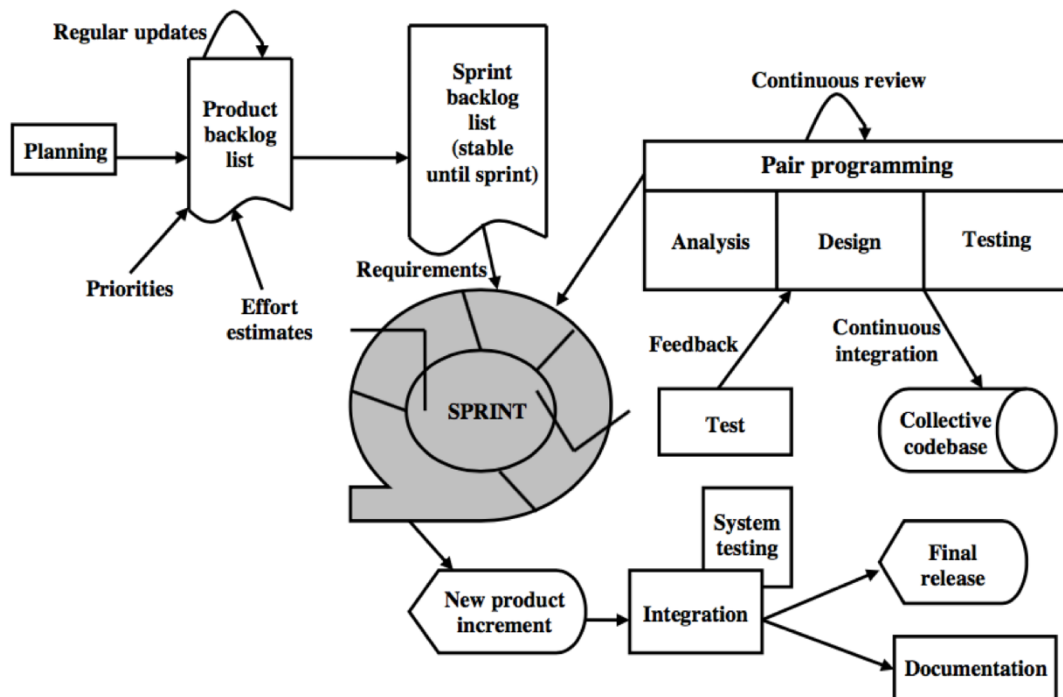
Figure 3.8: An agile collaborative framework presented by Jyothi and Rao (2011).

3.4.5 Customer Data and Feedback Collection

There is a wide amount of different techniques for collecting customer feedback, which is an essential part of the requirements engineering process. However, Fabijan, Holmström, & Bosch (2015) claim that there are difficulties in integrating these techniques in the decision-making processes within software development. The feedback loop from customers to product management is often slow and companies do not have structured approaches for collecting, analysing and integrating accurate feedback into the development processes (Sauvola et al., 2015). In the next sections, the internal stakeholders involved in the requirements engineering process are described, followed by a presentation of a customer touchpoint model as well as an elaboration on different collection techniques found in literature. It should be mentioned that the information presented in this section does not explicitly presuppose that software development is performed according to agile principles. Much of the content can as well be applied to the waterfall model. However, the user-centred and iterative nature of agile methodologies, including frequent

customer contact during the whole development process, makes below approaches particularly applicable for ASD.

3.4.5.1 Internal Stakeholders

Integrating customer needs and feedback into the development processes is not a task for a single function in the organisation, but rather involves several internal stakeholders. Commonly, it is product management that has the main responsibility of the requirements engineering process, and thereby ensuring that the needs of the client are adequately accounted for in the software development. Hence, product management acts as an interface between the customer and the R&D. Product management should be able to "translate" the requirements of the client into clear specification elements that can be interpreted by the development department. In order to do so, product management must collaborate with other external and internal stakeholders as well. Furthermore, in its role as an intermediary between customer and R&D, product management should be able to discuss and convey the progress of the project, inevitable trade-offs, alternative design options and similar. Another important internal stakeholder is the sales and marketing department, which has a crucial role in collecting customer needs from external stakeholders and performing market studies and end-user studies. Customer support also adds insight into customer needs as it serves as the first customer touchpoint when a product has been released to a customer. Moreover, they have an important task of performing troubleshooting and in parallel gathering defects data from customers. Other internal stakeholders involved in the requirements engineering process are; product line management, that complements the external requirements information with internal needs; R&D, that transforms the requirements into technical features; and the user experience (UX) team, that are responsible for the usability and the interface of the product (Sauvola et al., 2015). The internal stakeholders are summarised in table 3.1.

Table 3.1: A summary of the internal stakeholders presented by Sauvola et al. (2015).

Internal Stakeholders
Product Manager
Sales & Marketing
Customer Support
R&D
UX

3.4.5.2 Customer Touchpoints

The software provider interacts with the customer during different phases of the development process. Sauvola et al. (2015) have tried to identify these different types of occasions by studying five software companies. They present a customer touchpoint model (see Figure 3.9), which includes the most substantial touchpoints identified, as well as approaches for collecting input from markets, customers and product usage. The framework constitutes of four main activities; R_1 *Collection,* R_2 *Prioritisation,* R_3 *R&D Verification,* and R_4 *Deployment.* All these activities somehow involve interaction with the customer. The actual touchpoints, in other words where the organisation and the client interact with each other, are represented by the four arrows marked T_1, T_2, T_3, and T_4. These touchpoints are T_1: *Release learnings and new customer requirements*, T_2: *Release trade-offs and cost/benefit analyses*, T_3: *Release feature and delivery commitments*, and T_4: *Release configurations and real versus planned usage*. Sauvola et al. argue that customer communication also appears in between the four main activities, represented in the model by the touchpoints *release, delivery, deployment and service level agreement*. Furthermore, the main functions responsible for and information sources used for the collection of qualitative and quantitative data within each activity are marked with letter F (F_{C1}, F_{C2}, F_{C3}, etc.) (Sauvola et al., 2015).
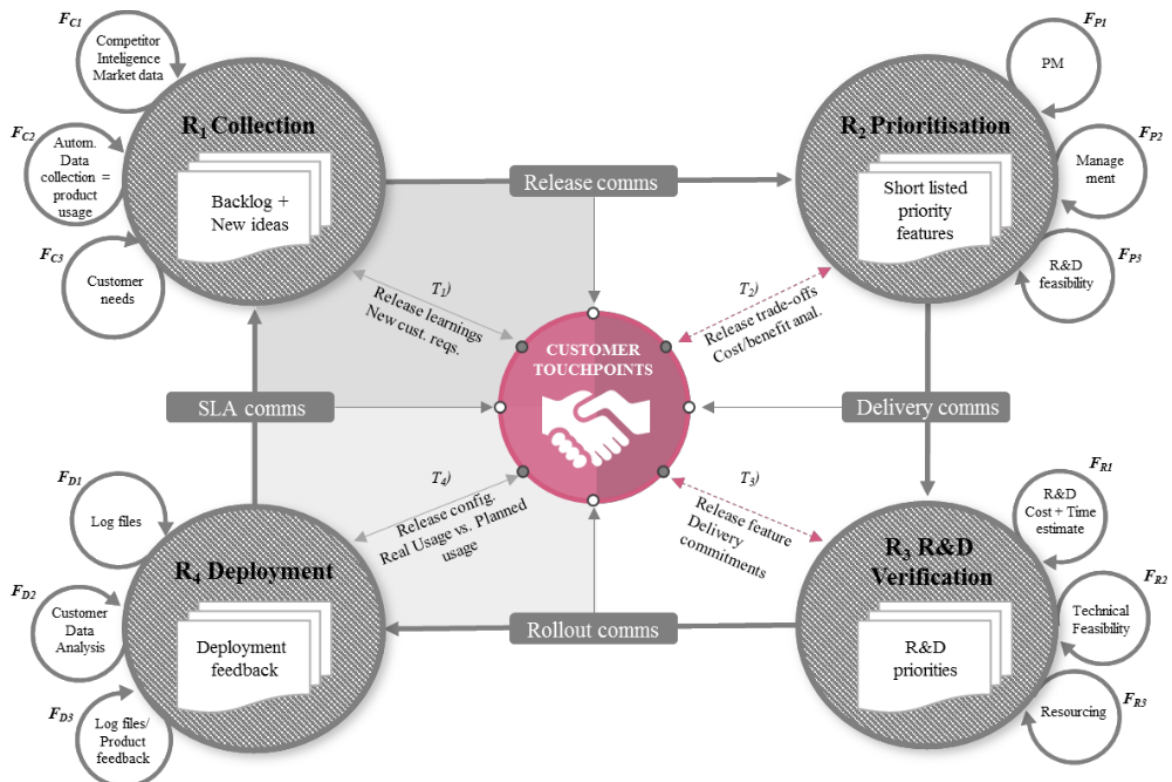
Figure 3.9: The customer touchpoint model presented by Sauvola et al. (2015).

The first activity, R_1 *Collection*, refers to the act of collecting customer needs and transforming them into specified requirements. The collection of requirements is usually performed by product management or sales and marketing and can include contact with both customer and end-user. Sources of the requirements can, for instance, be market studies and competitor analysis (F_{C1}), automatically-collected data from implemented software (F_{C2}) and customer feedback gathered directly from the client (F_{C3}). The touchpoint, T_1, can, therefore, take place either before or after the release of a new product or product increment (ibid.).

The second activity, R_2 *Prioritisation*, includes selecting what features to be implemented and in what order, based on conducted cost/benefit analyses and potential trade-offs. The conclusions drawn from these analyses should be communicated to the customer in order to validate that correct features will be prioritised (T_2). Responsible for this activity is primarily product management (F_{P1}), with assistance from other functions such as general management (F_{P2}) and R&D (F_{P3}) (ibid.).

The third activity, R_3 *R&D Verification,* is necessary for product management and R&D to be confident that the correct product is being developed. Touchpoints in this phase, T_3 are normally related to tests performed in collaboration with a lead customer. The tests can, in addition to identifying defects, validate that the implementation of a product or product feature is aligned with customer needs. However, touchpoints in the verification phase can also include the communication of release features and delivery commitments (ibid.).

The final activity, R_4 *Deployment*, refers to the release or installation of the finished product. It is at this stage most of the data usually is being gathered. Information sources can, for example, be log files (F_{D1}), customer data analyses (F_{D2}) and product feedback (F_{D3}) (ibid.).

3.4.5.3 Collection Techniques

The data collected can either be of *qualitative* characteristics or *quantitative* characteristics. Qualitative data, or rich data, is based on active participation from the customer and has the benefit of being able to provide a deep understanding of customer needs and preferences. However, collecting qualitative data is usually an energy-intensive and time-consuming task, and hence the amount of data collected tends to be small. Qualitative research methods include methods such as interviews, questionnaires, and surveys. The quantitative data, or big data, on the other hand, is aiming at fulfilling statistical purposes rather than exploring new requirements and perspectives. Consequently, the amount of data must be large, which is enabled by standardised and often automatically executed data collections. Such methods can, for instance, be the collection of performance data, error logs and A/B testing (Fabijan, Holmström, & Bosch, 2015). A/B testing is described further down in this section.

Much related to qualitative versus quantitative data, user feedback can further be categorised based on the level of awareness the users have of being part of the input collection. In fully qualitative research methods (e.g. interviews), the user or customer is conscious of participating in the feedback data collection. In quantitative methods, though, the user might be uninformed that he or she is providing feedback to the company (e.g. A/B testing) (Bosch-Sijtsema & Bosch, 2015).

Bosch-Sijtsema & Bosch (2015) provide a conceptual framework where they relate the data types (quantitative and qualitative) and the levels of customer awareness (conscious and uniformed) to the development phase in which the data is collected. The types of data are also related to the amount of data collected. The framework, illustrated in Figure 3.10, shows that qualitative research methods, based on conscious participation from the customer, are most feasible in the early phases of the development process. In this stage, the company has a great need to understand their customers, their needs, and their visions and expectations regarding the software to be developed, making collaborative methods suitable. Besides, input from uninformed users can only be gathered once a product or product feature has been fully or partially implemented. Further down the development process, the main interest of the company instead lies in confirming the hypothesis in order to improve and optimise product features. Hence, they can gain greater benefits when pursuing the collection of large size quantitate data rather than small size qualitative feedback. Additionally, click-based data can provide more reliable input as they originate from the actual behaviour of the users rather than opinions (ibid.).
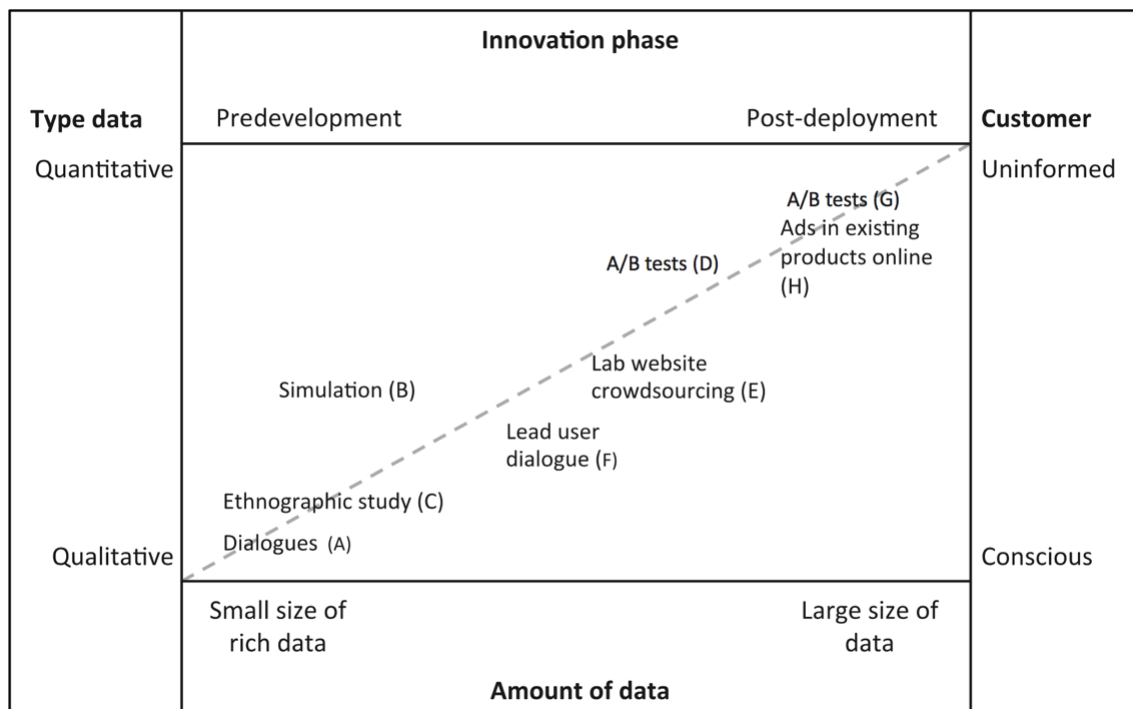
Figure 3.10: A framework of feedback collection in an innovation system (Bosch-Sijtsema & Bosch, 2015).

As shown in the framework presented in Figure 3.10, software providers can apply different techniques and methods for gaining customer insight and feedback. Some methods are more collaborative in its nature, while others are aiming at efficiently collecting user data (Fabijan, Holmström, & Bosch, 2015). In Table 3.2, a list of techniques found in literature is presented.

Table 3.2: Techniques for collection of qualitative and quantitative customer data found in literature.

Qualitative data collection techniques	Quantitative data collection techniques
Dialogues[2]	Operational and event data[1]
Interviews[1, 3]	A/B testing[1, 2]
Questionnaires[1, 3]	Crowdfunding platforms[1]
Surveys[1]	Online ads and in-product surveys[1, 2]
Observations[1]	Beta testing[1]
BASES testing[1]	Social networks[1]
Theatre sessions[1]	Crowdsourcing[2]
Ethnography[2]	
Focus groups[2, 3]	
Prototype testing[1, 3]	
Incident reports[1]	
Developers as customers[1]	
Walk-throughs[1]	
Customer pairing and boot camps[1]	

[1](Fabijan, Holmström, & Bosch, 2015), [2](Bosch-Sijtsema & Bosch, 2015), [3](Zamudio, Aguilar, Tripp, & Misra, 2017)

While some of the techniques are well-known and widely used in various businesses (interviews, questionnaires, surveys etc.), others need further explanation. These techniques are in some cases used exclusively by high-tech companies. *A/B testing* is commonly used within web 2.0 and in the SaaS industry (Fabijan, Holmström, & Bosch, 2015) and refers to the use of two versions of the same feature. Version A, which might be the version currently in use, and version B, which contains some minor modifications compared to version A, are distributed to randomly selected users. Certain metrics, related to the purpose of performing the A/B test, are collected for each of the versions based on the clicks made by the users. After both versions have been tested by a statistically relevant number of users, it can be concluded which of the versions that best satisfies the users (Bosch-Sijtsema & Bosch, 2015). In s*ocial networks*, such as Twitter, Instagram and

Facebook, users around the world share their experiences of products. This source of information is argued to become increasingly important for companies in their process of understanding customer needs and behaviour. However, this information is badly sorted, and hence requires complex techniques to collect systematically. Similarly, *crowdfunding platforms* like Kickstarter give insights in what products that get support from the community (Fabijan, Holmström, & Bosch, 2015). Another, relatively new, approach is *crowdsourcing*. In this technique, large groups of users are being involved in the design and development processes through informal communities of social networks. The users are invited to try out new features and products, provided by IT, but also to suggest new ideas and solutions (Bosch-Sijtsema & Bosch, 2015).

A/B testing and crowdsourcing are examples of techniques in the field of new emerging experimentation and testing methods. Many of these emerging methods are based on a trial-and-error process, in which products are tested with users. Short iterations, including elements such as multiple designs, prototypes, testing and frequent milestones, are claimed to provide more rapid learning cycles and thereby faster product development (Bosch-Sijtsema & Bosch, 2015). Bosch-Sijtsema & Bosch argue that three main drivers are pushing the increasing use of experimentation and testing with users. Firstly, the growth of cloud computing provides a distributed platform convenient for experimentation and testing. Secondly, the connectivity of systems with embedded software makes it possible to modify the systems after release. The connectivity is also the enabler for the collection of big data, implying fast and comprehensive input. Finally, the ongoing transition to offer traditional products as services (e.g. in the telecom and automotive industry) implies that the providers now remain responsible for the product during its whole economic lifetime.

3.4.5.4 Challenges

Sauvola et al. (2015) describe a couple of challenges in integrating customer feedback into software development. They have found a common issue in R&D having indirect access to the end-users and thereby lacking understanding of the customer needs. This is particularly evident in B2B, where there is little direct interaction with the end-users. In addition, when customer requirements are passing through the organisation there is a risk of them being altered or lost along the way. There is also an issue in specifications being written poorly (due to, for example, lacking competence of the product manager), making it difficult for the developers to understand the requirements and thus choose a feasible technical solution. Another challenge identified is the fact that prioritisation of features is widely based on the employees' personal opinions and assumptions. The customer validation is either inexistent or made insufficiently. Furthermore, testing is commonly seen as a method for detecting defects but not as an opportunity to identify potential gaps between the offering and the customer needs. Sauvola et al. also explain that

companies find it challenging to collect customer feedback in a systematic manner, as well as storing and distributing the knowledge internally. A common issue is a limited visibility in what data have been gathered and how, or by whom, it has been acted upon. In some cases, data collection might also be highly regulated, preventing automation of such processes.

Difficulties in aligning product features with customer needs have also been studied by Olsson and Bosch (2015). Their main problem identified, mentioned earlier in this work and described by Sauvola et al. (2015) as well, is the challenge which they refer to as the "open loop" problem. This refers to the difficulty for product management and R&D in capturing accurate customer feedback, implying decisions to be opinion-based. The requirements specified also tend to be seen as facts and are therefore rarely validated with customers. Consequently, large parts of the features developed are either never being used or are being implemented incorrectly. Olsson and Bosch also found that software companies often focus too much on the development of new features instead of improving existing features that do not fulfil customer needs. Furthermore, they explain that equal representation of a company's customers is challenging in large-scale software development. Commonly, the customer making the most noise is being acknowledged at the expense of other customers. As a final challenge, they mention that, although customer data can be of great benefit for the development teams, there is a problem with large amounts of useless data stored in the systems.

Perera, Dilini, and Kulawansa (2018) further elaborate on the challenges of using big data for customer relationship management. They list four main issues: limited storage, lack of quality of data collected, abundance of many irrelevant data, and high cost. Limited storage refers to the fact that big data requires large capacity in storage space. Next, lack of quality of data collected means that large amounts of the data gathered from the internet are not credible, hence advanced methods are needed to extract accurate data. The abundance of many irrelevant data refers to the other aspect of the data, namely that most of the data extracted are not of relevance for the given purpose. The last problem, i.e. high cost, is a direct consequence of the preceding issues, demanding large storage, advanced technology, and skilled employers. The challenges are summarised in Table 3.3.

Table 3.3: A summary of challenges related to software requirements engineering found in literature.

Challenges
R&D having indirect access to the end-users
Risk of requirements being altered or lost along the way
Developers misinterpret the specification
Prioritisation of features being based on the employees' personal opinions and assumptions
Insufficient customer validation due to requirements being seen as truths
Testing is done to identify defects but not to evaluate alignment with customer needs
Difficulties in systematically collecting, storing and distributing customer feedback
Too much focus on the development of new features relative to improving existing features that do not fulfil customer needs
Difficulties in accomplishing equal customer representation
Large amounts of useless data stored in the systems
Challenges with big data including storage capacity, poor data quality, irrelevant data and high cost

3.5 The Theoretical Framework

The theory presented in chapter 3 was selected to provide comprehensive knowledge in the field of this work and its purpose, i.e. studying how incremental improvements of a SaaS offer can be accomplished in a B2B market by integrating customer feedback into a company´s development processes. Each of the three main parts of the theory; *The Offering; The Customer;* and *The Business Processes and Organisation* represent one aspect (*What, Who,* and *How* respectively*)* of the purpose. An illustration of the models and theories presented in chapter 3, related to each of the three aspects, can be seen in Figure 3.11.
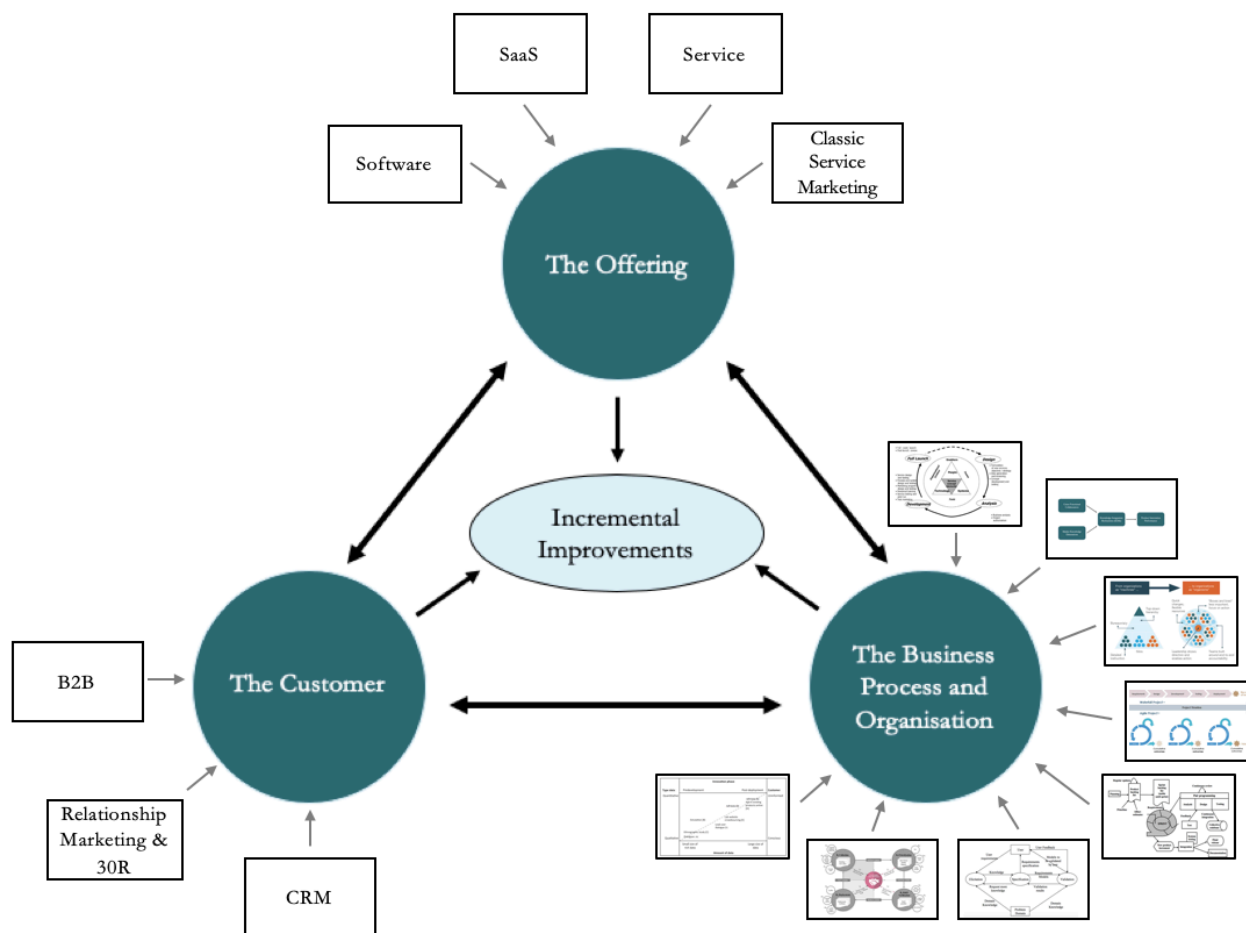
Figure 3.11: Illustration of the theoretical framework.

