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A Model for Improving Digital Business Customer Service

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Instructor: Thomas Rohweder, DSc (Econ)

For a while I have felt that I have been missing the relevant business studies to further my career. The Master's in Industrial Management course provided me with the opportunity to fill those voids. I have thoroughly enjoyed my studies and have learned abundantly.

I had never taken on the challenge of a thesis before therefore I must honestly admit that I underestimated the amount of time that would go into completing this Master's thesis. It has certainly been a frustrating but yet very rewarding experience. I have read and learned much about digital business and customer service. For this, I would like to express my gratitude towards my lecturers for their guidance during this process. I would especially like to thank Thomas for his instruction when I needed it most during the final weeks in the preparation of this research. Also, I would like to extend my gratitude to the case company for their assistance and patience during the data collection processes. Finally, to my partner and baby son who was born during the preparation of this study – thank you for your support.

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<p>Services are highly customisable and the variation of skills of those people responsible for delivering the services adds to the complexity of performance in services. The case company in this study is seeking ways to improve customer service for its digital business customers. A digital business is a business that transacts with the customer on the internet and uses technology to provide value to the customer.</p> <p>This study tries to fulfil the needs of the case company by investing ways to improve customer service. This is a qualitative study which facilitates an action research model.</p> <p>The current state analysis of the study employs a service analysis methodology and interviews with management of the case company to manufacture the current customer service model illustration. The current customer service model illustration is presented in interviews with personnel of the case company. The objectives of the interviews with the personnel are to observe their perception of the customer service model and digital business customer service. The results of the interviews will be used to improve the current customer service model. The analysed results of the personnel interviews complied with the literary material, the study prescribes a new customer service model outline for the case company to assist for improving customer service. The study also suggests ways to improve digital business customer service. Finally, the managerial implications in this study provide methods of measuring and monitoring the performance of the new customer service model outline.</p>	
Key words	Service model, digital business

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<p>Palveluiden muokkaus asiakkaiden tarpeiden mukaan ja palveluja toimittavan henkilöstön erilaiset osaamiset vaikeuttavat palveluiden toimittamisen tehokkuuden ja toimivuuden mittaamista. Tämän tutkimuksen esimerkkiyritys etsii tapoja parantaa sen digitaalisen liiketoiminnan asiakkaiden tyytyväisyyttä. Digitaalinen liiketoiminta on liiketoimintaa, jossa yritys ja asiakas toimivat internetissä ja jossa teknologia tuo lisäarvoa asiakkaalle.</p> <p>Tämä tutkimus pyrkii vastaamaan esimerkkiyrityksen tarpeeseen etsimällä tapoja parantaa asiakaspalvelua. Tutkimus on luonteeltaan kvalitatiivinen ja hyödyntää action research -mallia.</p> <p>Nykytila-analyysissä analysoidaan esimerkkiyrityksen nykyistä palvelumallia kirjallisuuden ja yrityksen johdon haastattelujen perusteella, ja kuvataan nykyinen malli. Olemassaoleva malli esitetään yrityksen henkilöstölle haastatteluissa. Haastatteluiden tavoitteena on selvittää henkilökunnan käsitystä asiakaspalvelumallista ja digitaalisen liiketoiminnan asiakaspalvelusta. Haastattelujen tuloksia käytetään nykyisen mallin parantamiseen. Tutkimus kuvaa uuden palvelumallin ja asiakaspalvelun suuntaviivat. Tutkimus myös tuo esiin tapoja mitata ja seurata uuden palvelumallin toimivuutta.</p>	
Avainsanat	Palvelumalli, digitaalinen liiketoiminta

Contents

Preface

Abstract

Table of Contents

List of Illustrations

Abbreviations/Acronyms

1	Introduction	1
1.1	Business problem	1
1.2	Purpose of research	1
2	Methodology	3
2.1	Research design	4
2.2	Action research	6
2.3	Data collection and analysis methods	8
2.4	Reliability and validity	9
3	Current state analysis	11
3.1	Case company	11
3.2	Case company current state analysis	12
3.3	Case company service model	17
4	Digital business and service analysis	20
4.1	The Internet	21
4.2	Digital business	25
4.2.1	Digital business strategy	27
4.2.2	Digital business model	30
4.2.3	Digital business customer value	35
4.3	Service analysis	47
4.4	Measuring service performance	52
5	Digital business unit interview findings	58
5.1	Interview findings	60
5.2	Summary of findings	65
6	Results	67