The first aspect, *The Offering,* presented in section 3.2, describes the type of offering being studied in this work. The section explains the terms software, software-as-a-service (SaaS) and service, as well as the meaning of classic service management. Whereas *Software* (part 3.2.1) is what is being produced by the company, *SaaS* (part 3.2.2) is a distribution model through which the software is provided to the customers. Instead of installing the software on local hardware, SaaS allows users to access the software, hosted by a third-party provider, over the internet. *Services* (part 3.2.3) differ

from products in that they are processes, are being produced and consumed simultaneously, and to some degree involve the customer as a co-producer, to name a few characteristics. Offering services further impacts the company's marketing strategies, explained in the theory about *Classic Service Marketing* (part 3.2.4). For instance, compared to traditional manufacturing companies, service companies must broaden their marketing strategies, by not only focusing on the four Ps of marketing but also include interactive marketing and internal marketing. Other methods also need to be applied to measure the quality of the offering, e.g. by measuring customer retention.

The second aspect, *The Customer* (section 3.3), includes a description of the B2B market, relationship marketing, and customer relationship management. The differences in operating in the *B2B market* (part 3.3.1) compared to the B2C market are several, including the fact that business marketers usually deal with fewer but larger buyers and must handle more complex processes, involving more people and a higher level of technical and economic complexity. In terms of *Relationship Marketing* (part 3.3.2) focus has been on the *Thirty Relationships* model by Gummesson (2008). These relationships can be relationships involving external parts (*classic* and *special market relationships*), internal relationships within the company (*nano relationships*), or high-level relationships (*mega relationships*), concerning for example society or economics. Furthermore, practices for managing customer relations can be understood by theories related to *CRM* (part 3.3.3). CRM aims at maximising customer lifetime value by selecting the most valuable customers and creating strategies for the interaction with them. These strategies thus include the integration of business processes and technologies.

The third aspect, *The Business Processes and Organisation* (section 3.4) provides theories and models related to service- and software development processes, cross-functional collaboration, and requirements engineering, including customer feedback collection. In terms of service development, the *New Service Development Process Cycle* (part 3.4.1) by Johnson et al. (2000) provides a model which is suitable for understanding the different steps and activities in a service development process, as well as its enablers. Next, beyond discussing the importance of *Cross-Functional Collaboration* in general, part 3.4.2 proposes the establishment of cross-functional teams in software companies and emphasises the significance of having formal structures for communication.

In the area of business processes and organisation related to software development, the focus has been on explaining the *Principles of Agile* (part 3.4.3). Agile methodologies propose incremental software development through rapid iterations and the use of empowered cross-functional teams. The theory regarding *Requirements Engineering* (part 3.4.4) gives insights into how customer needs are transformed into documented and later implemented software requirements. Requirements

engineering usually involves activities such as requirements *elicitation, documentation, validation, and management.* These are crucial elements both in traditional and agile software development, although not performed in a linear sequence of activities in agile development. Artefacts in agile requirements engineering usually involve a *product backlog*, which is being regularly updated throughout the development process, and commonly also a *sprint backlog* created for the specific iteration.

To conclude the third aspect, part 3.4.5 presents theories related to the *Collection of Customer Feedback.* The theory regarding *Internal Stakeholders* (part 3.4.5.1) provides an overview of the internal roles and functional units being mainly involved in the collection and integration of customer needs in a software developing company. These include product management, customer support, marketing & sales, product line management, R&D and UX. Further on, the *Customer Touchpoints Model* (see Figure 3.9), proposed by Sauvola et al. (2015), provides insights on how customer needs can be collected, by identifying touchpoints between a software provider and its customers. The model also presents various information sources used for the gathering of customer data, as well as internal functions involved in the collection activities. The academic perspective of customer feedback collection can be further understood by the *Conceptual Framework of Feedback Collection in an Innovative System* (see Figure 3.10), proposed by Bosch-Sijtsema & Bosch (2015). This framework links the characteristics of the customer data, and the level of customer awareness of participating in the collection, to the different phases of an innovation process. They conclude that companies can benefit primarily from qualitative data collection, based on conscious customer participation, in earlier stages of the process, and from quantitative data collection, based on uninformed customer participation, in later stages. Lastly, part 3.4.5.4 presents Challenges found in software companies related to the integration of customer feedback into their development processes. One of the main issues is the fact that decisions often are based on opinions rather than on accurate and validated customer needs.

3.6 Theory in Practice

3.6.1 Applying the Theory

In order to illustrate the relation between the different parts of the theory, as well as the relation between the theory parts and research question one and two, the conceptual model by de Luca & Atuahene-Gima (2007) presented in theory part 3.4.2 (figure 3.4), will be applied. It shows the role of three dimensions in enhancing product innovation performance: *market knowledge dimension, cross-functional collaboration,* and *knowledge integration mechanisms.* Thereby, this model agrees well to the scope of this work, which includes both the gathering of customer knowledge and the integration of such knowledge into the functional units. To show more explicitly the relation

between the study and the model by Luca & Atuahene-Gima, the model has been modified in two steps. Firstly, the research questions and the purpose of the study, including their linking to the different parts of the model, have been added (see Figure 3.12). RQ1 (*What structured approaches can be applied to collect customer feedback?*) is mainly linked to the market knowledge dimension, referring to a company´s knowledge about its customers and competitors. RQ2 (*What structured approaches can be applied to integrate customer knowledge into software development processes?*), on the other hand, relates to both the cross-functional collaboration dimension and the knowledge integration mechanisms dimension. While the cross-functional collaboration dimension refers to the level of cooperation between functional units within a company, the knowledge integration mechanisms dimension refers to the structures and processes for integrating market knowledge and other types of knowledge into the functional units.
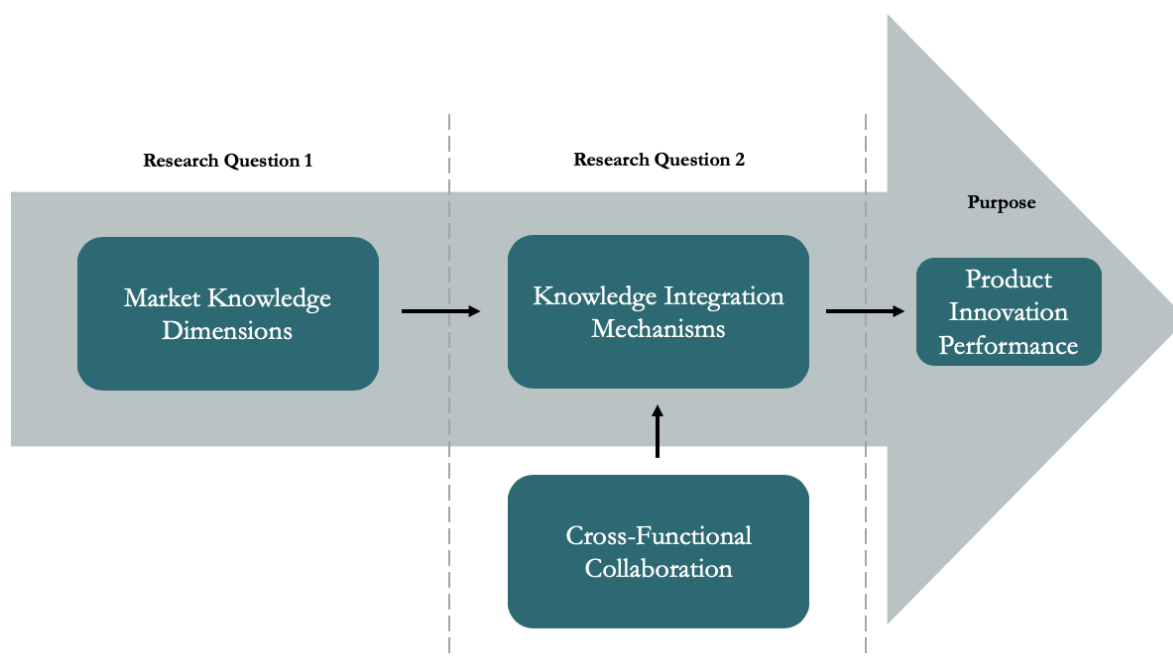
Figure 3.12: The relation between the model by de Luca & Atuahene-Gima (2007), the research questions, and the purpose of the study.

Secondly, the framework has been modified by displaying how the theoretical models and areas of research, presented in chapter 3, relate to each of the three dimensions (see Figure 3.13). In this way, the framework will be used as a conceptual model for investigation and will serve as a baseline for the analysis of the empirical data. Some parts of the theory relate to more than one dimension, implying the possibility of the same area of research being assigned to two or three dimensions. Whereas the information related to *The Offering* (by explaining the characteristics of software, SaaS and services) primarily aims to provide an understanding of the context in which this work is conducted, theory related to *The Business Processes and Organisation* has a more apparent connection to the actual research questions and therefore also the analysis. The theory presented about *The*

Customer plays an important role both in giving insight to the context of the work (by the description of the B2B market), and in acting as a theoretical framework for the analysis. The parts of the theory mainly acting as a background to and context of the study are placed in the cloud, at the top of the model. Furthermore, the output of the framework has been renamed "Incremental Improvements", instead of "Product Innovation Performance", to clarify the connection to the purpose of the study.
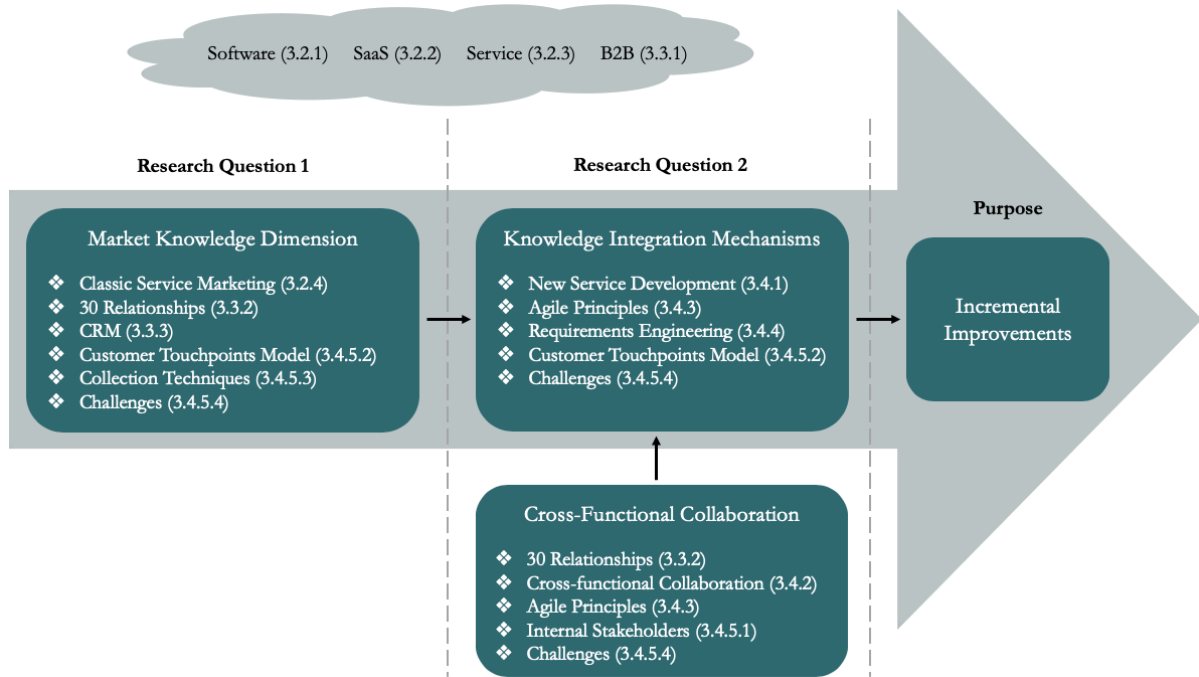
Figure 3.13: Illustration of how theory will be applied to analyse the empirical data.

The analysis of empirical data related to the market knowledge dimension will be conducted based on, among other things, *Classic Service Marketing*. The *Thirty Relationships Model* will further help identify what relationships the case companies are affected by and hence should pay attention to. Moreover, theories related to *CRM* will provide the academic perspective on how to preferably operate and manage the relationships with the companies' customers. In terms of gathering customer knowledge, both the *Customer Touchpoints Model* and the *Conceptual Framework of Feedback Collection in an Innovative System* provide insights on methods and approaches to be used by high-tech companies. Issues identified in the case companies will be compared to the *Challenges* presented in the theory chapter. This will give insights into where improvements are needed. The challenges presented cover the whole process and will, therefore, be referred to in the analysis of the other aspects as well.

Further on, the cross-functional collaboration dimension will be analysed, not only based on the theory part named *Cross-Functional Collaboration*. The *Thirty Relationships Model* includes not only

external but also internal relationships, and hence this framework is applicable as well. The *Agile Principles* that concern organisational aspects will also contribute to the theoretical baseline, as to the theory related to *Internal Stakeholders*. These stakeholders represent (some of) the internal stakeholders potentially involved in the cross-functional collaboration, ensuring that customer needs are accounted for.

Lastly, an analysis will be conducted related to knowledge integration mechanisms. Whereas the *New Service Development Process Cycle* and *The Agile Principles* provides knowledge to the overall processes, theories related to *Requirements Engineering* constitute a narrower focus on the process of integrating customer feedback into software development. Furthermore, as *The Customer Touchpoints Model* identifies the software development activities in which the company interacts with its customers, this model will be applied as well.

3.6.2 Individual and Comparative Analysis

The comparative analysis, including the interaction between the three dimensions, will be conducted using Table 3.4 and Table 3.5, applying a combination of the theories of Requirements Engineering (part 3.4.4), Internal Stakeholders (part 3.4.5.1), and Customer Touchpoint Model (part 3.4.5.2). Five activities have been identified from a combination of the activities in the customer touchpoints model and traditional requirements engineering, which can be seen in the first column in Table 3.4. Each activity has been broken down into checkpoints, seen in the second column. The analysis will be conducted based on the number of checkpoints an individual company manages to fulfil. For a checkpoint box to be market, the statement must agree well with how the company works, and if the degree of correspondence is considered unclear, the box will be left unmarked. Based on the checkpoints, each company will then be rated from 1 to 5 in order to fairly compare them to each other. Note that the rating will not be based directly on the number of boxes checked but is an overall grade of the performance for each activity.

Table 3.4: The table of checkpoints used for motivating the ratings of each activity.

Activity	Checkpoint	Company
Collection of Customer Input	Several methods are used for collection	
	The methods are used efficiently	
	The methods are used frequently	
	Several internal stakeholders are involved	
	Information is gathered from both customers and end-users	

Documentation of Customer Input	The documentation is conducted structurally	
	The documentation is conducted standardised	
	It is easy to review and access	
	All employees have access to the information	
	A special system is used for documentation	
	The company has a clear product backlog	
Internal Prioritisation	Several departments are involved with opinions	
	The prioritisation is mainly based on data	
	The prioritisation is made iteratively	
	There is a possibility for fast reprioritisation	
	The prioritisation is partly based on conducted cost-benefit analyses and potential trade-offs	
	The prioritisation is communicated internally	
Validation Before Implementation	The prioritisation is communicated to customers	
	Validation is made with lead customers	
	Tests are made to assure alignment with customer needs and discover specification elements expressed indistinctly or ambiguously	
	Validation and tests are made frequently	
	A JIT approach is conducted where only the necessary information is gathered	
Validation of Implementation	Several methods are used for collecting information	
	The methods are used frequently	
	A large amount of information is collected	
	The information is analysed efficiently	

A further explanation of how the different activities should be interpreted, and based on which criteria they will be rated, is presented below, together with Table 3.5, which is a template of the table that later will be used in the analysis to present the rates.

The first activity refers to the collection of customer input performed at the beginning of the process, gathering information for ideas on what to develop next. The rating will be based on the number of methods used, if they are used efficiently and frequently, and if the collection is performed by several internal stakeholders including contact with both customers and end-users. The second activity refers to where and by whom the documentation of customer input is made, both for continuous input and for specific occasions. The rating will be based on structure, standardisation, if it is easy to review and access, if a special system is used, the number of employees that have access, as well as, if the company has a clear product backlog. The internal prioritisation activity introduces which internal stakeholders are involved when prioritising which

input to proceed in the process. The rating will be based on the number of departments involved through sharing of opinions, if it is mainly based on data or on personal opinions, if it is done iteratively and with the possibility of fast reprioritisations, as well as, if it is made based on conducted cost-benefit analyses and potential trade-offs, and if the prioritisation is communicated internally. The fourth activity points out the validation before implementation where customers are involved to assure that the tasks prioritised are capturing the customer's needs. The rating will be based on if the prioritisation is communicated to customers, the grade of validation with lead customers, the grade of tests made to assure alignment with customer needs and to discover specification elements expressed indistinctly or ambiguously, as well as, if a just-in-time approach is conducted where only the necessary information is gathered. The last activity, validation of implementation, regards the validation with customers during and after the implementation. The rating will be based on the amount of and the number of methods where data is collected and analysed. The motivation for separating the two last activities is that the validation before and after implementation often differ, both in method and in the type of data collected.

In Table 3.5 below, the internal stakeholders mentioned prior in the theory chapter can be seen in the first column, while the activities from Table 3.4 can be seen in the first row. The aim of filling in the table is to clarify which internal stakeholders are involved in the different activities and in what way they are so. In this way, the questions of who, what and how activities are performed will become perspicuous. As mentioned, the ratings presented in the last row in Table 3.5 for each company will be based on the checkpoints for each activity and how well the company corresponds to the statements, as seen in Table 3.4. Both Table 3.4 and Table 3.5 will be filled in and motivated for each individual company, but will also be summarised for all the companies in the comparative analysis.

Table 3.5: The table used for showing which internal stakeholders are involved in the different company activities.

Internal Stakeholder	Collection of Customer Input	Documentation of Customer Input	Internal Prioritisation	Validation Before Implementation	Validation of Implementation
Product Management					
Sales & Marketing					
Customer Support					
R&D					
UX					
Rating					

4 Empirics

In this chapter, the empirical data collected from the interviews with the five case companies are provided. The data is divided into three parts corresponding to the divisions in the theory chapter: the offering, the customer, and the business processes and organisation. For each company, a figure of an overview of the information process from the customer to the development department is also provided.

4.1 Company 1: Alpha

Alpha is a medium-sized IT company operating in the telecommunication industry. The company, founded in 2002, has its headquarter in Malmö and offers communication solutions, such as corporate telephony, PBX (private branch exchange), and chat functions. The following empirics are based on information collected from four interviews at Alpha. The interviewees were Head of UX, Business Analyst, Product and Development Manager, and Product Marketing Manager.

4.1.1 The Offering

Alpha's communication solutions are entirely cloud-based and are hence provided as SaaS. More specifically, the communication solutions are provided through both user and company licenses. There are three different types of user licenses, which are not bound to a specific user but can be moved between the employees. The difference between the three company licenses lies in price and the number of features that the customer can pick, based on the needs and size of the company. The more expensive company licenses are often more suitable for larger companies with more employees. The unique selling proposition lays in the simple self-administration of the communication, the explicit costs management and the assignment of a personal advisor.

4.1.2 The Customer

The company is mainly operating in the B2B market and its client base includes companies of different sizes, from start-ups to global enterprises. The customers are divided in two different ways. The first way is through which channel has been used when selling the product. These could either be by the companies own sellers, which makes the customer a direct customer, or by a partner, which makes the customer a partner customer. There is one team at Alpha who takes care of the partners but the partners in their turn take care of the partner customers. The direct customers are divided into five different segments: Core (less than 5 users), SoHo (between 5 and 10 users), SME (between 10 and 75 users), Mid-Market (between 75 and 150 users), and Enterprise (more than 150 users).

Every direct customer has their own personal adviser at Alpha who handles all the contact, often through an admin at the customer company. Alpha focuses highly on keeping a good personal

relationship between the adviser and the admin. Even though the users at the customer company and the customer's customers normally do not have any direct contact with the adviser, the threshold for them to contact Alpha with feedback, if they wanted to, is considered low. Most of the total customer feedback is brought into the organisation by the advisers. In total, the company has 48 advisers, with the majority of them in Sweden. The advisers are divided into teams based on the size of the customers they are advising (Core, SoHo, SME, Mid-Market, and Enterprise).

At the moment, Alpha does not use any customer success tool or relations tool. However, their own developed core-system, Partner, which is the backend system where the advisors add orders from customers, create customers, handle invoices, and create offers for existing customers among other things, is partly used as a CRM system. A high volume of data is also compiled and analysed in Google sheets. All advisers get a sheet from the business analyst with information about their customers, containing, for example, what date their contract expires, how many users they have and how many interactions there have been. The advisor can then make comments and update the information in the sheets.

Some customers are so-called reference customers, that potential new customers can contact to ask questions about for instance the functionality of the communication platform or about Alpha as a provider. Alpha works very close with its reference customers, from whom they collect feedback and opinions, aiming to keep a good relationship.

4.1.3 The Business Processes and Organisation

As the communication platform is developed and maintained by the company itself, R&D constitutes a great part of the organisation. Both the development department and the remaining departments such as marketing, HR and finance, are throughout the organisation working in small teams with a mutual focus on bringing value to the customer. The organisation also has processes such as ADD (advisory driven development) and SDD (sales driven development), working in value-driven teams. ADD is responsible for forwarding valuable feedback from existing customers received by the advisers in order to develop and improve features. SDD is responsible for forwarding valuable feedback from potential new customers collected by the sales department. The SDD has been reorganised a few times and is currently paused.

4.1.3.1 Data Collection

Alpha uses different methods for collecting and receiving customer feedback. The methods can be divided into inbound and outbound methods, inbound referring to occasions when the customer actively contacts the company to leave feedback, and outbound referring to when the company reaches out to customers for feedback. The inbound methods are primarily through the advisers, described above, while the outbound methods are described below.

Workshops, interviews and market surveys are executed at specific occasions. These can be made both in the idea stage before any development has been done, but also in the middle of the development process. Workshops and interviews where the customers get to "click through" the applications are mostly done in the middle of the development process to assure and validate that the customers are satisfied with the features. But as mentioned before, these are only in certain situations by specific teams and are not performed regularly.

Yearly events, like enterprise-day and retailor-day, are also held where all enterprise customers and retailers respectively are invited to learn about current development ideas and to share their thoughts and opinions. An NPS (Net Promotor Score) study is also performed every year, where customers are asked at a scale from 1 to 10 how prone they are to recommend Alpha to a friend or a college. If answering 1 to 8, they get to pick three features they wish to be improved. If selecting a 9 or a 10, they get a question of which features they are the most pleased with. Above that, there is also a free text field where participants can add feedback freely.

Even though the company has become more and more data-driven, there are not many quantitative data collected. There are some built-in data points in their product that measures, for example, the number of people logged in, how often they are logged in and how many uses their profiles. However, only a few teams measure click-based information. And the collection of quantitative data is made very individually and situationally, for example, for avoiding large customers to churn. A/B testing has been made a few times but only in special cases.

Hence, most of the customer feedback data is achieved on an every-day basis through the advisers, and other outbound channels are used for collecting feedback in specific situations.

4.1.3.2 Integration and Prioritisation

As integration and documentation programs, Alpha partly uses Jira, an agile project management tool used for tracking issues and bugs, and partly their core-system Partner. In Jira, things to do are formed as tasks, and in Partner, they are formed as tickets.

Alpha has the benefit of using their own product throughout the organisation, which makes them their own most critical customer. All employees can suggest new ideas, either by communicating them directly to a person able to make decisions or by creating a task in Jira. The tasks can then be directly connected to people who might be interested in and able to execute the idea. The tickets and tasks in both Partner and Jira are visible for all employees in the company if they just know where to look.

In Jira, every team has its own project where they have a pinboard addressing, for example, which tasks are being handled right now, who is responsible and what is in the backlog. The development teams mostly work in sprints of two weeks, and their progress can be followed by anyone at the

company in their Jira project. The tasks are divided into different categories and can be linked both to other tasks, persons, or tickets in Partner. When an idea or suggestion from customers has been solved, thus a task in Jira are marked done or solved by a development team, it is up to the adviser to report it back to the concerned customers.

The feedback brought in through the advisers is, based on the type of feedback, either written down as a ticket in Partner, formed as a task directly in Jira, or due to various reasons dismissed. If the adviser does not know what action to take, he or she can ask for advice from technical experts in the lead technician team, who brings the feedback forward. If the customer requires something that is completely outside of the company's vision, the adviser can directly recommend the customer to use other product features instead that might fulfil the requested need.

Adviser Driven Development (ADD) has biweekly meetings where they go through the ideas and improvement proposals regarding features and development brought in by the advisors. The ADD participants discuss the ideas, formed as tasks in Jira, and selects which of these should be part of their "top 20 candidates" list. This list includes the Jira tasks they believe most important to implement. Every fourth week, the Product and Development Manager is present at the meetings, giving feedback on the ideas. The ideas then either get brought forward in the process, need to be reformulated and redecided or get dismissed. The Product and Development Manager brings the forwarded idea to the respective team and adds it to one of their next sprints.

Each quarter, team-based stakeholder meetings are held where the development teams invite internal stakeholders, with representants from departments such as enterprise sales, field sales, adviser, and finance. The Product and Development Manager is also present. At these meetings, the team shares what they have done since last time and what their next tasks are. Each representant from the different departments has also prepared a list of ideas for new features or feature modifications, which is being sent to the team leader before the meeting. The ideas can either have been generated internally, or been based from input from customers, or external stakeholders. These ideas are presented to the other meeting participants at the meeting in order to decide which of these features to be implemented by the team in the upcoming quarter(s). The prioritisation of the features is performed by voting using an online spreadsheet, where each stakeholder has a total of 200 points to distribute among the alternatives. The ideas with the highest scores are transferred to the next phase of the process, where the development team has the main responsibility of planning and executing the implementation of the feature.

The task of prioritising the ideas for new features and feature modifications is made continuously and in many different stages. Apart from what is decided to be prioritised, reformulated or dismissed on the ADD and internal stakeholder meetings, the Product and Development Manager

also must consider the overall value for customers, the company's vision and overall strategy and the cost-efficiency of all ideas provided.

4.1.3.3 Overview of the business processes and organisation

The overall process from customer to development for Alpha, summarising the business processes and organisation, is presented in figure 4.1.
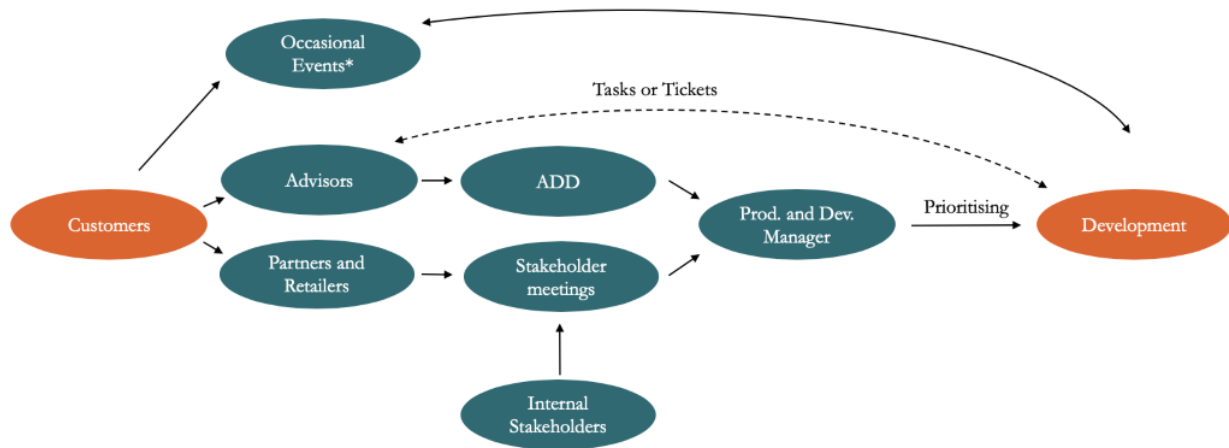
*These include events that are used for collecting feedback on specific ground, for example, workshops, interviews, surveys, and NPS.

Figure 4.1: A summary of the process from customer to development for Alpha.

4.2 Company 2: Beta

Beta is an IT company founded in Lund in 1990. They have grown to approximately 250 employees, with offices in Sweden, Denmark, Norway, and Finland. The empirical data presented below is mainly based on the information provided during an interview with Head of UX at Beta. The information not provided from the interview was collected from the company's website. The latter principally concerns the company's offering.

4.2.1 The Offering

The company develops CRM systems and offers today two different products, Beta One and Beta Two. The products, which can be seen as platforms containing software services, are partly standardised and partly being customised for the individual client. Beta One is the main product and the most comprehensive CRM system. It supports and simplifies an organisation's sales processes and customer processes by offering functions such as case management, to-do tasks, contacts, history, and business and marketing activities. The product includes a web client, making the customer information available anywhere. Beta also offers integration of the system with the customer's ERP system and other IT systems, as well as the possibility to select add-ons in order to add functions and digital tools. Beta Two is a more limited CRM system containing only the basic functions. It is a combined CRM and sales tool, assisting the customer in getting an overview of its customer relationships, prioritising tasks, viewing communication history, updating contact and business information, creating call lists, etc. The product is provided as SaaS as the system is entirely cloud-based.

Beta's unique selling point lays in its ability to customise solutions for the individual customer's needs and processes. As Beta is responsible for the development as well as the deployment of the systems themselves, they have the expertise and customer relations needed to form tailored solutions. This further affects their pricing strategy, which consists of two parts. The first part is a non-recurring cost according to the quotation provided for the customisation and deployment work required for the individual customer. The second part consists of recurring payments in the form of license fees per month and user.

4.2.2 The Customer

The two products are designed to target different customer segments. Whereas Beta One is developed for medium-sized and large companies, Beta Two mainly targets smaller companies with only a few salespeople and uncomplicated processes. As customer relationship management is of relevance for any company, Beta's customers can be found in a wide range of industries. The company has customers operating within, for instance, the real estate business, the energy

sector and consulting. As Beta provides CRM systems themselves, they use their own system as a supporting tool for managing their customer relationships.

Internally, the employees with the closest relationships with the customers are the consultants, the project leaders, and the sales personnel. These people are responsible for maintaining and enriching the contact with the customers throughout the customer lifecycle. The consultants have a particularly important role as they are the ones building the systems at the customer's site (i.e. the system functions and integrations that are not part of the standard components developed in-house). Furthermore, the customer support department handles the task management linked to the customers.

For outward communication to potential customers, the marketing department has a vital role in managing the market communication through digital channels, such as social media and the company website. The main purpose of this communication is to generate leads, which can be followed up by the sales department. Hence, the relationships and communication channels between Beta and its customers largely depend on the current phase of the customer lifecycle, i.e. if it is a potentially new customer, a customer for which agreement recently has been signed, or a long-term customer.

Moreover, the company arranges conferences, where customers belonging to a certain industry are being invited. This is, for example, done within real estate, a customer segment they have been involved with for a long time. At these conferences, Beta shares their experiences, process descriptions and other tips relevant for the customers. The customers also get the opportunity to share experiences among each other. In addition to the conferences for specific customer segments, Beta also arrange an all-day customer event, to which all of their customers are invited.

4.2.3 The Business Processes and Organisation

As mentioned, the skeleton and the basic functions of the products are developed in-house at the head office in Lund, whereas the customisation is performed by consultants at customer site. Consequently, the organisation has two separate departments, the development department and the consultancy department, which both are dedicated to software development to some extent. According to the interviewee, these two departments are however strongly separated from each other, where the development department has little contact with the end-users. As the objective of the development department is not to deliver a finished product, but rather to build the elementary components of the system, the consultants are sometimes seen as the customers to the development department. The main focus of this study has been on understanding the case company's processes related to or affecting the development department, whereas processes for

implementation of software systems for individual customers are outside the scope of this work. Thus, a detailed description of the latter has not been included.

In addition to the developers, the development department consists of the Head of UX and a few product managers. The developers are divided into small teams, each with a specific area of responsibility (e.g. the platform (backend), the newsletter function, and new functionality). The product managers are acting as an interface towards the remaining parts of the organisation and are thereby responsible for collecting requirements both from the salespeople and the consultants, as well as from the end customers directly. The Head of UX collaborates closely with the product managers and the developers. As for the product managers, an important task for the designer is to collect and understand the needs and incentives of the customers, as well as their behaviour. However, the focus of the designer is not mainly to understand what functionality to be included in the products, but rather how the functions should operate to satisfy the customers.

The software development process at the development department follows the agile principles, with a working methodology similar to Scrum. The teams work in sprints of four weeks, followed by a two-week-long "cool down" phase. In this phase, the developers handle bugs and other tasks required before the next sprint can be initialised. On a higher level, the development organisation structures their work based on a roadmap containing three stages: *Now*, *Next* and *Later*. *Now* refers to the ongoing sprint and the activities performed there, in other words, the software that is currently being implemented. *Next* refers to the functionality to be implemented in the next sprint, while *Later* contains ideas and proposals for software implementations they want to realise but have not yet been planned in detail. Furthermore, the software development work can be viewed as a combination of two main parallel processes: a design process and a development process. In their process of developing a new function, the design phase takes place one sprint before the development phase. These phases will be further explained in part 4.2.3.2.

4.2.3.1 Data Collection

The consultants are the ones working in closest relation to the customers. However, as their task is to understand the individual customer and create a solution satisfying their specific needs, the input they collect might not be representative of the general customer. The salespeople also receive input as they are performing demonstrations of the product to potential customers. The targeted customers might make the salesperson aware of the product being inapplicable for them as it does not satisfy their needs, maybe due to some missing functionality. This type input is valuable for the development department. Furthermore, general improvement suggestions are commonly provided from their customer support, which receives cases and questions from customers. Some of Beta's customers frequently provide feedback on their own initiative as well, by sharing their opinions about, for example, functions not meeting their expectations. As mentioned in part

4.2.2, Beta further arranges conferences and all-day events for its customers These events act as a forum for learning and sharing, and hence Beta has the possibility to also gather insights to their customers' opinions regarding their offering.

At the development department, the major part of the customer-centred activities is performed either by the product managers, who have the most frequent customer contact, or the UX manager. The activities mainly include qualitative methods, where interviews are most commonly used. The product managers and the UX manager try to meet with end-users working in their system several hours per day. Through these interviews, they seek to understand the users' work procedures, how the CRM system is being used in their daily work, and in what situations they need to rely on other tools and programs due to functionality not supported by the CRM system. The aim is to find essential improvements to existing functions, but also to identify what functions Beta would benefit from adding to the product. The second major task performed by the development department, related to collecting input from customers, is conducted at a later stage when a decision to implement a certain function has been made. At this stage, they commonly also meet with users, but with the purpose of sharing with them their conceptualisation of a given function. Usually, this is done through user tests, where the participating user is asked to solve a few tasks. The UX manager and the product managers thus get an indication of the adequacy of the design and if it can be understood instinctively by user. It also helps them understand the users' needs and incentives, if they have forgot to include some important elements in the function, and if the solution appears to be feasible. Interviews and studies are usually performed when the requirements are vague, and the implementation effort is relatively high. In cases when requirements can be solved rapidly, they are being handled by the development teams instantly, without further investigation.

Beta further has the possibility to view measurement data from their products, as for instance what functions the customers most commonly use. However, this is very limited used, and they seldom view this type of data. Quantitative methods, in general, are seldom applied in Beta to improve their software development work. Moreover, as Beta itself has many employees using the CRM system in their daily customer-related work, the company does not always need to involve a customer to get accurate user feedback. Instead, user tests can be performed in collaboration with for example an internal salesperson to collect valuable input. This is commonly the case when a new function is close to being finished and the development team wants to conduct a user test. Besides, it is just the basics and different components of the systems that are built by the development department. The complete solution, provided to the customer, is assembled by the consultants, which implies that the system parts developed in-house do not need to perfectly satisfy each customer need.

4.2.3.2 Integration and Prioritisation

As mentioned, at the *Later* stage, customer input is received through various channels and by different departments at the company. The consultants receive large amounts of feedback, but much of their customer interaction is not of relevance for the general software development at the organisation as the feedback often is very customer specific. The irrelevant content is, therefore, not shared with the rest of the organisation. The feedback they consider to be valuable for the development department, on the other hand, can be created as a wish in their wish-list, available at their intranet. The wish-list is available for everyone at the company and all employees thereby have the possibility to add and view wishes concerning the products. Suggestions regarding new functions that the sales personnel capture from potential customers are usually written down as notes in the CRM system. However, for a product manager to view this kind of suggestion, the salesperson also needs to publish a wish in the wish-list. The wish can then be tagged in order to get linked to the note in the CRM system.

The product managers review and process the wishes on a regular basis and are thus able to recognise input that concerns the same type of function or improvement. When they identify a cluster of ideas, i.e. similar feedback received from different customers, this customer need is transferred to *Next* to be further processed. This is also where the design phase takes place, which has the purpose of conceptualising the idea and drawing a solution that fulfils the needs of the customers. The design phase thereby involves the product manager and the UX manager, but also some representatives from the development team in order to understand the technical conditions and technical implications of different solutions. After different alternatives have been studied and compared (e.g. by the aid of customer interviews and user studies as presented in part 4.3.3.1), a requirements specification is created for the chosen alternative. This includes a description of the output from the software implementation, i.e. what the function and a user using the function should be able to do.

When this is done, the specification is handed over to the development team and the process proceeds to the development phase, leaving the design phase. Simultaneously, the feature to be implemented is moved from *Next* to *Now*. This stage is about the actual implementation of the function, and hence the work is almost exclusively performed by the developers. Consequently, the communication here is considered to be very direct, as it involves less people. An example is the use of daily stand-ups (according to Scrum methodology) held together with the product manager. The company is however trying to involve consultants in the development teams as well, in order to verify that the solution built by the development department is aligned with the consultants' working procedures. For example, Beta is currently running a project to improve a few aspects of the product. The Head of UX, salespeople, consultants, developers and product

managers are involved, in order to include all perspectives and thereby be able to create solutions better aligned with the customer needs.

4.2.3.3 Overview of the business processes and organisation

The overall process from customer to development for Beta, summarising the business processes and organisation, is presented in figure 4.2.
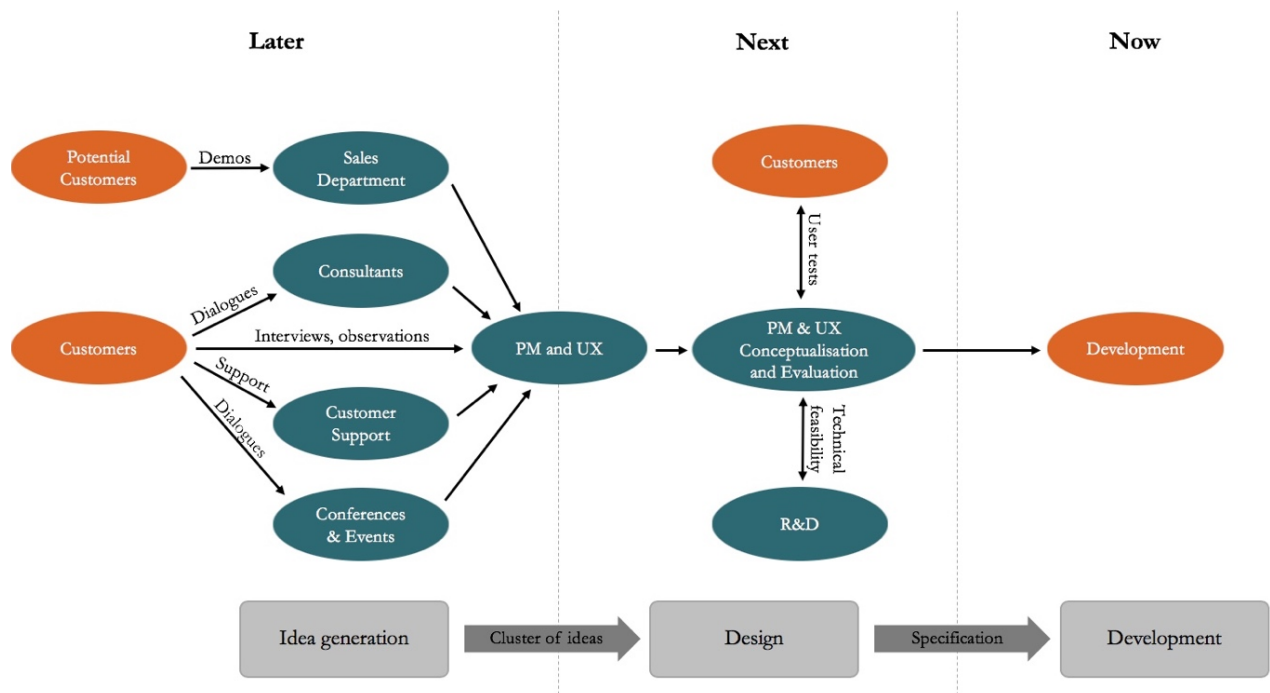
Figure 4.2: A summary of the process from customer to development for Beta.

4.3 Company 3: Gamma

Gamma is a medium-sized company offering online marketplaces in developing markets in Asia and Africa, more specifically, Sri Lanka, Bangladesh, and Ghana. The company was founded in 2012 and has now over 600 employees spread at offices in Europe, Asia, and Africa. The following empirics are based on information collected from one interview with the CTO at Gamma. The company operates in both B2C and B2B markets, but these empirics only consider the B2B aspects.

4.3.1 The Offering

Gamma's mission is to create sustainable value for the local communities by offering marketplaces in developing markets, i.e. develop software that helps people and businesses buy and sell online. The platform is basically the same for all markets but is a little bit customised to fit the specific countries.

The company offers either to sell products for free or memberships if the customer wants to sell more than one of the same type of product a month (indicating there is some kind of business idea behind). With a membership, the customer gets their own selling webpage and also more highlighted on the general website compared to customers without a membership. With the aim to create added value, the company also offers to audit sale ads, assuring that they are professional and grammatically correct before they go live.

The company's goal has always been to be at the target markets early and utilise the growing internet penetration. Their unique selling proposition lies in their fast delivery, well-developed logistics and their aim of reaching out to a great volume of people with a broad offer. Competitors are often specialised in one specific field, while Gamma focuses on offering a broader spectrum of verticals, for example, properties, vehicles, electronics, and even jobs.

4.3.2 The Customer

Gamma is operating in both the B2C and B2B markets. Their business customers vary a lot, from large global companies to small local companies. It is the small, often family-owned, companies that dominate their customer base, both in number and in total value. The average customer has about 5 employees.

Due to the type of markets Gamma has chosen to target, the possibility of reaching customers through digital channels is low. All communication both with current and potential new customers is therefore made in person or by phone. The company has account managers that are responsible for the customer relationships. Their primary work assignments are to keep in contact with the customers, either by visits or by phone, ask them if they have any problems and try to help. The

account managers are responsible for a certain number of customers in the endeavour to create strong personal relationships. In general, they take two phone calls and do one physical meeting per month. For the large global customers, the managing directors of each country are responsible for customer relationships. This because these customers are of extra high importance for the company and the managing directors are in general more engaged and educated than a typical account manager.

Gamma uses a basal system as a CRM system whose primary functions are to keep track of customer cases. The customer support basically notes if they have had an interaction with a customer and can also add some notes about the customer. The system cannot be connected to other systems used by the company and does not have any monitoring functions. The simplicity of the CRM system is primarily due to the high expense of developing a system compared to the relative value it provides. The simplicity can also be viewed in contrast to the cheap labour in developing markets, which Gamma still can rely on doing work that in western countries are made primarily by computers.

4.3.3 The Business Processes and Organisation

The organisation consists, as for most companies, of several different functions and departments. The R&D department works as cross-functional teams with different kinds of developers represented in every typical team, such as android, iOS, backend, and web developers, as well as testers, managers and product owners. There are also more specific teams that only works with e.g. the platform, or analysing data, that are not as cross-functional as the typical teams. All development teams work with high freedom as their own small companies in a Scrum-alike process, operating their own key performance indicators (KPIs). The company focuses a lot on team spirit within the development teams and therefore rarely moves people between teams unless they want to themselves.

There are four product owners in the company, owning business cases, primarily working on finding ideas and solutions to different problems. They receive feedback from both external and internal sources and weighs the input towards the company as a whole. Since the company operates on different markets on different continents, it is challenging but also of high importance for the product owners to understand what is important throughout the organisation. The ideas get presented to the product council who decides which ideas get to be further developed.

4.3.3.1 Data Collection

Most qualitative customer feedback is collected by the account managers at the beginning of the process by meeting customers continuously. They often have a good intuition, collecting valuable and detailed feedback, but not as good insight in the whole company. Therefore, the feedback

needs to be processed by the account manager's manager before it continues to the product owner. Qualitative feedback from the large global customer is collected by the managing directors and communicated directly to the product owner.

Gamma collects quantitative data by monitoring closely how customers use both the mobile application and the website. The customers are followed through their process in how they click, search, which ads they visit, and what they end up buying. Measurements are made both to create new ideas but also to measure the results of changes made. Some A/B testing has been made, for example, placing the search field differently on the webpage depending on where it creates the highest usage.

Moreover, the company overviews feedback received via social media but has trouble with both quantifications and knowing if the feedback is real or not. It is common with competitors hiring people to write untrue feedback with the aim to deceive, which contributes to the uncertainty of the feedback's correctness.

If a customer wants to give feedback directly to the company on their own initiative, they can either contact their account manager, or customer support.

4.3.3.2 Integration and Prioritisation

When the product owner receives external feedback, it comes from the input collected by the account managers and the managing directors. The feedback collected by the account managers is documented in spreadsheets that are available to everyone in the company. The account manager's manager then filters away irrelevant information and priorities which feedback to bring forward in the process. The managing directors have a good overview of the company in each market and can balance the customer requirements and see how they would work in the product both globally, but also for the specific countries. However, the managing directors are driven by the success rate of their own country, and therefore the product owner must verify the information from one managing director with the other managing directors to assure its value.

The product owner also works closely with the development departments (is even a part of at least one team), receiving internal feedback mainly from the development department through engineering managers, but also from the teams working with the quantitative data collection. The input from the engineering managers often consists of technical requirements. Employees can also post ideas on the internal communication system, but since it is a relatively expensive system, not all employees have access to it. However, all employees have access to email and information on the intranet.

The ideas from the product owners are presented to the product council, consisting of the CEO, CTO and the three managing directors (one per market/country) every 6th week. When presenting,

the product owner must show how the potential result can be measured. The product council evaluates the ideas based on if they are worth the return of investment, if they are specific enough and if they deliver business value. The product council then votes on the ideas and the ideas with the most points get the highest prioritising. The result of the meeting is a priority list of the five best ideas made for the development teams. The list is available for everyone at the company to see. When a development team is ready for a new task, they start with the one highest in the priority list. They always get continuous feedback from the product owner on the progress of the task but overall, they work with high freedom. Every month, the performance from the former six months is evaluated based on the KPIs and shared with everyone at the company so everyone can see if money was invested in the right things. It should be noted that smaller problems and bug fixes are handled faster in the organisation and follow a different process, but since that process is not connected to the customers, it is not described in detail.

The ideas formed, partly or fully, from input from customers is never validated with customer interaction later in the process. If a customer idea is implemented this is not communicated back to the customers.

There are glitches experienced in technical knowledge between the account managers and product owners but also between the managing directors and the CTO. However, the glitches are considered a positive thing, enabling the creation of ideas that are not limited by technical feasibility. By compromising the ideas from both directions, the final solutions are considered more visionary than they would have been without the glitch. There are usually no problems with disagreements between different teams or departments except some frustration when employees come with ideas that they feel like no one listens to. To handle this frustration, the solution has been to generally direct saying no to the ideas.

The company considers itself a data-driven company but experiences difficulties in both quantifying quantitative information as well as knowing how to act on it. Qualitative data is often regarded as ambiguous and it is difficult to see the actual qualitative product change by looking at quantitative data. If a distinct problem is seen in the data, changes are often made slowly in order to evaluate which change that actually made it better. If too many changes are made at the same time it is hard to distinguish which changes improved the product and which only made it worse.

The overall process from customer to development for Gamma, summarising the business processes and organisation, is presented in figure 4.3.
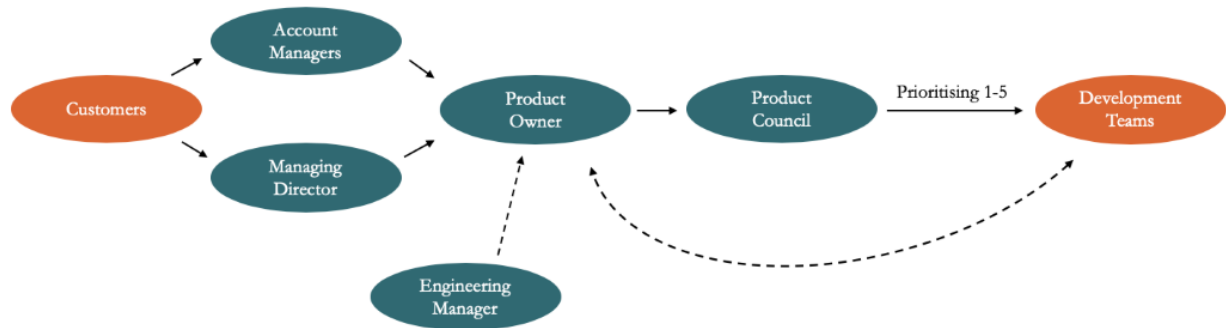
Figure 4.3: A summary of the process from customer to development for Gamma.

4.4 Company 4: Delta

Delta is a software company developing tools for business intelligence and information visualisation, thereby helping organisations to become more data driven. The company was founded in 1993 in Lund, where they still have their Swedish headquarters. The global headquarters were however moved to King of Prussia in Pennsylvania, United States, as they expanded globally, but kept development in Lund. The company today has more than 2000 employees, with sales offices and customers worldwide. The information presented in this section has been gathered from two interviews at the case company. The first participant has the role of Global Voice of the Customer Manager and the second interviewee works with usability and user research in a team called design, research, strategy, and operations.

4.4.1 The Offering

The case company describes its digital platform as the most comprehensive platform for data integration and analytics. Its products enable the transformation of raw data from various sources into easily accessible information, as well as providing analytical tools for visualisation of data and for organisations to discover new insights. The company offers two main products, here referred to as Delta One and Delta Two. Delta One is the company's first analytics products, providing business intelligence in terms of advanced data preparation, large data connectivity and dashboarding. Delta Two is based upon the same software engine as Delta One and is a further development of its predecessor. In addition to offering more functionality, Delta Two differs in the way that it is a cloud-based platform enabling customers to access the product as a SaaS solution. Hence, the product is provided through yearly subscriptions, where a subscription fee is paid per user and month.

The core strength of the offering provided by the case company is the fact that their products work with data from nearly any kind of data source. Their products are not developed to serve a specific industry, but instead, each customer has the opportunity to form their own applications, adapted to the kind of data they wish to process, analyse and visualise. The SaaS solution Delta Two is offered in two variants, one to be used by groups and smaller teams, and the second one is better suited for large-scale organisations. For the second variant, the customer can further choose between two types of user subscriptions. The type of subscription depends on if a user requires full access, and thereby will be able to create applications, or if the user should have permission to consume, but not edit, the applications. In excess of the case company's core offering, the software platforms, they also offer consulting, training and support.

4.4.2 The Customer

With the possibility for a customer to customise the platform, the case company targets business customers of all sizes; from small organisations with only a few employees to global enterprises. Furthermore, their business intelligence and information visualisation solutions are of relevance for customers in a wide range of industry sectors, implying that they do not focus on any particular industry. They also do not limit themselves to target private companies, but also have for instance governmental organisations and organisations operating within education as their customers. In order to manage their customer relationships (in terms of storing customer data etc.), the case company uses a globally available CRM system named Salesforce. In the system, they segment their customers based on size, meaning that they have segments such as Lower SMB (small and medium-sized businesses), enterprises and strategic accounts.

The case company sells to its customers either directly or through one of their partners. They have an extensive network with more than 1,700 partners, who in some way serve their customers. It can, for example, be companies that sell, implement and support the case company's products, OEM partners that embed the case company's software in their own applications, or partners that develop integrations, extensions or connectors to the case company's platform.

Internally, the sales department consists of, among others, account managers, who manage the contact with and meet with the customer. Each customer is being assigned one account manager, but each account manager is usually being responsible for several customers at the same time. For the largest customers, referred to as strategic accounts, the case company further assigns a Customer Success Manager. They are approximately 20 in total and only concern the large-scale global companies. The Customer Success Manager has the main responsibility for that specific customer and engages in maintaining a good and prosperous relationship with them. They try to understand the customers in depth and consider both their short-term and long-term objectives. Consequently, these relationships become much more extensive than the ones managed by the account managers. Customer success management (CSM) has been a major concern at the case company during the last few years and has during this time grown from five employees to more than twenty. The concern originated from a couple of negative results related to customer satisfaction, which motivated an expansion of the CSM organisation. This way, the case company hope to be more present and available for their major customers. They now also have a Chief Customer Officer reporting directly to the CEO.

Furthermore, communication to and between customers is enabled through the community, which was established at the case company's website. In the community, people have the possibility to read and participate in discussions regarding the products, download education material, sign up

to events, etc. The community also contains various blogs where the case company can transmit to the customers for example what updates recently have been implemented in the products.

4.4.3 The Business Processes and Organisation

Organisationally, the case company can be seen as having two main parts, a sales organisation, and an R&D and product organisation, being involved in the collection and processing of customer feedback. The sales side includes a large customer success organisation consisting of a number of different departments, such as customer support, customer success management, and education & consulting services. The customer success organisation also includes a team referred to as Voice of the Customer (VoC) or sometimes the Customer Experience team, which among other things has the major responsibility for surveys being sent from the company to its customers. All customer surveys should be reviewed by the team, ensuring corporate alignment of question formulations, layouts, scale systems, etc.

The R&D and product organisation includes a number of different departments and teams, as well as several layers of managers, including pillar leads, product managers, team leads, etc. However, the employees mainly in contact with their customers belong to the product design group and focus either on user research or usability. Whereas user research refers to the understanding of different user segments and their needs, usability aims at creating a design that enables a specified user to perform his or her task in an effective, efficient and satisfactory manner. Thereby, user research usually takes place prior to the work related to the usability of a product function or feature. The development department, mainly affected by the customer input collected, is organised in teams based on ongoing projects. This means that a developer usually is not constantly situated in a specific team, but rather moves between teams to get accurate staffing for the projects. The development teams work in iterations and plan and share progress in a collaborative and regular manner through daily stand-up meetings. Furthermore, they conduct the development work according to milestones separated by a determined number of weeks.

The overall process for the determination of what functions and features to be implemented in their products can be divided into two wide tracks. The first track regards the strategical aspect and includes in what direction the company needs to develop its products to secure its future in the global market. Hence, this track involves top management reasoning and bringing guidance from analysts within the BI market, as well as from organisations with expertise within the field (e.g. Gartner). The second track regards customer satisfaction and thus includes the processes examined in this work. The methods and processes related to this track, including surveys, usability studies, usage data, etc., will be presented in part 4.4.3.1 and 4.4.3.2.

4.4.3.1 Data Collection

Much of the customer feedback received by the sales organisation is collected from surveys of different types. Once a year, the case company sends a customer relationship survey (including, for instance, the NPS question) to all its customers. The survey is a general customer satisfaction survey and can thus provide different types of feedback (e.g. concerning their products or how they manage the interaction with its customers). Surveys are also created occasionally on more specific grounds, for example, if they want customer feedback on separate parts of their offerings (e.g. their cloud solution). For these surveys, the Global Voice of the Customer Manager identifies relevant customers in their CRM system and targets them with the specific survey. Furthermore, they have a few surveys being sent to customers automatically, usually triggered by an event. For instance, a survey is being sent to new customers when certain criteria have been achieved during their onboarding journey. This ensures that the customer has gained enough insight into the onboarding process and corresponding material to be able to provide adequate feedback. After each customer support case has been marked as closed, there is another survey being sent to the customer. This survey however mainly concerns how the customer experienced the support and do not seek to collect feedback about the actual products. In conclusion, the surveys provide both quantitative data (in terms of statistics) and qualitative data (in terms of free text field comments).

From the R&D and product side of the organisation, Delta has used an "ideation page", where people can vote for different product improvements or functions. The ideation page consists of an internal and an external part, making R&D able to receive input from customers. However, the ideation page is today rarely being used and discussions have been held regarding a potential implementation of a similar page in the community. The purpose should be to enable external users to suggest ideas and vote on existing ones, and thereby, in a more structured and efficient manner, be able to take customer opinions into account.

As mentioned, customer-related activities at the R&D and product division can, in general, be derived into the areas of user research and usability. In the area of user research, the focus is twofold; identify different groups of users and identify the needs of each user group. The task of identifying user groups strongly differs from customer segmentation, as users working in totally different industries still could have the same user profile and performing the same type of tasks from a BI perspective. The people involved in the user research are responsible for compiling what the company refers to as "opportunity scores". This involves investigating what aspects are most important to the users and what they are most satisfied, as well as least satisfied, with. In this way, gaps, seen as opportunities, can be revealed. The customer input, being the baseline for the opportunity scores, are primarily collected through surveys.

For the other area, namely usability, more methods are used for collecting customer feedback. A commonly used method is usability studies, where the employees observe a user navigating through a prototype of the product element being developed. Normally, the people designing the study have created a realistic scenario with corresponding tasks that should be performed by the user. The prototype could either be real prototypes or so-called InVision prototypes. The last-mentioned type of prototype looks like a real product but is in reality just an interactive mock-up for testing a design. By means of the InVision prototypes, the usability tests can take place at an earlier stage than for the real prototypes. As Delta has customers worldwide, usability tests are sometimes conducted over the internet, through WebEx. Tests are also arranged for different releases of their product, as a benchmark, in order to ensure that the usability of the product has been improved. Furthermore, they analyse usage data from the products in use by their customers. This data can for instance show what functions are used and not used by the customers. The collection of usage data however only pertains to their later cloud-based products, as the on-premise software (e.g. their product Delta One) stores data locally. Ultimately, they also perform regular interviews with users as well as expert evaluations to get holistic analyses.

A special type of usability study performed by the R&D and product organisation is a method internally referred to as "agile studies". The setup is equal to a general usability study described above, but with the difference that the development team participates in the execution of the test. Typically, the person in charge of the study runs the test in a room together with a user, while representatives from the development team (e.g. team lead, designer or developers) observes the test via WebEx from another meeting room. This way, the development team receives direct and unfiltered feedback from the test persons. During the test, the team takes notes of their findings and also gets the opportunity to ask questions at the end of the session. After all tests have been completed, the development team, together with the person in charge of the study, clusters their findings based on the questions formulated prior to the test. Findings outside the scope of the study are separated from the rest of the findings to be shared with relevant people in the organisation. The relevant feedback, though, is being voted and ranked based on their importance to the users, but at the same time considering the probability of being able to implement the desired product feature until the next milestone. The product improvements the team agrees upon are formulated as action points to be completed.

A challenge, mainly for R&D but also for the sales organisation, is to find the right users for their studies or surveys. In their surveys, they let the answering person fill in if he or she is an end-user, a decision-maker, or a developer. R&D consider it, however, a difficult task to involve the right type of user in their usability studies. The request to include a certain type of user from a company must go via their own key account managers, who have a contact person at the company. These contact persons are often decision-makers and do not represent the big mass of end-users R&D

usually are interested in. In order to reach these end-users, the request must pass through "gatekeepers", located at various layers of the customer organisation, who many times reject the request. A further aspect, obstructing the access to the right users, is legal concerns. Delta often needs to sign non-disclosure agreements (NDAs) with the customers to get access to their data, which many times is needed to execute the studies. The issue here is the fact that the person signing the NDA must be a manager with high decision-making authority.

4.4.3.2 Integration and Prioritisation

Delta uses a tool called Qualtrics (a customer experience management software) for creating their customer surveys, and another tool called Marketo (a marketing automation software) for sending the e-mails to its customers. The answers received from the surveys are thus stored at the Qualtrics platform but are being synchronised to Delta's CRM system Salesforce. From here, applications in their product Delta Two can retrieve desired data. Processing of the customer feedback involves reviewing the comments, as well as categorising and clustering the comments (e.g. based on their topics and what departments they concern). These activities are performed both manually and automatically, by the assistance from an AI feature included in the Qualtrics software. The AI feature helps to highlight the main topics of the feedback received. The manual work of categorising the data is conducted in a spreadsheet, where the feedback is noted and the suggested recommendations, derived from the feedback, are listed. Regarding, for instance, the customer relationship survey, the responsibility for processing the feedback lays on the people part of the Voice of the Customer. However, they are closely collaborating with the systems team in order to present the data in the company's applications, and thereby benefit from their own expertise within the areas of BI and visualisation.

The sales division and the R&D and product division are internally seen as silos, where the Sales organisation has little insight to the work conducted at the R&D and product division. The Global Voice of the Customer Manager has the main responsibility of handing over the information, captured from the surveys at the sales organisation, to R&D. Commonly, this is done through meetings and presentations. Customer support and R&D, however, have a common interface in terms of Jira, the project management platform used by the development department. As mentioned, this communication primarily concerns bug fixing though.

The activities related to user research and usability are more closely linked to the development work at the R&D department and it is always clear who the recipient to their results are and where in the process the results are being used. For instance, the usability studies are commonly planned based on a request from a development team, who wants feedback on their current work. In these cases, the feedback is shared with the team as soon as the test results have been compiled. The person responsible for the usability test also writes a report or presentation to store for future

occasions where the information might be needed. The plan is to move this type of information to an application in Delta Two, where the benchmarking statistics already is available.

In order to decide what product improvements to focus on, the people involved in the areas of user research and usability try to triangulate among the different customer data provided through opportunity scores, usability studies, and usage data. While the opportunity score indicates what users are dissatisfied with, and the usage data shows where in the products the users spend much time, the usability studies provide insights into why and how. Based on this information, the R&D department can draw a conclusion on where to focus their attention.

In addition to the voting and ranking performed in connection to the agile studies, the teams are performing some kind of cost-benefit analysis. The procedure for conducting these kinds of analysis, however, differs among the teams. From the sales point of view, they take into consideration the size of their customers. For instance, when reviewing the survey answers, they have the possibility to retrieve statistics from Salesforce regarding their main customers solely. However, the sales organisation do not evaluate their suggestion for product improvement based on the technical aspects of implementing the desired feature.

4.4.3.3 Overview of the business processes and organisation

The overall process from customer to development for Delta, summarising the business processes and organisation, is presented in figure 4.4.
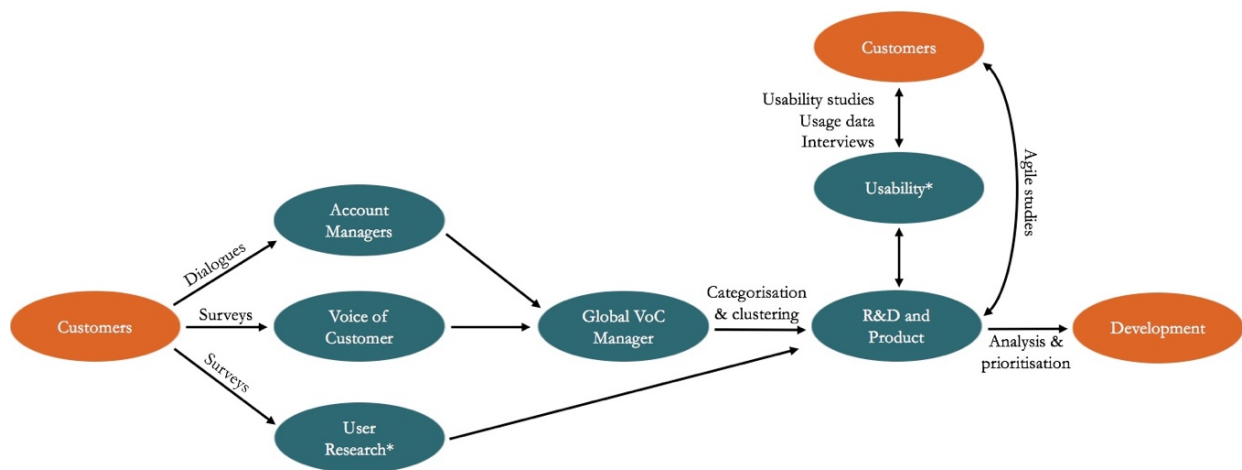
Figure 4.4: A summary of the process from customer to development for Delta.

4.5 Company 5: Epsilon

Epsilon is a technology company operating in the business intelligence and performance management market. The company was founded in 2000 and has about 180 employees spread at five offices in Sweden with headquarter in Malmö. The following empirics are based on information collected from one interview with two interviewees at Epsilon. The interviewees were Head of Professional Services and Head of Development.

4.5.1 The Offering

Epsilon offer a web-based product for planning, monitoring and, analysis. The product includes three parts: strategic management, budgeting and forecasting, and reporting and analysis. Their unique selling point is that they offer these three areas as a combined complete solution while competitors often are specialised in one of the parts, forcing the customers to build a total solution from several suppliers if they want all three parts. About half of the employees work as consultants implementing the product at the new customer sites but also further developing and managing the product for existing customers.

4.5.2 The Customer

Epsilon is operating in the B2B market and has around 200 customers. They divide their customers both based on if they belong to the private or public sector and based on which industry they operate within. Examples of different types of branches are municipalities, universities, estates, and finance. The sectioning based on the type of branch is motivated by that companies within the same line of business often have the same or similar needs when it comes to planning, monitoring, and analysis.

Since the company is a delivering company, they have a lot of direct contact with their customers through the consultants while integrating the product at the customer site. The consultants work intensely with maintaining a strong personal relationship with the customer and the company have thereby made customers stay with them for a long time indicating a very low churn rate.

The company has both a CRM system and a CSM (customer success management) team. The CRM system is primarily used as sales support when acquiring new customer sales. The CSM team mainly work with communicating and selling new features and releases to existing customers. The ongoing efforts in building and maintaining strong customer relationships are, as mentioned above, done by the consultants since they are already working closely with the customers in managing and developing the product.

Moreover, Epsilon has a website customised for their customers where both existing and chosen potential customers can read and comment on news about the product. There is also a wishing

box where customers can add wishes and suggestions for new features that they would like to be developed within the product. Customers sometimes also cooperate to create weighted wishes by agreeing to suggest the same thing in order to make the possibility for it to happen higher.

4.5.3 The Business Processes and Organisation

In simple terms, Epsilon is divided into three relevant (based on the purpose of this study) organisations: professional services, the development organisation, and the product organisation. The professional services contain the consultants and delivery functions, the development department contains two development teams, and the product organisation, which is a rather new addition to the company, contains several product owners. It is the product organisation's mission to collect requirements from both internal and external stakeholders and specify these into tasks for the development department to implement. Internal requirements can come from, for example, consultants or the sales department, while external requirements could be directly from a customer through, for example, the community website.

When the development department receives a task from the product organisation, they work in settled release cycles of one month consisting of two two-week sprints. The teams have biweekly reconciliations with the product organisation presenting what has been achieved so far and what is planned to be created in the next sprint. Once a month, the development work results in a product update. The development department uses Git as a version control system and Jira to control the backlog as well as to track user stories and bugs.

4.5.3.1 Data Collection

The collection of requirements from the customers are made in many different ways. When it comes to qualitative methods, the consultants get access to a lot of first-hand information from the customers, where many requirements are solved directly at the spot. However, if the consultants identify requirements from a variety of customers, they communicate this further to the product organisation in order to eventually make it a permanent change in the product. Requirements can also come from the sales department, for example, if they could not sell the product due to either the existence or lack of a specific feature.

The company further has a customer support department that mainly receives phone calls and remedies certain incidents. The support personnel are often very knowledgeable with the product and many of them could have worked as a consultant. Thereby many issues get solved directly at the customer support. However, the company does not want the customers to come with improvement suggestions through the support department partly since the suggestions then would be handled as support cases, and partly since the support personnel would be drowning in customer suggestions even though it is not their primary purpose. The company, therefore,

encourages their customers to use the other channels for product improvement input. However, in case the support personnel would receive a great suggestion, they can bring it forward to the product organisation.

The community for existing and potential new customers is also a way to collect information and requests about new features and improvements, as well as, asking for feedback considering existing ones.

Moreover, Epsilon sends out a survey to all contact persons at its customer companies once a year. The survey consists of both general questions of how they experience Epsilon as a company and provider, but also more product specific questions and questions regarding the consultants and the support. Most of the questions are on a scale from 1 to 5 but there are also a few open questions in free text form where the customer can express what they like the most about the product and what they think should be further developed. The survey is anonymous to which person is answering but not to which company the person represents. In that way, Epsilon can get a specific result and keep statistics for each customer, as well as, for all customers combined.

After the survey, the company is meticulous with giving feedback to their customers, increasing the dialogue with the customer in a good way. They also sometimes have specific meetings with the customers if they wished for something specific that needs further elaboration or if they were extra satisfied with something and thereby could work as a reference customer.

When it comes to quantitative data collection, Epsilon is interested in which web browsers their customers use in order to know which browsers the product needs to support. They also measure specific functions, for example, which part of the product that the customers use. In total, the company wishes to measure more quantitative data in the future than what is done today. Moreover, pilots have been made where customers have been asked to use a not fully developed function to assure that it works as they want it to.

4.5.3.2 Integration and Prioritisation

The product organisation works as the primary integration organisation in the company. Everything that goes from the customer is channelled into the organisation through the product organisation in the form of requirements and ends up with tasks to the development team.

As documenting programs, both Prodpad and jira are used. Prodpad works as a system where coarser wishes and suggestions from customers are gathered before they have gone through the system and become distinct functions that can be implemented into the product. The aim is that everyone in the company should be able to see what is in the system but right now it is mostly a tool used by the product organisation that owns and controls the list of wishes. Jira is, as mentioned above, used to control the backlog and to track user stories and bugs.

Epsilon thinks it is challenging to structure the wishes and suggestions internally together with bug fixes since it easily becomes an extreme amount of wishes from many different directions. Most suggestions are also considered to have a best-before-date and it is both a challenge and an opportunity to have so much to do that there is no time for it all. Those suggestions that have passed their best-before-date often stay in the system which has led to attempts of clearing the systems and backlogs. However, in total it is not very easy to navigate or to find specific information in the systems at the moment partly because of the high amount of information, and partly because of the lack of knowledge where to look for specific information.

The prioritisation is made by the product organisation based on what seems to be most important at the moment. The importance can be graded based on many different factors, for example, based on the size of the wishing customer, number of customers wishing for the same thing, and financial urgency for the requirement to be met. In order to manage to fulfil as many wishes as possible, the development works in short iterations. The prioritisation made by the product organisation is experienced as successful since they get input both from parties who have direct contact with the customers, as well as, technical input from the development department. If the development department were to decide themselves which tasks to prioritise it is reckoned to have been much more focus on technical problems since they are far away from the reality and the customers. There are not many disagreements between the different departments but the variances in opinions are seen as something positive, ending up in better and more elaborated solutions.

If an idea, suggestion or wish from a customer ends up getting implemented into the product, this is generally not communicated back to the customer.

The overall process from customer to development for Epsilon, summarising the business processes and organisation, is presented in figure 4.5.
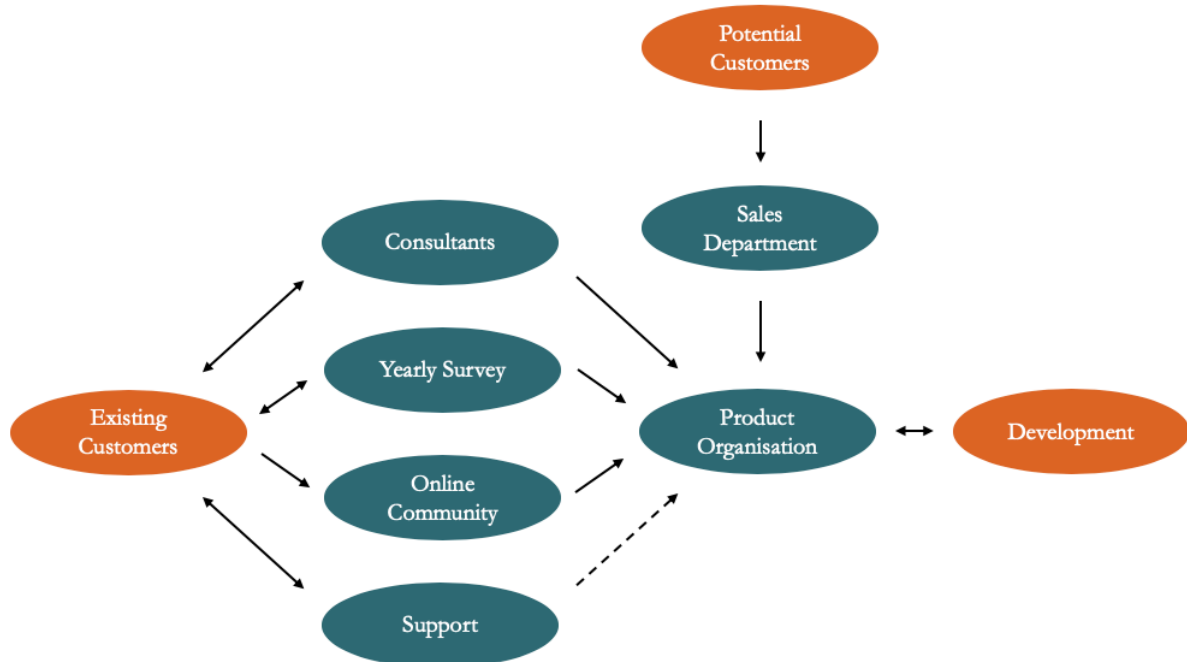
Figure 4.5: A summary of the process from customer to development for Epsilon.

5 Analysis

In this chapter, the case companies are analysed based on the theoretical framework, according to the approach presented in part 3.6 (Theory in Practice), divided into individual analyses and a comparative analysis. The individual analyses for each company are divided into five parts, first a short introduction of the offering and market is provided, followed by a more elaborate analysis of the market knowledge dimension, cross-functional collaboration, and knowledge integration mechanisms. The last part of the individual analysis consists of a description of the interaction between the three dimensions. At the end of the chapter, a comparative analysis among the companies is presented based on identified activities from the theory.

5.1 Company 1: Alpha

5.1.1 Introduction: Offering and Market

The SaaS characteristics (part 3.2.2) correspond very well to the type of cloud computing operated by Alpha. The product requires a web browser and there is no need for installation work at customer site or special integration of the product. The product is not tailor-made for each customer, but the customer can choose from which features they would like in their subscription, which also affects the price level. Since the offering is a type of communication solution for businesses, it is easier to attract customers with relatively few employees, as it is easier for them to change communication solution. Otherwise, Alpha does not experience operating in the B2B market as a disadvantage since all competitors experience the same environment with similar problems.

5.1.2 Market Knowledge Dimension

Regarding the Classic Service Marketing (part 3.2.4), Alpha works in accordance with the theory in focusing on differentiation, quality, and value for customers, as well as, for its own employees. They measure quality by the number of churns, which is a known and common way of measuring for classic service companies.

When it comes to Relationship Marketing (part 3.3.2), Alpha emphasises the personal relationship between the adviser and its customers, discarding both the common problem with the many-headed relationship when working B2B but also the complications with e-relationships. However, there is a challenge in the potential lack of technical knowledge of the advisers, even though some of this is avoided by the collaboration with the lead tech department. Yet, in order to categorise and structure feedback in a good and comprehensive way, a higher amount of technical knowledge should be desired. Another disadvantage of the personal relationship between the advisor and the customer is that one ignores the rest of the company behind the contact person, possibly resulting

in missing out on rewarding information. The trust is high that the customer contact person represents the whole companies' opinions well.

As for the benefit of being their own customer, this could be seen both as an advantage but also as a risk for near-sightedness, missing out on what external customers want. Even though the R&D department has access to all information gathered from customers, there is a risk of them not always having this in mind when deciding on what and how to develop certain features. This challenge agrees with the fact that the path from customers to the development department in many cases is quite long and information may be lost or changed on the way. Therefore, there can be a risk with the circumstance of Alpha's developers being their own customers, making decisions based on their own opinions and experiences instead of validating it with external customers.

Moreover, the internal system, called Partner, is used as a CRM system. The usage agrees well with the theory on CRM (part 3.3.3) except when it comes to structurally getting back to the customers with what happened to their feedback, which could be desirable since customers, in general, tend to become more demanding and less loyal. The quality measurement of the number of churns works well together with the CRM aim of maximising lifetime value for the customers. However, the CRM work could be more distinct, resulting in the company becoming more data-driven and perceptive.

Considering the Feedback Collection Techniques (part 3.4.5.3), Alpha uses both qualitative and quantitative methods with a higher emphasis on the former. Qualitative methods are more suitable early in the process, which is done thoroughly, agreeing with theory. However, theory suggests product management and sales & marketing to collect most of the customer feedback, while Alpha mainly uses customer support, in the form of their advisors. Quantitative methods are more suitable later in process, which is done to some extent with A/B testing and operational data. The reason for the limited collection of quantitative data is motivated partly by the high costs, but also with consideration of uncertainty for which data point to collect. These issues can be compared to the challenges related to big data presented in part 3.4.5.4, which among other things mentions high costs as an obstacle. Qualitative methods are also used later in the process but then with a validating purpose. Given that Alpha is a SaaS company, more focus could be held on executing experimentation and testing with users.

Regarding the Customer Touchpoint Model (part 3.4.5.2), the collection of feedback is made both continuously and on more specific grounds with competitor analysis and market surveys. The prioritisation is validated with external customers only when either the size of potential change, or the size of requesting customer, is large. However, the prioritisation is validated with internal stakeholders, often with close contact with external customers, at stakeholder meetings. When conducting the prioritisation, attempts to avoid inflicting personal opinions are made by creating

multiple channels for customer feedback and knowledge to enter the organisation, for example, thorough the ADD meetings and the stakeholder meetings. Yet, more structured statistics over how many customers asking for specific features could result in more stable decision grounds, avoiding that the customers, internal or external, who scream the loudest get the most attention. Moreover, problems have been noticed with internal stakeholders voting for features to be developed that affects themselves the most, instead of looking to the most beneficial alternatives for the whole company. The R&D validation stage is only done towards customers, often lead customers, if it concerns large changes. Otherwise, the customer validation is quite limited. Similar suggestions from several customers are sometimes put together to one solution. Without validation, this solution risks not meeting the individual customer's needs. When it comes to the deployment activity, Alpha continuously works with releasing upgrades and new features to its product. These activities resemble with their beta tests where feedback is collected regarding released features. Overall, the deployment activities are probably more palpable for the companies installing at the customer site with a more customised product, compared to a mere SaaS solution.

In conclusion, Alpha collects plenty of customer feedback. By including many stakeholders, both external and internal, in many different steps of the process, the company succeeds in getting market knowledge throughout the process. However, there could be a higher focus on quantitative data collection in order to become even more data driven.

5.1.3 Cross-Functional Collaboration

When it comes to Internal Relationships (part 3.3.2), Alpha puts high emphasise on including and informing all employees. This is achieved by using their own communication solution, where there are numerous chat groups that can be joined depending on which parts of the company you want information about, but also depending on your personal interests. This increases the internal marketing, both making more people stronger PTMs, and also enabling a higher degree of collaboration by including as many people as possible.

Generally, the company works quite cross-functional between departments, for example through the stakeholder meetings, but not as much within the specific development teams. The hierarchy is low, enabling a lot of people making decisions and taking responsibility. However, the lack of cross-functional teams makes the development department breakdown more similar to silos.

Their value words of simple, fun, and relevant, are well communicated throughout the organisation. However, as for the importance of superordinate goals, these are not perceived as pervasive. The theory about Cross-Functional Collaboration (part 3.4.2) indicates that the communication of superordinate goals may decrease the amount of disagreement and create a better functioning collaboration between different departments. This could, for example, help

avoid the tendency of people voting to prioritise their own ideas or ideas that only affect themselves, instead of looking at the most beneficial alternatives for the whole company. Well communicated superordinate goals could help distinguish what to have in mind in terms of customer feedback for all employees throughout the whole process, from advisors, through prioritising, and ending in the development department.

The physical proximity with most of the employees in Malmö, and everyone else constantly connected, facilitates the work with cross-functional collaboration and reduces the risk of every team working by themselves. All communication is documented in the systems Jira and Partner, which indicates that the company has a formal structure for communication although oral communication seems not to be documented. If something is documented ambiguously, the physical proximity and constant connection contribute to the opportunity of clarification of eventual misunderstandings. Furthermore, an advantage of working in a few systems that everyone has access to is the avoidance of specific teams or departments withholding (either intentional or unintentional) important knowledge.

Additionally, the theory of Internal Stakeholders (part 3.4.5.1) says that product management should work as an interface between the customer and the R&D. This is done at the company with the Product and Development Manager as an interface, but with the advisers as an intermediary towards the customers. Translating customer needs into tasks in Jira thereby is not only done by the Product and Development Manager, which is a contributing factor to the lack of structure in the tickets. Generally, the internal stakeholders involved at Alpha agrees well to the ones presented in the theory. Eventual mismatches depend on that most development is not new product development but upgrading and developing new features for an existing product.

5.1.4 Knowledge Integration Mechanisms

The general working process is iterative, partly following the New Service Development Process (part 3.4.1) were tools, people and organisational context are distinct. Yet, SaaS is not a mere service, which makes it reasonable that the reality at Alpha is not directly consistent with the model, even though activities as design, analysis, development and full launch are, more or less, seen in the process. The prioritisation can be seen in the idea screening in the design phase, making the analysis phase almost disappear due to the amount of self-deciding in the teams, lowering the demand for authorisation. The iterative process is clear though with the teams using Kanban or Scrum, working in sprints of two weeks. They work in small teams, with a flat organisation structure and a quite pervading customer focus. All teams work with continuous integration, incremental development and cumulative outcomes which corresponds well to the theory of agile principles. The customer input is acquired regularly throughout the phases of planning, development, testing, and review. In contrast to the waterfall model, Alpha does not work project-

based with collecting input only at the beginning of the process, but more with continuous improvement of software, making it an agile way of working.

The integration and documentation at Alpha are good in that sense that everyone has access to all information, yet the documentation could be more structured, making it easier to find specific information. Visibility problems are seen due to the high amount of information, making it hard to get a clear overview. Today, individual employees must have very high control of information for it to get captured, analysed, interpreted and integrated. By integrating a more standardised, filtered and categorised way of creating tickets and tasks in the systems, the visibility could be improved. Also, continuous clearance of the systems from irrelevant and outdated feedback and ideas could decrease the potential volume of useless data and thereby increase the visibility.

Alpha's requirements engineering process is similar to Traditional RE (part 3.4.4.1) in that most of the customer contact principally happens through elicitation and validation but differs in that it is done iteratively and continuously, which is more similar to Agile RE (part 3.4.4.2). Continuing with ARE, Alpha does not control the type of feedback received by the advisers, indicating that more feedback than only the most important is collected. Also, more specific feedback regarding a certain feature is made together with development, thus a full specification is not made initially.

In conclusion, regarding the knowledge integration mechanisms, where the aim is to ensure that knowledge gets captured, analysed, interpreted and integrated within the company, Alpha shows scattered results. They are performing well at capturing market knowledge by offering many channels for both collecting and receiving information. However, the analysis and interpretation phases today are experienced as unstructured and partly opinion-based. The integration is well done with shared access throughout the company although the sorting and structure of tickets and tasks could be more structured and distinct.

5.1.5 The Interaction Between the Three Dimensions

The theory of Cross-Functional Collaboration (part 3.4.2) says that the three dimensions show the best result on product innovation performance and incremental improvements when they are linked together. For Alpha, the process from customer to development involves many touchpoints with customers, both internal and external, indicating a comprehensive focus on the market knowledge dimension. The cross-functional collaboration is well developed between departments, while the development teams are divided into specialised areas, but could be improved by the communication of superordinate goals. The knowledge integration mechanisms are theoretically good using systems like Jira and Partner but are practically sometimes difficult to use due to the high amount of information. This could be improved by structuring the integration inside the systems. Altogether, the complex relationship between the three factors is managed relatively

successfully by the Product and Development Manager leading to favourable conditions in creating incremental improvements.

Based on the theoretical framework, the three dimensions can be summarised to consist of a number of activities, which are presented in Table 5.1. The table shows which checkpoints for each activity that corresponds well with how Alpha works and serves as a foundation for the overall rating of each activity presented in Table 5.2 and motivated below. It should be noted that for a checkpoint box to be marked the statement must agree well with how the company works, and if the degree of correspondence is considered unclear, the box will be left unmarked.

Table 5.1: Table of checkpoints motivating the ratings for Alpha.

Activity	Checkpoint	Alpha
Collection of Customer Input	Several methods are used for collection	✓
	The methods are used efficiently	✓
	The methods are used frequently	✓
	Several internal stakeholders are involved	✓
	Information is gathered from both customers and end-users	
Documentation of Customer Input	The documentation is conducted structurally	
	The documentation is conducted standardised	
	It is easy to review and access	
	All employees have access to the information	✓
	A special system is used for documentation	✓
	The company has a clear product backlog	✓
Internal Prioritisation	Several departments are involved with opinions	✓
	The prioritisation is mainly based on data	✓
	The prioritisation is made iteratively	✓
	There is a possibility for fast reprioritisation	✓
	The prioritisation is partly based on conducted cost-benefit analyses and potential trade-offs	✓
	The prioritisation is communicated internally	✓
Validation Before Implementation	The prioritisation is communicated to customers	
	Validation is made with lead customers	✓
	Tests are made to assure alignment with customer needs and discover specification elements expressed indistinctly or ambiguously	✓
	Validation and tests are made frequently	
	A JIT approach is conducted where only the necessary information is gathered	✓

Validation of Implementation	Several methods are used for collecting information	✓
	The methods are used frequently	
	A large amount of information is collected	
	The information is analysed efficiently	✓

Table 5.2 shows which internal stakeholders are involved and in what way they are so, summarising the interaction between the three dimensions. The last row in Table 5.2 shows the overall rating of each activity, which is based on the checkpoints in Table 5.1 above, and further motivated below. It should be noted that the rating is not a direct translation of the number of boxes checked but is an overall rating of the performance for each activity.

For Alpha, the internal stakeholder product management corresponds to the Product and Development Manager and customer support corresponds to the company's advisors. The remaining internal stakeholders, sales & marketing, R&D, and UX, are named the same for Alpha and are, therefore, not considered to require any further explanation.

Table 5.2: Summary of which internal stakeholders that are involved in the different activities at Alpha.

Internal Stakeholder	Collection of Customer Input	Documentation of Customer Input	Internal Prioritisation	Validation Before Implementation	Validation of Implementation
Product Management			Decisions at stakeholder and ADD meetings		
Sales & Marketing	Marketing: yearly events, surveys, NPS, workshops, interviews Sales: dialogues, demos	Jira, Partner, and spreadsheets	Opinions at stakeholder meetings		
Customer Support	Dialogues	Jira, Partner, and spreadsheets	ADD		
R&D			Opinions at stakeholder meetings	Interviews, observations, workshops, internal customers	A/B testing, operational and event data, interviews, MVP, observations
UX			Opinions at stakeholder meetings	Interviews, observations	Interviews, observations
Rating	4	3	5	3	3

The rating of the first activity, is motivated by that Alpha uses several methods for collection, both efficiently and frequently, and that there are several internal stakeholders involved. However, information is only gathered from customers, and not from end-users, which prevents Alpha from getting the highest rating. The rating of the second activity is based on the interpretation of the lack of structure, standardisation, and easiness to review when documenting customer feedback. Even though the company is using a special system and all employees have access, the former checkpoints weight heavily, lowering the rating. Regarding the high rating of internal prioritisation, Alpha checks all the boxes since the prioritisation involves opinions from several different stakeholders, it is also made iteratively and based on cost-benefit analyses, potential trade-offs, and to a large extent on data, with the possibility of fast reprioritisation. It is also communicated internally. The fourth rating is based on that Alpha generally does not communicate the prioritisation to the customers and tests and validation are only conducted on special occasions. However, they validate the prioritisation with internal customers, and a just-in-time approach can be considered applied, which raises the rating. The last rating is based on that the information gathered is analysed efficiently. However, the methods are not used frequently, leading to only a small amount of information being collected.

5.2 Company 2: Beta

5.2.1 Introduction: Offering and Market

Beta's product Beta One have similarities with a SaaS offering as it has a web client. However, in order to be fully considered as a SaaS, an offering should be completely standardised (according to theory part 3.2.2). Regarding this aspect, there is a big difference in the fact that Beta One is offered in customised versions to customers though. Their second product, Beta Two, on the other hand, can almost be seen as a complete SaaS if comparing with the five characteristics of SaaS presented in part 3.2.2. The company is only operating B2B. Similarities with theory about the characteristics of B2B markets can be found in the empirical data about Beta. For instance, the customers are geographically concentrated and the interaction with the customer involves more decision-makers.

5.2.2 Market Knowledge Dimension

Aligned with theory regarding service companies, Beta is to a great extent customer driven. In case of Beta, this is particularly evident in terms of their consultancy organisation, which enables strong customer relations. If Beta would have outsourced the implementation work to third parties, it probably would have been more difficult to achieve the same degree of customer interaction. The fact that their own consultancy department executes the deployment of the CRM systems also implies the classic network relationship to become less complex, as it involves fewer parties, and thereby become more easily managed. Further elaborating on Relationship Marketing, and the 30 Relationships Model (part 3.3.2) in particular, the full-time marketers at Beta consist of people from the sales, marketing and consultancy department, that frequently meet with customers. The part-time marketers at the company, in reality all other employees, are quite far from the customer though, except for product management and the Head of UX. The cause for this might be the existence of the large consultancy organisation, which, beyond building customised systems for clients, acts as the main interface towards the customers with great responsibility for capturing customer input. The consultants thus manage the company's main service encounter relationship, in which both parties (the customer and the consultant) contribute with knowledge in order to enhance the quality of the service. Furthermore, managing the relationship to the customer's customer is principally the service offered by Beta, by selling CRM systems customised for the client and the customers that the client targets. Internally, Beta has a strong focus on CRM as well. They have well-established business processes, technology and people engagement for handling their customer relations. Their approach to CRM clearly follows the philosophy of maximising value by keeping good relationships to its customers throughout their entire customer lifetime cycle. Another type of relationship important to Beta is the E-relationship. This type of

relationship, which are based on the use of IT as an interface towards customers and other stakeholders, is managed primarily by Beta's marketing department as they are responsible for market communication through social media and the website.

In order to ensure that the offering meets the customer needs, Beta gathers customer feedback through a few different touchpoints. These situations correspond to the touchpoints presented in the Customer Touchpoint Model (part 3.4.5.2), although not all touchpoints in the model can be found at the case company. Regarding the first activity mentioned in the model, *Collection*, there are similarities with Beta in terms of product management having a significant role in collecting customer feedback. However, at Beta large amounts of valuable input are also received by the consultants and the Head of UX, which are not mentioned in the model. Instead, the model emphasises sales and marketing as important departments in the collection work. Examples of sources of requirements, mention in the model related to this activity, are market studies and competitor analysis, product usage data, and customer feedback through direct customer interaction. Beta does market studies as well as interacts with customers through interviews etc., but lack in their use of automatically collected usage data. Despite their access to measurement data from the products, they do not use it for statistical purpose today. The second activity, *Prioritisation*, is part of the process at Beta as well. Consistent with the model, the product managers at Beta have the major responsibility for this activity. However, the company somewhat fails in including customers in the activity. According to theory, the decisions regarding what features to prioritise, based on cost-benefit analyses and trade-offs, should be shared with customers in order to validate the choices made by the company. These kinds of results are not communicated to Beta's customers, meaning that they get little validation of the prioritisation made. There is thus a risk of the prioritisation at Beta being too much based on employees' (mainly the product managers') personal opinions and assumptions, as described as a challenge in theory. On the other hand, when a cluster of feedback has been identified, the product manager often tries to meet with customers to get a deeper understanding of the customer needs. This is done in cases when the feedback is vague. Moreover, the company commonly use methods, such as user tests, to verify the design of a certain function. In the model, this corresponds to the third activity, i.e. *R&D Verification*. In accordance with theory, tests are not only performed in order to find defects but also to validate that the product function is aligned with customer needs and that no essential aspects have been forgotten. The last activity, *Deployment*, might be the most apparent activity in Beta's case, as a major part of their work is related to the implementation of the systems at customer site. The procedure for customising products for single customers is outside the scope of this work though, and thus no further analysis of this aspect will be provided.

Analysing Beta's techniques and methods for collecting customer data more deeply, based on theory presented in part 3.4.5.3 (Collection Techniques), it can be concluded that the company

almost exclusively rely on qualitative data based on conscious customer participation. The methods used are primarily direct customer interaction, interviews and user tests (all qualitative methods), whereas quantitative methods, such as in-product surveys, beta testing, and collection of operational and event data, are barely used. The usage of more quantitative data could help Beta become more data-driven and provide statistical support for their decisions. Compared to the Conceptual Framework of Feedback Collection (Figure 3.10), Beta lacks in applying collection methods at later stages of the development process. If methods are being used after the point in the process where the software implementation has been initialised, it is only done internally without involving any external user. Consequently, the company misses out on collection of click-based user input, which, according to theory, is more reliable than opinion-based input. From the framework, it can also be concluded that Beta solely uses qualitative collection methods, even in phases of the process where it would be possible to complement the qualitative data with quantitative data (e.g. in phases including the prioritisation and validation of features to be implemented).

5.2.3 Cross-Functional Collaboration

Even though software companies might not have as clear organisational division between marketing and operations management as in traditional manufacturing companies, similarities can be found at Beta. Although the "customer side" of the company, including sales, marketing, consultancy and customer support, not only do marketing activities but also actual building of the systems, one can see that Beta is affected by the relationship between operations and marketing. In the 30 Relationships Model (part 3.3.2), this relationship is referred to as quality and customer orientation. The model emphasises the focus both on "doing things right" and "doing the right things", where the first stereotypically is handled by the operations department and the latter is handled by the marketing department. As these two departments are mutually dependent, cross-functional collaboration is vital to ensure the match between the offering and the customer needs. In case of Beta, they have a clear focus on doing things right, but also on doing the right things. While their development teams mostly focus on the first aspect, the latter is an issue for the customer-oriented departments. Besides, Beta has the roles of product managers and Head of UX, who operates in the intersection of the two divisions of the company. The product managers in particular have a crucial responsibility in ensuring that the customer feedback collected by Beta's customer-oriented departments reaches the development teams. Looking at the roles of the employees involved in the requirements engineering process at Beta, it can be concluded that they correspond well to the Internal Stakeholders described in theory (part 3.4.5.1).

However, there are tendencies of silo effects between the customer-oriented side of the organisation and the development side. The product managers act as intermediaries, but the actual

interaction between consultants (or sales personnel) and developers is rather limited. This impairs the conditions for cross-functional collaboration. According to theory, cross-functional collaboration (part 3.4.2) is enhanced by physical proximity, which could be improved in the case of Beta, even though the fact that the consultants spend much of their time at customer site makes it more difficult to achieve. The use of superordinate goals could be another measure to align the work conducted by the consultants and the development department. Today, the development teams' success in building product functions meeting customer needs partly depends on the individual consultant's engagement and capability in forwarding relevant feedback to the product managers, e.g. by creating a "wish" in their wish list. Thereby, the challenge found in large-scale software companies in achieving equal representation of the customers' opinions, could become a problem for Beta. However, as mentioned in the empirical data, Beta is currently running a project to improve certain aspects of the product. The project team is a truly cross-functional team, including developers and designers, as well as salespeople, consultants and product managers. Furthermore, the product manager sometimes meets with consultants and salespeople in order to clarify some type of customer need.

The Agile Principles (part 3.4.3) promote organisation as a network of empowered teams focused on delivering value in a collaborative manner, rather than through strict bureaucratic and hierarchic structures. Beta is more like an agile organisation in these terms, although hierarchies obviously can be found. They have a feasible IT environment for documentation and distribution of information internally, which thus supports the flow of information horizontally rather than vertically. Much information still passes through the product managers though, as elaborated on above. At the development department, the work is performed in a very collaborative manner, in accordance to agile principles. However, the teams solely consist of developers, and perhaps a designer and a product manager, implying that the degree of cross-functionality in the teams is rather low.

5.2.4 Knowledge Integration Mechanisms

The New Service Development Model presented in theory (part 3.4.1) is created for downright services, implying difficulties in applying the full model for software development. There are however a few similarities between the model and the process at Beta. Their process includes a design phase, which like the model includes both idea screening and concept testing, followed by a development phase, which like the model involves testing of the offering. The analysis phase, found in the model in between the design phase and the development phase, can in Beta's process be seen as taking place in parallel to or even before the design phase. The model also fails in including studies of customer needs that are completed before entering the design phase.

Comparing Beta with Agile Software Development (part 3.4.3), many of the elements found in agile methodologies can also be found in Beta's development processes. Above all, they work in short sprints rather than long projects. Each sprint should also end with some functioning software, promoting incremental software development. However, it is unclear whether they get any external feedback on the newly implemented features at all.

As described in the empirics, each new feature to be developed by Beta's development teams follows a roadmap consisting of the three phases *Later, Next, Now*, in that order. This gives the employees an overview of the process, which makes it more evident where different activities should take place and how to search for relevant customer feedback. For example, in *Later*, the product managers can get ideas from the wish list or from interviews, while in *Next*, they do both interviews and usability studies. Beta however lack in having structured approaches for integrating customer feedback when the feature has reached the last phase, referred to as *Now*. In this phase, the issue described in theory regarding testing being viewed solely as a method for detecting defects (and not as a way of validating the solutions with customers) can be seen. Compared to Traditional Requirements Engineering (part 3.4.4.1), requirements elicitation can be interpreted as performed in *Later*, meanwhile requirement documentation and validation are done in *Next*. The more iterative process with overlapping activities used by Beta better coincide with the characteristics of Agile Requirements Engineering (part 3.4.4.2). Beta also apply a just-in-time approach (a typical characteristic of ARE), by only collecting the user feedback needed for the next sprint. This means that a specification, for a certain product feature, is created in each sprint, instead of completing a comprehensive specification for the whole product before starting the implementation work. The design phase at Beta takes place one sprint ahead of the development phase and they are thus not part of the same sprint as suggested in theory about ARE. This implies that the development team has a specification already when initialising the sprint.

5.2.5 The Interaction Between the Three Dimensions

The theory of Cross-Functional Collaboration (part 3.4.2) says that the three dimensions above show the best result on product innovation performance and incremental improvements when they are linked together. Beta receives a lot of market knowledge through the close relationships between the customers and the consultants. However, as the customer feedback only occasionally is shared with the remaining organisation, the knowledge is often limited to the consultants working towards the specific customer. The company has a good IT infrastructure, consisting of for example their own CRM system and a wish list, which implies that there are opportunities for sharing more customer feedback internally. Missing, though, is clear processes for systematic distribution of knowledge from the consultancy department to R&D, as well as processes and forums for cross-functional collaboration.

Based on the theoretical framework, the three dimensions can be summarised to consist of a number of activities, which are presented in Table 5.3. The table shows which checkpoints for each activity that corresponds well with how Beta works and serves as a foundation for the overall rating of each activity presented in Table 5.4 and motivated below. It should be noted that for a checkpoint box to be marked the statement must agree well with how the company works, and if the degree of correspondence is considered unclear, the box will be left unmarked.

Table 5.3: Table of checkpoints motivating the ratings for Beta.

Activity	Checkpoint	Beta
Collection of Customer Input	Several methods are used for collection	
	The methods are used efficiently	
	The methods are used frequently	✓
	Several internal stakeholders are involved	✓
	Information is gathered from both customers and end-users	✓
Documentation of Customer Input	The documentation is conducted structurally	✓
	The documentation is conducted standardised	
	It is easy to review and access	✓
	All employees have access to the information	✓
	A special system is used for documentation	✓
	The company has a clear product backlog	
Internal Prioritisation	Several departments are involved with opinions	✓
	The prioritisation is mainly based on data	
	The prioritisation is made iteratively	✓
	There is a possibility for fast reprioritisation	✓
	The prioritisation is partly based on conducted cost-benefit analyses and potential trade-offs	✓
	The prioritisation is communicated internally	
Validation Before Implementation	The prioritisation is communicated to customers	
	Validation is made with lead customers	✓
	Tests are made to assure alignment with customer needs and discover specification elements expressed indistinctly or ambiguously	✓
	Validation and tests are made frequently	
	A JIT approach is conducted where only the necessary information is gathered	✓
Validation of Implementation	Several methods are used for collecting information	
	The methods are used frequently	
	A large amount of information is collected	
	The information is analysed efficiently	✓

Table 5.4 shows which internal stakeholders are involved and in what way they are so, summarising the interaction between the three dimensions. The last row in Table 5.4 shows the overall rating of each activity, which is based on the checkpoints in Table 5.3 above, and further motivated below. It should be noted that the rating is not a direct translation of the number of boxes checked but is an overall rating of the performance for each activity.

For Beta, the consultants are considered part of the sales & marketing stakeholder. The remaining internal stakeholders, customer support, R&D, and UX, are named the same for Beta and are, therefore, not considered to require any further explanation.

Table 5.4: Summary of which internal stakeholders that are involved in the different activities at Beta.

Internal Stakeholder	Collection of Customer Input	Documentation of Customer Input	Internal Prioritisation	Validation Before Implementation	Validation of Implementation
Product Management	Interviews		Clustering, main responsibility for the prioritisation	Interviews	
Sales & Marketing	Consultants: dialogues Sales: input at demos Other: conferences	CRM system, wish list on the intranet			
Customer Support	Dialogues				
R&D			Adds technical perspective		User tests with representatives from sales
UX	Interviews		Adds insights to customer needs	Interviews, usability tests	
Rating	3	4	3	3	2

The collection of customer input at Beta involves several departments, gathering information from both customers and end-users frequently. However, relatively few methods are used, and the

relevance of the information collected and proceeded from the consultants is considered unclear. As for the documentation of customer input, the rating is based on that their own CRM system is used together with a wish list where all employees can post ideas. This indicates that the documentation is structured, easy to review and access for all employees and, performed using a special system. The prioritisation is made in parallel to the validation and is partly based on cost-benefit analysis and potential trade-offs, with several stakeholders involved. It is, however, unclear how much of the prioritisation that is made based on customer input data. The rating of validation before implementation is based on that usability tests are conducted to validate suggested solutions, but not very frequently. The validation during implementation is only conducted internally and not made with external users or by quantitative methods, providing Beta with a low rating.

5.3 Company 3: Gamma

5.3.1 Introduction: Offering and Market

Gamma is operating both in the B2B and in the B2C market but has mostly small family-owned businesses as its customers. This makes the difference between their private customers and their general business customers relatively low, indicating that the way of working does not differ that much and understanding customers and managing individual decision factors get fairly standardised. The larger customers are mainly using their offering for the job services, and not for buying and selling, and the communication is handled by the managing directors, showing that these customer relationships are managed differently. Their offering corresponds well to four out of five SaaS characteristics as the customer needs a web-browser, there is no need for installation or integration, and the price is usage-based. The average offering can be considered not to be tailor-made. However, the product is available in different versions based on whether the customer chooses to have a membership or not.

5.3.2 Market Knowledge Dimension

Regarding Classic Services Marketing (part 3.2.4), Gamma works intensely with internet penetration and physical contact with its customers. Given that the targeted customers are not used to the types of products offered, and the competition is not that high, the tasks of quality, productivity and differentiation are not as important as in developed markets, but the need of being the first provider available is all the more important. Beyond establishing in new markets, Gamma's unique selling point lies in its high focus on fast and well-developed logistics, which can be considered its type of differentiation. Furthermore, Gamma focuses on internal marketing by prioritising team spirit, generating faster development, and thereby seeking to provide higher customer satisfaction.

Although Gamma has a very different type of customers, with different fundamental needs, compared to customers in western countries, the focus on personal relationships is central. Strong personal relationships are created through the account managers and managing directors, through several meetings and interactions per month. The investment in helping customers through audits and memberships, thereby creating added value, is high. The high focus on physical meetings can be explained partly by the cheap labour and the lack of penetration of digital functions, but also partly by the aim of creating strong personal relationships, creating a safe environment for customers to share opinions and improvement suggestions. The lack of digital communication channels together with the emphasis on physical meetings remove both the risks with many-headed relationships and e-relationships. Furthermore, the majority of the customers are family-

owned businesses, simplifying personal relationships as the number of employees is low, and decreases the risks from many-headed relationships even more.

Moreover, Gamma misses the opportunities of catching the value brought by a well-implemented CRM system (part 3.3.3) since they rely on cheap labour instead of implementing a comparatively expensive system. This implies that Gamma will have inferior control and statistics of their customers over time, even if it now is manageable to keep satisfied customers through close relationships. This could however change, and Gamma could in the future benefit from trying to be less dependent on cheap labour and be prepared for growing competition and more demanding customers by computerising some of the CRM work.

Considering the Customer Touchpoint Model (part 3.4.5.2), Gamma collects information from customers but not from private end-users. At the beginning of the process, this is done through personal meetings with the customers, resulting in a high amount of data, which is processed and summarised before continuing in the process. The prioritisation is consistent with the theory in the sense that the product management, through the product owners, general management and R&D, is involved in the process. However, while the prioritisation is communicated throughout the organisation, it is not communicated to customers to assure that the correct features are prioritised. The validation is also made internally and not together with lead customers. During the deployment phase, some quantitative data is collected. Yet, in total, Gamma could include customers more throughout the process to assure that the features under development will meet their needs.

In terms of Collection Techniques (part 3.4.5.2), qualitative methods are used at the beginning of the process, while quantitative methods are used later, which corresponds well to the Framework of Feedback Collection (see Figure 3.10). The view of collection of quantitative data as time-consuming and expensive is not perceived as that big, due to the cheap labour. However, when collecting performance data, trouble with managing and sorting the data is experienced. Furthermore, Gamma uses social media, which is increasing in importance, but they experience big challenges in sorting out which information is trustworthy, resulting in difficulties in understanding the real market through the use of social media. In total, Gamma uses relatively few different methods, which could result in the eventual loss of useful information. They could, for example, use surveys or more experimental methods and, as mentioned before, include customers in more stages in the process.

5.3.3 Cross-Functional Collaboration

The development teams work cross-functionally with specialists in different areas in every team. The product owners, that are part of at least one team, have a close collaboration with both

managing directors and engineering managers, as well as working as an intermediary between the marketing and operations departments. Even though the decisions in what to prioritise are limited to top management, the developers have the opportunity to work freely. This, together with the iterative working process indicates an agile way of working (part 3.4.3).

The verification and communication within the company are well developed in contrast to both the developing markets they are operating in and to the large geographical prevalence of the company. There is not much problem with disagreements, which could be a result of both the communication and the polite culture characteristics typical in the operating markets.

Regarding the theory of Internal Stakeholders (part 3.4.5.1), the product owners have the overall responsibility for integrating customer feedback into the development process. However, they do not have any direct contact with the customer as the account managers and managing directors work as an intermediary towards the customers. The product owners work a lot with translating requirements into specifications in close collaboration with several internal stakeholders. The marketing and sales department collects a lot of data, which corresponds to the theory. Translating quantitative data into understandable features have, however, been experienced as difficult, as well as managing inexplicit qualitative data.

Gamma is focusing a lot on working transparently with making priority lists of KPI:s and results available to all employees, regardless of whether the results are good or bad. This could be regarded as a type of superordinate goal that is communicated throughout the company, possibly resulting in less disagreement and better high task performance. The lack of physical proximity is managed by integrating the managing directors for each market in decision making and collaboration with all product owners, ensuring that everything that is developed is requested throughout the company.

Altogether, Gamma is well developed in working cross-functionally, but could be better at involving the customers in more stages of the process than just in the beginning. The quite hierarchical organisational structure may imply many benefits but can also result in employees feeling that they are not being heard, possibly resulting in them becoming less useful PTMs.

5.3.4 Knowledge Integration Mechanisms

During the development process, the development teams at Gamma works iteratively and cooperates with internal stakeholders to assure that they do the right things. Considering the New Service Development Model (part 3.4.1), the design and analysis phases are conducted by the product owners in coordination with managing directors and engineering managers. The outcome of specified tasks is then integrated with and prioritised by the product council and handled by the development department. As for the development phase, testing and qualitative

data collection are made to validate the developed features. The knowledge is well proceeded and validated within the organisation and conducted quite iteratively. The process is considered value-driven with the customer needs in high consideration, although the validation with customers could be done better.

Comparing with the theory of Traditional Requirements Engineering (part 3.4.4.1), in the elicitation stage, Gamma works a lot with understanding requirements and system boundaries through direct dialogues with both internal and external stakeholders. This is done in close collaboration with customers and adjusted to the chosen targeted markets. During the documentation stage, the focus is on keeping the specifications small, simple, and standardised to make it as easy as possible for the development teams. This resulting in higher likelihood of the specifications being finished in time and implemented according to the requirements. The requirement validation includes ensuring that the specifications correspond to the needs of the customers, which is done internally but not at all towards customers, which is a recurring trend at the company. The managing of the requirements is made in the responsibility of the product owners.

Regarding the Agile Requirements Engineering (part 3.4.4.2), the theory emphasises that only the necessary information should be collected. As for Gamma, a whole lot of information is collected both at the beginning of the process and as performance data in later stages. Difficulties have been experienced in knowing which information is the most important and how to act on the collected information. A backlog is used containing the prioritised requirements, which is reviewed and updated regularly, with a gap of six weeks, in collaboration with businesspeople, stakeholders and developers, agreeing with the theory. However, six weeks might be quite long iterations for reprioritisation, and it could be considered to be done more often.

The feedback process from the customer to the R&D department could be considered relatively long, resulting in the risk of information being lost or altered on the way. Even though the information is validated internally with managing directors, assuring that the potential features would be suitable for all markets, the risk is increased with the lack of customer validation, and no direct contact between the developers and the customers. The summary of input made by the account managers' manager, however, reduces the risk of unmanageable amounts of information, further reducing the risk of misinterpretations later in the process.

In total, when it comes to capturing, analysing, interpreting and integrating knowledge in the organisation, Gamma is quite successful at capturing information and integrating the knowledge into the organisation. The prioritisation list is available to everyone in the company as well as the results from the last six months, implying that limited visibility is not an experienced challenge. The prioritisation is also made by the same people every time, indicating that it is made with similar

conditions resulting in fair prioritisation. However, the analysis and interpretation could be done with more accuracy. Today, Gamma relies on cheap labour but in the future, it could be essential to develop a strong process for analysing and interpreting customer feedback more successfully.

5.3.5 The Interaction Between the Three Dimensions

The theory of Cross-Functional Collaboration (part 3.4.2) says that the three dimensions above show the best result on product innovation performance and incremental improvements when they are linked together. For Gamma, the market knowledge dimension is well developed in relation to the markets they have chosen to target, with qualitative collection at the beginning of the process and quantitative collection in the end. The cross-functional collaboration is also well developed among the higher-ranked employees and the process from customer to development is clear. These two factors get linked together to the knowledge integration mechanisms quite effectively with good communication and availability throughout the company, theoretically leading to success in product innovation performance. The markets targeted by Gamma differ a lot from the Western market, making it harder to analyse and compare it to the theories developed primarily with insights from Western companies. Nonetheless, more extensive integration and validation with customers along the process might improve the performance and preparation, for example, by developing a proper CRM system.

Based on the theoretical framework, the three dimensions can be summarised to consist of a number of activities, which are presented in Table 5.5. The table shows which checkpoints for each activity that corresponds well with how Gamma works and serves as a foundation for the overall rating of each activity presented in Table 5.6 and motivated below. It should be noted that for a checkpoint box to be marked, the statement must agree well with how the company works, and if the degree of correspondence is considered unclear, the box will be left unmarked.

Table 5.5: Table of checkpoints motivating the ratings for Gamma.

Activity	Checkpoint	Gamma
Collection of Customer Input	Several methods are used for collection	
	The methods are used efficiently	✓
	The methods are used frequently	✓
	Several internal stakeholders are involved	✓
	Information is gathered from both customers and end-users	

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Documentation of Customer Input	The documentation is conducted structurally	✓
	The documentation is conducted standardised	✓
	It is easy to review and access	✓
	All employees have access to the information	✓
	A special system is used for documentation	
	The company has a clear product backlog	✓
Internal Prioritisation	Several departments are involved with opinions	✓
	The prioritisation is mainly based on data	✓
	The prioritisation is made iteratively	
	There is a possibility for fast reprioritisation	
	The prioritisation is partly based on conducted cost-benefit analyses and potential trade-offs	✓
	The prioritisation is communicated internally	✓
Validation Before Implementation	The prioritisation is communicated to customers	
	Validation is made with lead customers	
	Tests are made to assure alignment with customer needs and discover specification elements expressed indistinctly or ambiguously	
	Validation and tests are made frequently	
	A JIT approach is conducted where only the necessary information is gathered	
Validation of Implementation	Several methods are used for collecting information	✓
	The methods are used frequently	✓
	A large amount of information is collected	✓
	The information is analysed efficiently	

Table 5.6 shows which internal stakeholders are involved and in what way they are so, summarising the interaction between the three dimensions. The last row in Table 5.6 shows the overall rating of each activity, which is based on the checkpoints in Table 5.5 above, and further motivated below. It should be noted that the rating is not a direct translation of the number of boxes checked but is an overall rating of the performance for each activity.

For Gamma, the internal stakeholder product management corresponds to both the managing directors (MDs), the product owners (POs), and the product council (PC). The account managers (AMs) will be assigned as part of the sales & marketing stakeholder. Customer support and R&D are named the same for Gamma and are, therefore, not considered to require any further explanation. UX was not specifically mentioned by the interviewee and are, therefore, not mentioned as part of any of the activities.

Table 5.6: Summary of which internal stakeholders that are involved in the different activities at Gamma.

Internal Stakeholder	Collection of Customer Input	Documentation of Customer Input	Internal Prioritisation	Validation Before Implementation	Validation of Implementation
Product Management	MD: dialogues with big customers	Spreadsheets	PO presenting, MDs and PC voting		
Sales & Marketing	AM: dialogues with remaining customers	Spreadsheets			
Customer Support	Dialogues	Spreadsheets			
R&D					A/B testing, Operational and event data
UX					
Rating	3	4	3	1	3

The first rating is motivated by that Gamma does not use several methods for collection of customer input, but the methods used are performed efficiently and frequently where several internal stakeholders are involved. Information is, however, only gathered from customers and not from private end-users. As for the second rating, the documentation is made structurally and standardised, and gets summarised before it continues in the process. It is also easy to review and access to all employees, although there is no special system used, preventing Gamma from getting the highest rating. Considering the prioritisation, it is made in a very standardised manner with the product owners presenting suggestions based on opinions from several stakeholders. The decisions are made by the product council, based on data, cost-benefit analyses, and potential trade-offs, and the prioritisation is communicated internally. The prioritisation is however not conducted very iteratively and made every six weeks, complicating fast reprioritisation. The fourth rating is very low due to the fact that the validation is not made at all with external customers, and a just-in-time approach is thereby not conducted since no information is gathered. It should, however, be noted that it is an active choice by the company to not validate before implementation. The last rating is motivated by that several methods are used for collecting information frequently. However, the company expresses difficulties in analysing and interpreting the information.

5.4 Company 4: Delta

5.4.1 Introduction: Offering and Market

Delta offers application software (i.e. not system software), through which its customers can use different types of services. Their original product, Delta One, can however not be seen as a SaaS offering as it is based on on-premise software, i.e. software that is being installed locally. Many of the characteristics of SaaS (part 3.2.2.) can be found in their second product, Delta Two, though. For instance, the product is accessed through a web browser, it does not require the customer to install software at its location, and the price largely depends on the actual usage of the product. Some integration work is, however, often required to connect the tool to the data sources used by the customer. Furthermore, their products have similarities with the electronic service characteristics described in theory (part 3.2.3). Interactive nature, self-service, and non-rivalry all apply to Delta's two main products.

Delta only targets companies and other organisations and are thus part of the B2B market (part 3.3.1). Many of the characteristics of the B2B market is apparent, including the fact that the customers' buying processes are more complex and involve more people compared to the B2C market. However, Delta's customers are not concentrated to a certain region but can be found all over the world, which according to theory is not the general case for a B2B market.

5.4.2 Market Knowledge Dimension

In terms of Classic Service Marketing (part 3.2.4), it can be concluded that Delta throughout the years has been more technology-driven than customer-driven. A transition towards a more direct focus on customers can be seen at the company, though, where the expansion of the CSM department is the clearest evidence. By expanding this department, the company extends its focus on interactive marketing, described as an important aspect of service marketing. However, their focus on internal marketing (another aspect of service marketing) appears to be insufficient as the departments have little insight into the work conducted at other departments at the company. According to theory, the quality of service offerings cannot be evaluated by traditional methods, but companies must rely on other ways to measure quality. Delta does, for example, customer satisfaction surveys in order to evaluate the quality of its services.

Comparing Delta with the relationships presented in the 30 Relationships Model (part 3.3.2), a few relationships significantly affecting the business of the company can be identified. Firstly, Delta has a large network of partners, meaning that it is important that the relationship referred to as the classic network, is properly managed. While a network like this might imply Delta getting further away from the end customers, it can help them in reaching more customers and adding more value

to their offerings. Secondly, the relationship, referred to as the many-headed customer and the many-headed supplier, clearly affects Delta. Delta itself, as well as, many of their customers, are large-size companies with explicit layers of decision-makers. In order to reduce the number of people involved in the communication with the customers, an account manager (or a customer success manager for the largest customers) is assigned to each customer. Similarly, the customers often have one or a few people managing communication with Delta. Although this kind of setup can help to streamline the interaction between the two parties, it also implies that, for example, people at the R&D department cannot contact end-users directly in order to do a usability study. Instead, this type of request must go through the account managers and perhaps several layers of managers at the customer site. Lastly, Delta manages several E-relationships. At their website alone, there is a community, digital support, and blogs, which all connect the company and stakeholders to each other. Furthermore, Delta uses digital tools, such as Qualtrics and Marketo, to reach out with digital surveys to the customers.

In regard to CRM (part 3.3.3), the theory states that more value can be extracted from customer relationships if a company has good strategies for involving both people, technology components, and business processes into the relationships. Delta, at least, has the technical abilities as the company already uses a comprehensive CRM system to store customer data etc. The number of people engaged in the relationships with the customers, as well as, adequate business processes for managing the relationships, have however been lacking. However, by the initiative of increasing the number of customer success managers at the company, Delta is now engaging more people in this type of work. By getting involved in the larger customers' short-term goals and long-term visions, they put a more evident focus on customer lifetime value. This corresponds well to CRM theory which emphasises focus on customer lifetime value.

As described in the empirics, Delta has different departments that apply different methods for collecting customer input. According to the Customer Touchpoints Model (part 3.4.5.2), the first activity in the model, *Collection*, usually involves product management and sales. This differs somewhat from Delta, where the product managers devolve much responsibility for the collection to the product design group, which focuses on user research and usability. At the sales side at Delta, the people primarily involved in collecting customer feedback is part of the Voice of the Customer (VoC) team and are not typical salespeople. The three types of requirement sources related to this activity (market studies and competitor analysis, automatically collected usage data, and the customer feedback collected directly from customer) are all utilised by Delta. The second activity, *Prioritisation*, is done in several steps at Delta, which will be elaborated on in the analysis of the knowledge integration mechanisms. Relevant here, though, is the involvement of customers related to this activity. The model argues that the results from the prioritisation analyses should be shared with customers in order to validate the decisions made. This is sometimes done by

the VoC team, who validates their recommended implementations by posting them on the community page. However, this validation takes place before cost-benefit analyses have been done at the R&D department and thus it does not include the final prioritisation. Furthermore, Delta performs "agile studies", where the development teams are able to validate that the implementation is aligned with customer needs. Hence, these studies are related to the third activity, *R&D Verification*, described in the model. Delta's verification activities are, thereby, also aligned with theory in terms of not solely focusing on detecting defects in the software. In this way, the company also solves the common issue of R&D having indirect access to user opinions. The last activity, *Deployment*, although described in the model as the stage where most customer data usually is collected, does not include much feedback collection performed by Delta. This probably depends on the fact that Delta has a network of partners doing much of the integration work for the customers, and that their main product is offered as SaaS. However, an onboarding survey is sent to customers shortly after they have started to use their offering.

Based on the Feedback Collection Framework (part 3.4.5.3), it can be concluded that Delta collects both qualitative and quantitative customer data. They collect qualitative feedback through surveys, interviews, usability studies, and customer dialogues. By doing the usability studies they gather click-based feedback, which, according to theory, usually is more reliable than opinion-based feedback. In terms of quantitative data, the company automatically collects usage data from the customers using their SaaS product. Although categorised as a qualitative method, the surveys also provide feedback for statistical purposes. However, opposite to the model, much of the quantitative data collected by Delta is applied at the early stages of the process of developing a new feature. This is possible as they can collect data from existing customers showing how users use the earlier releases of the products.

5.4.3 Cross-Functional Collaboration

The relationship between operations management and marketing, referred to as quality and customer orientation in the 30 Relationship Model (part 3.3.2), is a crucial relationship for Delta due to the size of the company. In terms of requirements engineering, these two functions are separated at the company. The company takes into account both the perspective of "doing the right things" and "doing things right". However, the communication and collaboration between the functional units are low. Although operations (R&D) mainly are focusing on the aspect of doing things right, the department referred to as the Product Design Group (especially the people working with user research) put much effort into understanding the users and thus doing the right things. Furthermore, there is potential to improve the internal marketing, as already mentioned in part 5.4.2.

The reason for the issues in achieving successful cross-functional collaborations at Delta might be found in the limited communication between the departments. According to theory (part 3.4.2), structured communication is a prerequisite for good collaboration. An example of the lack of communication at Delta is the fact that there is no follow-up between R&D and VoC in terms of what is being decided at the R&D department regarding the recommendations provided by the VoC team. Thus, sales are not informed whether their suggestions will be implemented or not. Another way of supporting cross-functional collaboration is to share superordinate goals. These goals could explicitly state certain focus areas, which could help align the recommendations from sales with the development work performed by R&D. According to theory, superordinate goals can not only contribute to enhanced task performance but also contribute to positive psychosocial effects. Moreover, if the prioritisation would have been performed in a more collaborative manner between sales and R&D, the frustration from sales could be reduced and the alignment with customer needs could be improved. In total, more extensive cross-functional collaboration could, thereby, improve product innovation performance, as shown in theory.

However, within the product and R&D division, cross-functional collaboration is more established. An example is the agile studies, in which end-users, developers and people from the product design group participate. In this way, the development teams receive instant feedback on their prototypes. The organisational structure at the R&D department also has similarities with the Agile Principles (part 3.4.3), which suggests organisation in a network of empowered teams. The teams at Delta are characterised by a seemingly high degree of freedom concerning how to implement a product feature. Nevertheless, the department (and the company as a whole) is rather hierarchically organised as it consists of several managerial levels. This opposes the characteristics of an agile organisation. However, due to the size of the company, achieving a fully agile organisation at Delta is difficult.

In terms of the Internal Stakeholders (part 3.4.5.1), the people somehow involved in the requirements engineering process at Delta agrees well with theory. At Delta, sales and marketing, in this case, corresponds to the account managers, customer success managers, and VoC, while UX corresponds to the product design group (consisting of people responsible for user research and usability). Furthermore, product management, customer support, and product line management can be found at the company. The role of the product manager slightly differs from the description provided in theory, though. At Delta, much of the actual customer feedback collection is delegated to other internal stakeholders, such as the product design group and the VoC. Yet, the product managers have an important role in pursuing a high-level approach to product development.

5.4.4 Knowledge Integration Mechanisms

Comparing the integration structures and processes at Delta with the theory about New Service Development (part 3.4.1), similarities can be seen. The overall process for new services, consisting of an initial phase of idea generation, followed by analysis and lastly development and launch, is in large part similar to the process at Delta. Differences can be seen in the first phase, which, for Delta, is more characterised by understanding customer needs than stated in the model. New concepts (features) can be generated in the first phase at Delta but are not further designed, developed and tested until reaching the development phase. The difference in the fact that Delta's offerings are no typical services implies the development phase to become more distinct and also assigned to a specific group of people with programming skills. Furthermore, Delta rarely pursues development of fully new services but rather incremental add-ons and improvements of existing ones. The consequence of this becomes that the last step in the model, i.e. full launch, plays a minor part in the total process at Delta.

In terms of software development, the development department follows the basics of Agile Software Development (part 3.4.3), including work in short iterations and daily stand-up meetings with the team. The work is also adjusted to time-based milestones, where the scope is revised rather than the time of the milestone. This is also a common feature in agile methodologies. In the area of Requirements Engineering (part 3.4.4), requirements elicitation is performed both by sales, and the product and R&D department. While sales focus more on understanding the needs of each customer, the product and R&D department focus more on the needs of different user groups. The elicitation activity is performed iteratively and in different phases of the process at Delta, i.e. not only in the initial phase of the process. For instance, the product design group collects feedback on behalf of the development teams to get insights into the user needs regarding a specific area. The requirements documentation is not done in a requirement specification as in traditional requirements engineering. Instead, the development department uses Jira as a digital tool to manage the backlog, aligned with common agile requirements engineering practices. The customer support has access to this tool as well, but for sales and the product design group, documentation of customer needs is done mostly in spreadsheets, reports or presentations. According to theory, there is a common challenge in storing and distributing customer feedback internally at companies, which can be seen at Delta as well. The company struggles in documenting customer feedback structurally in a common system, as well as providing good information visibility throughout the firm. In terms of requirements validation, VoC occasionally publishes posts at the community page to validate their prioritisation of features. The product design group also helps in validating that the solutions are aligned with customer needs by performing usability studies, either with real prototypes or with InVision prototypes (explained in part 4.4.3.1). Requirements management is much done in Jira, where items in the product backlog can be

reprioritised, etc. The continuous review of the backlog is consistent with the recommendations provided in the theory about ARE. So is also the just-in-time approach applied by the product design group, whose collection of customer feedback is directly linked to an ongoing development project.

The activity of prioritising ideas, mentioned in the Customer Touchpoint Model (part 3.4.5.2), can be interpreted as being performed in two separate steps at Delta. In an initial step, ideas are prioritised by the VoC team, based on results from surveys, etc., and in a second step, ideas are prioritised at the product and R&D division, by triangulation of opportunity scores, usage data, and results from usability studies. The development teams also account for cost-benefit analysis and time estimates, which affect in what order features are implemented. By these approaches, the prioritisation at Delta becomes more data-driven and the company thus avoids the challenge, mentioned in theory, of prioritisation being based on employees' gut feelings. A difference to theory is that the prioritisation activity is not as clearly centred on the product managers, even if they are involved, but rather distributed throughout the firm.

5.4.5 The Interaction Between the Three Dimensions

The theory of Cross-Functional Collaboration (part 3.4.2) says that the three dimensions above show the best result on product innovation performance and incremental improvements when they are linked together. Delta has started to put a lot of effort into the market knowledge dimension and are using several different types of collection techniques, both quantitative and qualitative. However, they do not achieve the full potential of the gathered information due to deficiencies in the other two dimensions, mainly in the cross-functional dimension. As sales and R&D work almost as in silos with a very limited degree of collaboration, essential market knowledge from the sales division is not enough shared with R&D. Except for the lack of communication between the departments, the fact that they use different digital tools to store customer feedback obstructs the transparency of information throughout the organisation. Nevertheless, they excel in validating the requirements before and during the implementations of new features, as well as including a clear focus both on the customer perspective and the user perspective. A prominent activity performed by Delta is the agile studies, which indicate that the company has adopted the philosophy of agile software development, promoting development teams to increase their interaction with users and customers.

Based on the theoretical framework, the three dimensions can be summarised to consist of a number of activities, which are presented in Table 5.7. The table shows which checkpoints for each activity that corresponds well with how Delta works and serves as a foundation for the overall rating of each activity presented in Table 5.8 and motivated below. It should be noted that for a

checkpoint box to be marked the statement must agree well with how the company works, and if the degree of correspondence is considered unclear, the box will be left unmarked.

Table 5.7: Table of checkpoints motivating the ratings for Delta.

Activity	Checkpoint	Delta
Collection of Customer Input	Several methods are used for collection	✓
	The methods are used efficiently	
	The methods are used frequently	✓
	Several internal stakeholders are involved	✓
	Information is gathered from both customers and end-users	✓
Documentation of Customer Input	The documentation is conducted structurally	✓
	The documentation is conducted standardised	
	It is easy to review and access	
	All employees have access to the information	
	A special system is used for documentation	
	The company has a clear product backlog	✓
Internal Prioritisation	Several departments are involved with opinions	✓
	The prioritisation is mainly based on data	✓
	The prioritisation is made iteratively	
	There is a possibility for fast reprioritisation	
	The prioritisation is partly based on conducted cost-benefit analyses and potential trade-offs	✓
	The prioritisation is communicated internally	
Validation Before Implementation	The prioritisation is communicated to customers	✓
	Validation is made with lead customers	
	Tests are made to assure alignment with customer needs and discover specification elements expressed indistinctly or ambiguously	✓
	Validation and tests are made frequently	✓
	A JIT approach is conducted where only the necessary information is gathered	✓
Validation of Implementation	Several methods are used for collecting information	✓
	The methods are used frequently	
	A large amount of information is collected	✓
	The information is analysed efficiently	✓

Table 5.8 shows which internal stakeholders are involved and in what way they are so, summarising the interaction between the three dimensions. The last row in Table 5.8 shows the overall rating of each activity, which is based on the checkpoints in Table 5.7 above, and further motivated below It should be noted that the rating is not a direct translation of the number of boxes checked but is an overall rating of the performance for each activity.

For Delta, the Voice of the Customer team (VoC), customer success management (CSM), and account managers (AM) will be assigned as part of the sales & marketing stakeholder. The usability and user research team will be considered a part of the UX internal stakeholder. The remaining internal stakeholders, product management, customer support, and R&D, are named the same for Delta and are, therefore, not considered to require any further explanation.

Table 5.8: Summary of which internal stakeholders that are involved in the different activities at Delta.

Internal Stakeholder	Collection of Customer Input	Documentation of Customer Input	Internal Prioritisation	Validation Before Implementation	Validation of Implementation
Product Management			Participates in prioritisation		
Sales & Marketing	VoC: surveys AM: dialogues, CSM: dialogues	Salesforce (CRM system): survey responds Spreadsheets: processing of surveys responds	Prioritisation of ideas from sales side	Publication at community for validation of prioritised ideas	In-product surveys
Customer Support		Jira: bug fixing			
R&D			Cost-benefit analyses and time estimates	Prototype testing (InVision prototypes)	Prototype testing (real prototypes)
UX	Surveys, interviews, expert evaluations	Presentations and reports		Observations, prototype testing (InVision prototypes), operational and event data	Prototype testing (real prototypes) and benchmarking
Rating	4	2	3	5	4

The first activity's rating is based on that Delta uses several different methods frequently with several internal stakeholders involved. They also collect feedback from both customers and end-users. However, the customers have experienced that it is sometimes difficult to leave input on their own initiative and that the contact with account managers is inadequate, indicating that the methods are used inefficiently. The low rating for the documentation activity is based on that each department documents customer input in their own spreadsheets, which the rest of the company does not have access to, limiting the integration of customer input. As for the prioritisation, it is made thoroughly and data driven by the sales department, R&D and UX separately but they lack cross-functionality since there is no regular opportunity for sharing and discussing opinions among the departments. The validation before implementation is made thoroughly by several departments, assuring that the correct features are prioritised. Both tests and validation are made frequently, triangulating the results from surveys, usage data, agile studies, and usability studies, resulting in Delta getting the highest rating. Validation during implementation is conducted based on if the R&D department experiences insecurity in the direction of the developing feature, indicating that the methods are not used frequently. Several methods are, however, used by several departments, and a large amount of information is collected and analysed efficiently, resulting in a high rating.

5.5 Company 5: Epsilon

5.5.1 Introduction: Offering and Market

Epsilon operates in the business intelligence and performance management market with a product that fundamentally is a SaaS solution. The solution is, however, integrated at the customer site by consultants, making Epsilon partly a delivering company. The SaaS characteristics, therefore, correspond well to the fundamental offering but not as well with the whole company offering, since the product is tailor-made for each customer by the consultants. However, the other characteristics fit in well since there is no installation made, a web browser is needed, and the price is based on the grade of usage. The company in total becomes more of a service company than pure SaaS companies since the consultants perform services at the customer sites. Considering the B2B market, Epsilon works a lot toward companies in the same types of industries, making it possible for them to sort their customers into segments. Also, the sale is often made towards one or a few people at the companies, who also are the ones that are going to use the product, creating the possibility to act more as B2C and thereby avoiding the risks from business buyer behaviour (part 3.3.1.2).

5.5.2 Market Knowledge Dimension

The theory on Classic Service Marketing (part 3.2.4) says that customers, in general, are becoming more demanding and the provider's need to focus on differentiation, quality, and productivity is increasing. Epsilon differentiates from its competitors by offering a complete solution of three areas, where competitors are often specialised in one, which can be perceived as easier and of higher quality by the customer. However, Epsilon might miss out on potential customers who are only seeking a simple solution to one of the three areas. The quality is measured by the number of churns, which has been very low, indicating that the customers are satisfied with the quality. When it comes to interactive marketing, this is done mainly by the consultants who act as the service encounter. The focus on internal marketing, where the firm motivates its employees to work as a team to provide customer satisfaction, is perceived as evolving within the company.

Regarding Relationship Marketing (3.3.2), Epsilon emphasises personal relationships with its customers with the consultants working as interactive marketers, communicating with the customers continuously. This makes them clear PTMs. The aim is to keep their customers for as long as possible, which, looking at the low churn, seems to be working. Some risks with the many-headed relationships are avoided by only communicating with the employees at the customer company who is actually using the product. The provider, however, has a quite many-headed organisation where both consultants, customer support, and sales personnel are in contact with the customers, possibly leading to information being lost or repeated in the systems. The e-

relationship is partly taken away by the use of consultants but partly embraced by using the online community to communicate with customers.

Furthermore, Epsilon has both a CRM system and a CSM team. The CRM system is mainly used for sales support but as the competition is growing and customers are becoming more demanding it could be of interest to use it for existing customers as well. This since a well-implemented CRM system has proven to increase business insight, improve employee efficiency, and contribute to better customer experiences. It can also help to address the trends of growing competition and more demanding customers. The CSM team's main focus is to sell new features to existing customers. In total, both CRM and CSM could be used for more purposes than selling.

As for the theory of the Customer Touchpoints Model (part 3.4.5.2), the collection of input from customers is made at many stages in the process, both qualitatively and quantitatively. The clear touchpoints are through the customer support, the consultants, the community and through the survey. It is unclear whether market studies or competitor analyses are executed. The prioritisation is generally not communicated towards the customers, but news about the products are sometimes posted at the online community. Validation is usually not performed with customers, unless someone explicitly asks for it. However, since specific wishes are often handled by the consultants, the validation of tasks performed by the R&D teams can be regarded as less important. Pilots have however been made and news is as mentioned communicated at the online community, making it possible for customers to deliver opinions, creating indirect validation. As for the deployment stage, both qualitative and quantitative information is collected, creating many touchpoints with customers. In total, Epsilon's process agrees well with the theory of the Customer Touchpoints Model.

According to the theory of Collection Techniques (3.4.5.2), qualitative data is more suited to be collected at the beginning of the process and quantitative data is more suited for the later stages of the process. Since updates of the product are released once a month, it is difficult, though, to determine where in the process qualitative versus quantitative information is collected. The perception is rather that collection with both qualitative and quantitative methods is made continuously throughout the process when convenient. It could be of advantage to have a more structured approach to where in the process collection of information should occur. Moreover, it is unclear how much of the data collected by the consultants that are documented, and thus providing statistics. This together with a more extensive collection of big data could be of interest if the company grows and attracts more customers, making it harder and more expensive to collect high amounts of qualitative data. The problem with a lot of useless data is managed by attempts of clearing the system from old and outdated information.

In conclusion, Epsilon uses many different methods for collecting data and validates it partly through the online community. However, there could be a risk of only getting feedback from a small group of active customers who enjoy engaging in what features to be developed. This could potentially lead to that input from the active customers are perceived as more important, implying that input from customers that are less active gets forgotten. If this were to happen, the benefit of making strong relationships stronger will come at the expense of, and even impair, other, maybe less strong, relationships. Therefore, it would be preferable to use more than one channel for customer validation.

5.5.3 Cross-Functional Collaboration

When looking at Internal Relationships (part 3.3.2), the coordination between the marketing and the development departments are made with the product organisation as an intermediary, making the commonly experienced gap smaller. When making decisions and prioritising, the product organisation receives input from both ways, which reduces the risk of the solutions being either too technical or too non-technical. As for internal marketing, it is unclear how much focus is put on building relationships among employees, management and different functions with the partial goal to prepare them for changes in organisational structures and business missions. If this is not focused on, it could be of high interest to increase the focus since internal marketing works as an anterior to, and thereby creating better conditions for, external marketing.

As for Cross-Functional Collaboration (part 3.4.2), the departments are working cross-functionally with the product organisation as a midpoint. Information is channelled from the different departments using tools like Prodpad and Jira, where customers could be considered part of the process. The theory emphasises the importance of communicating superordinate goals, which is not experienced as pervasive in the organisation. It is, however, clear that Epsilon has increased the focus on working cross-functionally by the introduction of the product organisation about one and a half years ago. Continuing this work and also introducing clear communication of superordinate goals could result in an even more positive effect on product innovation performance.

Regarding the Internal Stakeholders (part 3.4.5.1), the product organisation is responsible for the requirements engineering process, and thereby also for the assurance that the customer needs are adequately accounted for in the software development. In consideration of the young product organisation, the translation is experienced as well-working in cooperation with both internal and external stakeholders. As for the internal stakeholders involved in the process mentioned in the theory, i.e. customer support, R&D, and marketing & sales, the same stakeholders are involved at Epsilon, making it correspond well to the theory.

5.5.4 Knowledge Integration Mechanisms

The development department consists of two teams that work in sprints of two weeks, implying an agile way of working (part 3.4.3). Also, a constant focus on delivering value to the customers is perceived as a core purpose in the organisation. As for the New Service Development process (part 3.4.1), the design and analysis phases are made primarily by the product organisation, while the development and full launch phases are in the responsibility of the development department. In the development process, pilots have been made, corresponding to the theory. The core of the NSD process is the enablers of tools, teams and organisational context which agrees with Epsilon's focus areas of enablers.

Regarding Traditional Requirements Engineering (part 3.4.4.1), Epsilon corresponds overall well to the theory. The elicitation stage, where the aim is to understand the requirements and system boundaries through dialogues with stakeholders, is performed by the product organisation. This is supposed to be made in close collaboration with the customers, which is achieved through the many ways of collecting and integrating customer feedback into the product organisation. The documentation is made both in ProdPad and Jira, depending on the type and refinement of the suggestion. It is, however, unclear how standardised this is. Since it is perceived as difficult to find information and navigate in the systems, it could be of advantage to have a standardised way of documenting information. The validation stage is mainly performed internally and instead of validating externally focus is held on collecting much information at the beginning and work in short iterations with frequent product updates. The managing of the requirements engineering is done by the product organisation.

In terms of Agile Requirements Engineering (3.4.4.2), Epsilon is working hard with only collecting relevant and the necessary amount of information, agreeing with the theory. Attempts to clean the systems from old and irrelevant information have, as mentioned, been made with the aim of making it easier to find relevant information. The stages presented in the traditional requirements engineering are blurred together and made iteratively, aligned with the theory. The product backlog is dynamic and the collection of especially qualitative information by the consultants can be perceived as made through a just-in-time approach. Also, the different departments work in close collaboration to be able to reprioritise, if necessary. In total, Epsilon's working process corresponds well to the theory of Agile Requirements Engineering.

The process from customers to the R&D can be considered long, increasing the risk of the open-loop problem (part 3.4.5.4), where development is done based on opinions instead of customer feedback. However, since a lot of development is done by the consultants as well, the risk of input getting lost or altered on the way to the development team is lower than for companies without consultants. Moreover, the product organisation strive for limiting the risk of information getting

lost or altered, even though it could be more structured and standardised, making it easier to find specific information. The challenges of avoiding poorly written specifications and prioritisation involving assumptions or personal opinions are also in the responsibility of the product organisation.

As for the aim of knowledge integration mechanisms in the structures and processes of capturing, analysing, interpreting and integrating knowledge within the firm, Epsilon's success is perceived as scattered. As for the capturing, a lot of information is collected in many different ways, but it is difficult to get a feeling of how easily overviewed the information is, which could be of advantage in order to capture the most important information. The analysis, interpretation and integration are all experienced as performed relatively successful by the product organisation, in collaboration with the professional services department and development department.

5.5.5 The Interaction Between the Three Dimensions

The theory of Cross-Functional Collaboration (part 3.4.2) says that three dimensions show the best result on product innovation performance and incremental improvements when they are linked together. For Epsilon, the market knowledge dimension is well developed, using many different methods for collecting customer input. However, the collection is perceived as a bit unstructured and unsystematic making it harder to distribute it internally. Also, big data could be collected to a larger extent. As for the cross-functional collaboration dimension, this has been introduced lately in the company and is still constantly evolving. These two dimensions should be linked together through knowledge integration mechanisms, leading to higher performance in incremental improvements. This is considered consistently successful throughout the process except in the case of documentation and integration of information, which could be done more structurally and standardised.

Based on the theoretical framework, the three dimensions can be summarised to consist of a number of activities, which are presented in Table 5.9. The table shows which checkpoints for each activity that corresponds well with how Epsilon works and serves as a foundation for the overall rating of each activity presented in Table 5.10 and motivated below. It should be noted that for a checkpoint box to be marked the statement must agree well with how the company works, and if the degree of correspondence is considered unclear, the box will be left unmarked.

Table 5.9: Table of checkpoints motivating the ratings for Epsilon.

Activity	Checkpoint	Epsilon
Collection of Customer Input	Several methods are used for collection	✓
	The methods are used efficiently	✓
	The methods are used frequently	✓
	Several internal stakeholders are involved	✓
	Information is gathered from both customers and end-users	
Documentation of Customer Input	The documentation is conducted structurally	
	The documentation is conducted standardised	
	It is easy to review and access	
	All employees have access to the information	
	A special system is used for documentation	✓
	The company has a clear product backlog	✓
Internal Prioritisation	Several departments are involved with opinions	✓
	The prioritisation is mainly based on data	
	The prioritisation is made iteratively	✓
	There is a possibility for fast reprioritisation	✓
	The prioritisation is partly based on conducted cost-benefit analyses and potential trade-offs	✓
	The prioritisation is communicated internally	
Validation Before Implementation	The prioritisation is communicated to customers	✓
	Validation is made with lead customers	
	Tests are made to assure alignment with customer needs and discover specification elements expressed indistinctly or ambiguously	
	Validation and tests are made frequently	
	A JIT approach is conducted where only the necessary information is gathered	✓
Validation of Implementation	Several methods are used for collecting information	✓
	The methods are used frequently	✓
	A large amount of information is collected	
	The information is analysed efficiently	✓

Table 5.10 shows which internal stakeholders are involved and in what way they are so, summarising the interaction between the three dimensions. The last row in Table 5.10 shows the overall rating of each activity, which is based on the checkpoints in Table 5.9 above, and further

motivated below. It should be noted that the rating is not a direct translation of the number of boxes checked but is an overall rating of the performance for each activity.

For Epsilon, the internal stakeholder product management corresponds to the product organisation (PO). The consultants, as well as, the online community are considered part of the sales & marketing stakeholder. Customer support and R&D are named the same for Epsilon and are, therefore, not considered to require any further explanation. UX was not specifically mentioned by the interviewees and are, therefore, not mentioned as part of any of the activities.

Table 5.10: Summary of which internal stakeholders that are involved in the different activities at Epsilon.

Internal Stakeholder	Collection of Customer Input	Documentation of Customer Input	Internal Prioritisation	Validation Before Implementation	Validation of Implementation
Product Management			PO makes decisions		
Sales & Marketing	Consultants: dialogues Marketing: survey community Sales: notes lost sales, CSM	ProdPad and Jira	Consultants share opinions	Community: post news about the product	Community: post news about the product
Customer Support	Can bring forward great suggestions				
R&D			R&D share opinions		Operational and event data
UX					
Rating	4	2	4	2	3

The first rating is based on that Epsilon uses several collection methods efficiently and frequently. There are also several internal stakeholders involved, gathering information mainly from customers, but not from end-users, which prevents Epsilon from getting the highest rating. Considering the documentation, it is interpreted as a bit unclear. Although special systems are used and there is a product backlog, the documentation is regarded quite unstructured, unstandardised, difficult to review and not accessible to all employees, resulting in a low rating. The rating of internal prioritisation is based on that the product organisation considers opinions from several departments when prioritising, and that it is made iteratively with the possibility for fast reprioritising. Yet, it was not interpreted that the prioritisation was mainly based on data but more on personal opinions and gut feelings, and the prioritisation is not interpreted as communicated internally. Validation before implementation is partly communicated to external customers

through the online community and a just-in-time approach is, therefore, considered partly conducted where only necessary information is asked for. However, validation is not made with lead customers, and validation tests are not conducted, lowering the rating. Considering the last rating, it is based on that several methods are used for gathering information and it is analysed quite efficiently. It was, however, interpreted only a small amount of information is being collected, preventing Epsilon from getting a higher rating.

5.6 Comparative Analysis

The comparative analysis will be divided into five parts discussing each of the activities rated in the prior sections and the checkpoints connected to the activities. Table 5.11 shows a summary of the checkpoints marked for each activity for all companies, working as a basis for the comparative analysis. Further down, Table 5.12 will show a summary of the performance ratings given to all companies at each activity. The analysis will principally be based on the tables, but further trends or factors that have been noticed throughout the analysis will be mentioned.

Table 5.11: Summary of checkpoints marked for each activity for all the companies.

Activity	Checkpoint	Alpha	Beta	Gamma	Delta	Epsilon
Collection of Customer Input	Several methods are used for collection	✓			✓	✓
	The methods are used efficiently	✓		✓		✓
	The methods are used frequently	✓	✓	✓	✓	✓
	Several internal stakeholders are involved	✓	✓	✓	✓	✓
	Information is gathered from both customers and end-users		✓		✓	
Documentation of Customer Input	The documentation is conducted structurally		✓	✓	✓	
	The documentation is conducted standardised			✓		
	It is easy to review and access		✓	✓		
	All employees have access to the information	✓	✓	✓		
	A special system is used for documentation	✓	✓			✓
	The company has a clear product backlog	✓		✓	✓	✓
Internal Prioritisation	Several departments are involved with opinions	✓	✓	✓	✓	✓
	The prioritisation is mainly based on data	✓		✓	✓	
	The prioritisation is made iteratively	✓	✓			✓
	There is a possibility for fast reprioritisation	✓	✓			✓
	The prioritisation is partly based on conducted cost-benefit analyses and potential trade-offs	✓	✓	✓	✓	✓
	The prioritisation is communicated internally	✓		✓		

Validation Before Implementation	The prioritisation is communicated to customers				✓	✓
	Validation is made with lead customers	✓	✓			
	Tests are made to assure alignment with customer needs and discover specification elements expressed indistinctly or ambiguously	✓	✓		✓	
	Validation and tests are made frequently				✓	
	A JIT approach is conducted where only the necessary information is gathered	✓	✓		✓	✓
Validation of Implementation	Several methods are used for collecting information	✓		✓	✓	✓
	The methods are used frequently			✓		✓
	A large amount of information is collected			✓	✓	
	The information is analysed efficiently	✓	✓		✓	✓

5.6.1 Collection of Customer Input

Regarding the rates of the collection of customer input, the case companies show a relatively even distribution. Most methods used at the beginning of the process are of qualitative nature, agreeing with the theory. All companies involve several stakeholders and perform their respective methods frequently, but the number of methods used and whether they are used efficiently differs among the companies. It could, however, be considered a question of interpretation whether it is more successful to use several methods for collection if these are not performed efficiently (like Delta) compared to only using one method and do this efficiently (like Gamma).

Furthermore, three out of five companies choose not to gather feedback from end-users. This could depend on the type of market they are operating in, the number of customers they have or that they just do not consider information from end-users important. As for the customers, all companies collect information from them and it is a pervading focus on creating personal relationships, either by personal advisers or through consultants implementing the solution at customer site. The risks in many-headed relationships, being a consequence of working B2B, is handled by consistently focusing on personal relationships. One relationship that differs among the companies is the classic network relationship, since it depends on whether the companies have chosen to have partners or not. The collection of input from customers acquired by partners, and the relationships with these customers, are outsourced to the partners for Alpha and Delta, which affects the relationships compared to direct customers. Furthermore, both the number of customers and the sizes of the customer companies affects how the companies work.

The collection has also shown to differ depending on the degree of SaaS solution that the company offers. Both Beta and Epsilon differentiate their offers by customising them based on the customer's needs, collecting information via their consultants. This while Alpha and Delta, who have clearer SaaS solutions, work more with gathering information through partners and personal advisers and surveys respectively.

5.6.2 Documentation of Customer Input

The documentation of customer input can be viewed as more or less of a struggle for all the companies. The main issue can be seen as difficulties in managing, reducing, and structuring the information in a standardised way, so that it is easier to overview. Gamma is the only company that has a person with a clear role of reducing the information collected by the account managers before it continues in the process, which could be beneficial for the other companies as well. Many of the companies also collect information from several sources by several internal stake-holders, complicating the possibility of documenting the information standardised.

Even though a special system is used for three out of five companies, they struggle in keeping the information standardised. This could be managed by setting a structured way for categorisation and having a regular approach for only keeping the relevant and up to date information in the system. It could also be of preference to keep statistics of the number of customers who have suggested or asked for a specific feature, possibly reducing the frustration of customer support personnel who experiences that their feedback is never being followed up on.

The majority of the companies have a clear product backlog that is available to the rest of the company, which facilitates cross-functional cooperation. It also makes it easier to follow which customer feedback has continued to the development department or is planned to be implemented.

5.6.3 Internal Prioritisation

The internal prioritisation is the activity with the total highest rating. All companies have succeeded in involving several departments with opinions either in the decision process or before the process. Even so, it could be seen as a trend that decisions are many times based on personal opinions and gut feelings rather than customer input data. This could, however, be a direct consequence of that many companies experience difficulties in creating statistics of and, thereby, clearly overview the data collected from customers.

For the case companies in this study, it can also be seen that the larger the company is, the harder it is to work iteratively and make fast reprioritisations. Generally, the companies are lacking in communicating the prioritisation internally in the company. Clear communication has been shown

in theory resulting in decreasing disagreement between departments as well as improving innovation and cooperation, which indicated that the companies could benefit from communicating the prioritisation internally. As mentioned, all companies involve opinions from several departments, but it differs in how cross-functionally it is conducted, which could be a direct consequence of communication issues. It is also generally seen that superordinate goals do not permeate the organisation, possibly resulting in different perceptions of what should be prioritised.

5.6.4 Validation Before Implementation

Unlike prior activities, the validation has shown to be conducted more efficiently for the larger company, Delta, than for the smaller companies. The ratings are also higher for the companies that have been active for a relatively longer time, which is interpreted as the focus on validation before implementation is increasing as the company matures. Generally, validation before implementation is only conducted at specific grounds when it is found necessary, which results in that the smaller companies do not agree with the statement of frequency. As before, it can be considered a question of interpretation of what is the most important, to validate regularly or to do it thoroughly when it is considered especially important.

All companies, except Gamma who never validates before implementation, are conducting a just-in-time approach successfully, agreeing with their alleged agile way of working. It has also been shown that the size of the feature is an important factor in the degree of validation before implementation, as well as, the size and number of customers requesting the feature. Further-more, the agile studies performed by Delta is regarded as a successful way of involving customers at this stage of the process.

It has also been considered a successful approach to have an online community where planned and ongoing implementation ideas and features are posted. This as customers who are interested get the opportunity to add comments and suggestions, and thereby validate that the features implemented are aligned with their wants and needs. An identified disadvantage from an online community is, however, that it comes with the risk of missing out on opinions from customers who do not comment and, thereby, only the opinions of the most verbal customers are regarded.

5.6.5 Validation of Implementation

The ratings of validation of implementation show a quite even result. The company with the highest rating is again the larger company Delta, as the only company that collects a large amount of information and also succeeds in analysing it efficiently. As for Alpha and Epsilon, they use several methods for collecting a smaller amount of information and analyse this efficiently, while Beta only uses one method but still analyse the information efficiently. This could be seen as a clear connection to the lack of knowledge in how to manage the data. Gamma collects a lot of

information frequently using several methods but lack in analysing the information efficiently. Still, they have the same rating as Alpha and Epsilon, initiating the question of what is most important, collecting a large amount of information or analysing the actual information efficiently. The information collected for validation of implementation is mostly of quantitative nature, agreeing with the theory.

5.6.6 Summarising Analysis

Table 5.12 shows a summary of the ratings of the five case companies for each activity. As can be seen in the table, there is no clear pattern of what companies are generally good at as it differs from company to company. As mentioned above, the companies who manage to check most of or all of the boxes in table 5.11 above have a more successful approach to the activities than the companies who checks fewer boxes. It should, however, be kept in mind that from a value-creating perspective, a company should always do everything they can to satisfy their customers, but in reality, the first thing for a company is to be profitable. This implying that in a realistic perspective, it is not possible for a company to be the best at all statements in Table 5.11 but must focus on the ones most suitable for the specific company.

Table 5.12: Summary of the ratings of the five case companies.

Company	Collection of Customer Input	Documentation of Customer Input	Internal Prioritisation	Validation Before Implementation	Validation of Implementation
Alpha	4	3	5	3	3
Beta	3	4	3	3	2
Gamma	3	4	3	1	3
Delta	4	2	3	5	4
Epsilon	4	2	4	2	3

The analysis has shown that there is no single approach that should be applied to collect customer feedback successfully for a SaaS company working B2B. The important thing to consider is that methods should not be used for collection if the information cannot be managed, structured and categorised in a standardised way. Otherwise, the risk is high of spending much effort on collecting information that never proceeds in the process. This applies both to qualitative data collected early in the process and quantitative data collected at later stages. It is also clear that the number of customers and the size of customer companies also affects the ways that a company is collecting customer feedback. The size and organisational structure of the company itself together with the degree of SaaS solution that they offer has also shown to affect the way feedback is collected.

Generally, the companies are relatively good at integrating customer feedback and opinions when prioritising internally, but lack in documenting the feedback in a standardised way, resulting in no clear statistics of customer input. All companies have some sort of product owner or product organisation that works as an intermediary, which facilitates the integration and involvement of several departments, and thus facilitate cross-functional collaboration. This type of collaboration seems to work better in the smaller companies, compared to the larger company, Delta, where the separate departments are very well-developed and successful at their own tasks but lack the ability of effective communication to and monitoring of information proceeded to other departments.

Common, pervading shortcomings that have been identified are unstructured documentation, lack of data-driven prioritisation, insufficient validation, lack of routines for collecting feedback, insufficient use of quantitative collection methods, and inefficient communication of super-ordinate goals. To summarise, these shortcomings are described below.

Unstructured documentation: In general, the companies do not struggle with collecting a high amount of information. However, problems with sorting, structuring the input, as well as, making it transparent have been experienced. The R&D departments, on the other side, often have clear documentation in the shape of clear product backlogs.

Lack of data-driven prioritisation: A general struggle with making internal prioritisation data-driven and less based on personal opinions have been seen throughout the study. It is also common that internal employees, who emphasise their own suggestions, get their will through.

Insufficient validation: The companies often miss aligning the prioritisation with customer needs. Specified requirements are seen as truths and are rarely validated with customers.

Lack of routines for collecting feedback: In general, there is no clear routine of how and when feedback is collected later in the process but it is often dependent on the individual development teams.

Insufficient use of quantitative collection methods: It has been seen that the use of qualitative methods is higher early in the process and the use of quantitative methods increases along the process. However, there are shortcomings in the use of quantitative methods where companies generally struggle in collecting, for example, click-based information that is usually more reliable than opinion-based feedback.

Inefficient communication of superordinate goals: The companies, in general, collect a high amount of information. Effective communication of superordinate goals throughout the organisation could help reduce the amount of irrelevant customer input in the system, as well as, clarifying which type of information should proceed in the process.

6 Summary and Recommendations

This chapter will provide a summary and the recommendations of the study based on the analysis conducted in the former chapter. The summary aims to answer the purpose of the study, while the recommendations will be generated both to SaaS companies working B2B in general, but also individually to the five case companies. The recommendations will also discuss answers to research question 1 and 2.

6.1 Summary

The summary aims to answer the purpose of the study. The overall goal of the study was to describe and understand structured approaches whose purpose is to achieve incremental improvements of the company's offer through the integration of customer feedback into different functional units.

The study has shown that there is no single approach that is the correct one for achieving incremental improvements of the company´s offer by integrating customer feedback. However, five factors have been identified that can help to describe and understand potential structured approaches for SaaS companies working B2B. These are described below.

Company characteristics: One characteristic that affects their approaches is the size, where bigger companies, in general, have more resources, both financial and human, to use many methods but smaller companies are better at overviewing and integrating throughout the whole process. The hierarchy of the organisation also plays a role in how decisions are made and how information is transferred within the organisation. Another characteristic is the board's level of focus on customer value, which affects the overall focus of collecting and integrating input.

Customer characteristics: The characteristics of the customers that have shown to affect the company's approaches are, among others, the differences in size, the total number, and the distribution of both the customer's location and its operating field.

Offer characteristics: Depending on the level of SaaS-solution the company offers, the approaches for collecting feedback have shown to differ. Companies focusing on customising the product often rely extensively on feedback gathered by the consultants, while pure SaaS companies use other, various methods, for collecting customer input. Larger feature implementations also require more extensive validation work than smaller ones.

Type of network: The company's network strategy has shown to affect the approach, dependent on if the company chooses to work with partners, retailers or outsourcing of activities. Companies applying a strategy involving a high degree of outsourcing need to manage more indirect channels to its customers compared to companies performing a greater part of its activities in-house.

Market maturity level: The characteristics of the market that the company is operating within has also shown to be affecting the approach of collecting and integrating feedback. Generally, companies operating in more developed markets, e.g. the northern European countries, use more IT tools both for collection and integration of feedback, and involve more internal stakeholders in the analysis and decision work.

6.2 Recommendations

The recommendations are based on both the theory, the analysis, and the summary above. It will begin with recommendations to SaaS companies working B2B in general and continue with a few recommendations for each case company. The recommendations aim to answer and discuss the research question one and two that were stated: What structured approaches can be applied to collect customer feedback? and: What structured approaches can be applied to integrate customer knowledge into software development processes?

6.2.1 General Recommendations

The general recommendations are provided in two parts. Firstly, a model with recommendations for the collection and integration of customer feedback will be presented. Secondly, a few further recommendations, not covered by the model, will be given.

6.2.1.1 Model for Collection and Integration of Customer Feedback

A model has been created based on theory combined with the gathered empirical data (see Figure 6.1). The model provides an overall suggested approach to how to collect and integrate customer feedback in a software providing company. It is not claimed to be comprehensive, neither is it the only appropriate approach, but it rather provides general recommendations and suggestions to the subject. What parts of the model that is applicable to an individual company is an assessment for the company itself and is subject to the factors mentioned in part 6.1. A larger version of the model can be found in Appendix B.
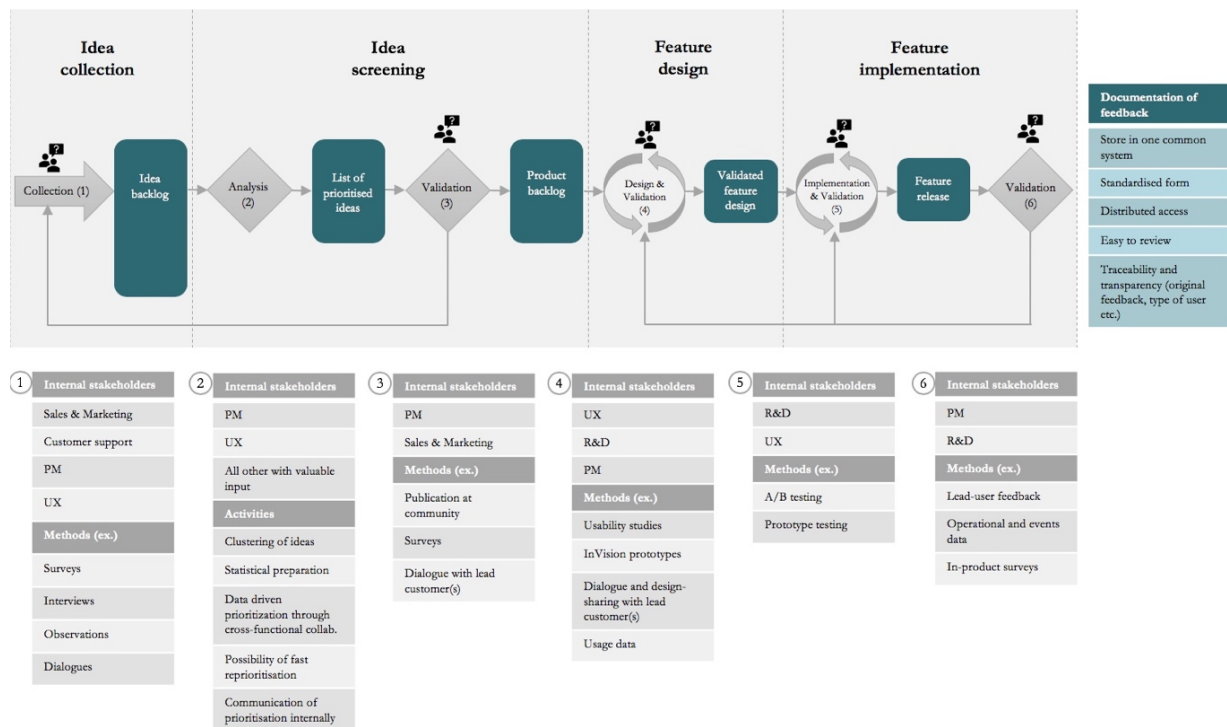
Figure 6.1: Model for collection and integration of customer feedback in a SaaS company.

The model has the aim of illustrating the development process of SaaS offers from a customer feedback perspective, i.e. the model does not include all steps of software development. The process is divided into four phases: idea collection, idea screening, feature design, and feature implementation. Each phase consists of one or several activities (marked with a number of 1-6). For each of the activities, the internal stakeholders primarily involved are listed, as well as a few examples of methods that can be used for the particular purpose. The symbol consisting of two persons with a question mark above them indicates the activities which are recommended to involve customer input. The model addresses several of the challenges presented in theory section 3.4.5.4 (Challenges), and in particular the identified shortcomings presented in part 5.6.6, which thus can be overbridged by the adoption of the approach presented in the model.

The two first phases, *idea collection* and *idea screening*, refers to the work of exploring, documenting and analysing customers' and users' opinions and improvement suggestions about the current SaaS offer. The customer input should be stored in standardised forms in a specific system, functioning as an idea backlog, for easy review and access. Preferably, the system should make it explicit who gathered the feedback, what type of customer or user shared the feedback and if and how the feedback has been acted upon. Except for from customers, ideas might also originate from business strategies and market and competitor analyses, but these areas are not examined in this work. The ideas should be reviewed regularly, preferably under the direction of product management (PM), in order to identify clusters of ideas and compile statistical foundation for

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subsequent discussions of which ideas to prioritise (hence promoting a data-driven approach). The prioritisation of ideas should be a cross-functional activity, thereby accounting for all aspects of the problem, such as the customer perspective, technical feasibility, and resource management. Before an idea is exported to the product backlog it is recommended to be validated with the customers, which could be done, for instance, by posting the prioritised ideas at a community site or validating them with lead users.

The two last phases, *feature design* and *feature implementation,* refer to the development work of a single product feature or feature modification after it has been decided to be implemented. Here, validation with customers can take place both in connection with the design activity, when the feature has been partly implemented, and after release. In an agile environment, these activities are recommended to follow an iterative approach with incremental implementations and successive validation, especially if the implementations are large. The model includes reverse arrows, illustrating the iterative nature of the process but also emphasising the importance of not continuing the current development work if the feature does not pass the validation. Thereby, the company avoids putting resources on implementation of features that will not be valued by the users.

6.2.1.2 Other Recommendations

Below five further recommendations of general nature are listed, which are not stated in the model.

Important role of product management: Product management has shown to have a crucial role as an intermediary between the customer-centred part of the organisation (usually sales & marketing and customer support) and the product-centred part (R&D). Beyond monitoring the flow of customer feedback as a whole, the PM has a big responsibility for internal communication and to facilitate cross-functional collaboration.

Active participation of R&D: The development department should not be a passive recipient of customer requirements gathered from, for example, sales & marketing, but rather be involved themselves in the collection and prioritisation of customer feedback. By this approach, the development teams get a deeper understanding of the customers' and users' real needs. It also helps in overcoming the challenges of R&D misinterpreting the product specification, R&D having indirect access to end-users, and requirements being lost or altered.

Focus on both customers and users: It is important that feedback is collected both from different customers and from different types of users. There should be an aim to keep each customer satisfied, and consider their opinions in order for them to remain customers. However, to improve the usability and user experience of the offer, the software provider is also recommended to identify and target different types of users common to many customers.

Communication of superordinate goals: Companies are recommended to focus more on communicating superordinate goals throughout the organisation in order to enable the processes to be operated effectively and efficiently. Clear communication of superordinate goals could indirectly help reduce the amount of irrelevant and unstructured customer input in the system, as well as clarifying which type of information should proceed in the process.

Taking advantage of cloud setups: SaaS offers imply both opportunities and threats to a software provider. On one hand, the pricing models including subscriptions instead of licenses make it easier for customers to change service provider, which forces a greater focus on customer lifetime value. On the other hand, the cloud setup of SaaS offers enables the software providers to collect real-time usage data from the customers, which can provide the companies with an invaluable understanding of customer needs.

6.2.2 Recommendations for Alpha

Alpha is recommended to create a more efficient system for standardising and structuring the customer feedback collected mainly by the advisors. If statistics are created, the advisors might experience less frustration of not being heard, together with a better understanding of which input is actually of importance for the company as a whole. This could be even better with additional technical education for the advisors. Alpha should also try to become less dependent on the fact that they are their own customer and be humbler to external customer's opinions and consider collecting input from end-users. This applies to the collection at the beginning of the process but should preferably also result in an increased focus on validation towards customers.

6.2.3 Recommendations for Beta

Beta is recommended to apply additional methods when collecting feedback. Especially, Beta lacks in the use of quantitative methods, such as product usage data. Today, Beta relies to a high extent on the collection of feedback from the consultants. This could be a risk since the consultants might lack in having a holistic perspective of the company, as they are only present at a few customer sites. Furthermore, this approach relies heavily on the consultants' ability and will to share their knowledge with the remaining organisation. Beta should also prioritise the feedback more iteratively, and generally conduct more validation with their customers in order to ensure that only features, which are highly valued by the customers and users, are implemented.

6.2.4 Recommendations for Gamma

Gamma is recommended to use additional qualitative collection methods and a CRM system or similar where they can gather all information about their customers. They should also try to validate their prioritisation and implementation with customers, at least with a few lead or reference

customers. Also, if they experience the quantitative data collected difficult to analyse, a smaller amount of data could be gathered until an efficient way of analysing it has been found. It should, however, be noted that Gamma operates in developing markets and the theories used in this study are developed mainly from, and thereby for, companies working in the western markets.

6.2.5 Recommendations for Delta

Delta is recommended to try to work more cross-functionally between their departments. They are experienced as quite successful in the separate departments, but when information has proceeded to another department it is not discussed or followed up on. The company seems to lack an internal stakeholder, for instance, product management, with an overviewing role of managing and monitoring the flow of customer feedback throughout the organisation. Delta should also have a documentation system available to all employees where only the important information is shown, in order to create a more unified company.

6.2.6 Recommendations for Epsilon

Epsilon is recommended to create a standardised and structured way of documenting the feedback gathered from its customers. They face the same problem as Beta with consultants collecting information that might lack a holistic perspective. However, this is avoided by using additional gathering methods. Epsilon could also try to validate before implementation with tests or interviews with lead customers, in order to assure the accuracy of the features developed.

7 Contribution and Remarks

This chapter presents this study's contributions both to academia and to the private sector. It continues with suggestions for future research and remarks made by the authors.

7.1 Contribution to Academia

This study has dealt with a specific and emerging area where limited research had been conducted before. The contribution to the academia is threefold. The theoretical framework of the study, therefore, contributes to the academia with an intended foundation for the area, created by a combination of several prior theories. This work also contributes with a case study of SaaS companies working B2B and a summary containing five factors that characterise the approaches made by the companies.

7.2 Contribution to Private Sector

As discussed in the introduction, software companies struggle in collecting accurate customer data and effectively and efficiently integrating customer feedback into their development processes. This thesis contributes with a table constructed based on prior research, presented in the theory chapter, that can be used as a checklist for companies aiming to improve and develop their approaches for collecting and integrating customer feedback. The study also contributes with general recommendations for SaaS companies working B2B, conceptualised in a model, but also with individual recommendations for the participating case companies.

7.3 Future Research Areas

There are several areas within the field of this study where future research will be feasible. A few suggestions made by the authors are:

- ❖ Examine potential future applicable methods such as AI and machine learning or other emerging areas that could be used in the collection and analysis of customer input
- ❖ Examine what type of methods and tools could be used to categorise and structure collected information in an easily comprehensible format, that could be suitable for SaaS companies
- ❖ Examine the value of collecting customer feedback
  - o Is there an increase in customer satisfaction?
  - o Is there an increase in customer lifetime value?

7.4 Remarks

Related to the fact that limited prior research has been made in this area, the sources used for the theory chapter are not necessarily directly applicable to the specific topic of this study. With this in mind, high focus has been put on using several sources, theories, and models to make sure to convey a versatile and nuanced view of the topic.

Furthermore, it should be noted that generalisation and simplifications have been made in order to perform a comparing analysis and enable a summary to be made. The trustworthiness of the study would have been higher, and the findings more substantiated, if more than five companies were examined.

As a final remark, the information and perception of the processes at the companies collected as a base for the empirics might be dependent both on the role and personality of the interviewees at the companies, as well as, the experience of the researchers. A more equal view of the companies may have been created if persons with the exact same roles at the different companies had been interviewed. This was unfortunately not possible due to different organisational structures, indicating that the exact same roles did not exist, and that the interviewees were chosen based on availability and potential of answering the questions, rather than on if they had a specific role.

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Appendix A: Interview Guide

Below, the interview guide used at the interviews at the case companies is presented. The interviews were held in Swedish, but the questions are presented in English. It should be noted that the interviews were of semi-structured character and questions were added or withdrawn at the interviews depending on the course that the interview took.

The offering:

❖ How would you describe your company's offer?

Customers and Relationships

❖ What types of customer segments do you have?
❖ How do you work in keeping your customers?
   o Do you have any CRM system?
❖ Which communication do you use towards your customers?
❖ Is there any type of relationships that you put extra focus on?

Working process

❖ What does your overall software development process look like?
   o Which roles/functions are involved in the process?
❖ Briefly, how does the cooperation/coordination between teams/departments work within the organisation?

Data collection

❖ Qualitative data:
   o Which methods are used for collecting qualitative data?
   o Where in the process is qualitative data collected?
   o Who is collecting the data?
❖ Quantitative data
   o Which methods are used for collecting qualitative data?
   o Where in the process is qualitative data collected?

- o Who is collecting the data?
- ❖ Can customer submit feedback on their own initiative? In that case, how is it done?
- ❖ Do you think it is harder/different to collect feedback when it is business to business?
    - o When is input from customers vs users needed?
    - o Is there any difference in the collection of customer vs user input?
- ❖ In your opinion, are your methods for customer feedback collection working well or do you have any improvement proposals?

Integration/distribution of data

- ❖ How is the collected data documented/integrated in the organisation?
    - o Who get access to the data?
    - o How do people get access to the data?
- ❖ How is the prioritising of which data being the "most important" done?
    - o Is there any systematic/structured way of using customer feedback in the decision processes (or are the decisions more gut based)?
- ❖ How are the work with customer feedback reconnected to the customer?
- ❖ In your opinion, are your methods for data integration working well or do you have any improvement proposals?

Appendix B: Model for Collecting and Integrating Feedback