6.1	Customer service model outline	67
6.2	Improvement suggestions	69
7	Conclusions	71
7.1	Summary	71
7.2	Managerial implications	71
7.3	Evaluation	72
8	References	73

Appendices

Appendix 1. Case company customer service model draft 1

Appendix 2. Case company customer service model draft 2

Appendix 3. DBU interview questions

FIGURES

Figure 1. Research design.	4
Figure 2. Action research spiral (Kemmis & McTaggart 2000).	6
Figure 3. Case company service model.	17
Figure 6. eBusiness Model decomposition (Dubosson-Torbay et al. 2002: 3).	32
Figure 7. The changing value structure in business (Cronin 2000: 47).	36
Figure 8. Digital trust hierarchy for consumers (Cronin 2000: 107).	40
Figure 9. Service analysis method (Garschhammer et al. 2001: 723).	47
Figure 10. Service life cycle (Garschhammer et al. 2001: 724).	48
Figure 11. Classification of interactions according to the service life cycle (Garschhammer et al. 2001: 725).	49
Figure 12. Example service model (Garschhammer et al. 2001: 727).	51
Figure 13. Applying service measurement principles from Harmon et al. (2006) to service life cycle in Garschhammer et al. (2001).	53
Figure 14. Cost tree example (Harmon et al. 2006: 36).	55
Figure 15. Interviewee job title dispersion.	60
Figure 16. New customer service model outline.	67

TABLES

Table 1. Internet usage statistics (Internet World Stats 2010).	23
Table 2. Digital business entrepreneurs (Waldman 2010: 27).	24
Table 3. Most regular phrases paired in interview question 1.	61
Table 4. Most regular phrases paired in interview question 3.	62
Table 5. Most regular phrases paired in interview question 4.	63
Table 6. Most regular phrases paired in interview question 5.	64
Table 7. Most regular phrases paired in interview question 6.	65

ABBREVIATIONS

CRM	Customer relationship management
HDB	Head of Digital Business
ICT	Information, communication and technology
IT	Information technology
QoS	Quality of service
SD	Sales Director
SSM	Senior Service Manager

1 Introduction

The case company in this research study is a leading Information, Technology and Communications services provider in Finland. They believe that in the future their customers will increasingly need more comprehensive service partnerships within their selected service areas. One of these service areas in particular is digital business. The digital business unit (DBU) of the case company is responsible for rendering service to digital business customers in the digital business service area.

The internet has created a universally accessible electronic marketplace by distributing goods and services through well established existing channels that has been able to link manufactures and service providers to suppliers and customers. A digital business is a business that replaces the traditional value chain with digital value chain that is focused on managing the information and relationships that support all activities in the digital economy (Cronin 2000: 3). Simply, a digital business is a business that transacts with the customer on the internet and uses technology to provide value to the customer.

1.1 Business problem

Service businesses around the world are trying to boost their productivity and performance but faced with stiffening competition, increasingly demanding customers and customisability of services. (Harmon et al. 2006: 31)

The case company in this study would like to improve their digital business customer service because their digital business customers are not being serviced adequately. The major challenge in the DBU is improving digital business customer service.

1.2 Purpose of research

The case company employs customer satisfaction surveys to determine how well the customers are serviced. The customer satisfaction scores of the DBU customers are considerably low. Therefore the DBU would like to find out ways on how to improve customer service. The purpose of this study was to improve the digital business customer service for the case company. At this stage in the research the digital business

customer service improvements will be defined generally as customer service. Customer service is defined as the set of activities designed to enhance the customer satisfaction and improve customer value.

2 Methodology

This study has been conducted within the qualitative research paradigm. Qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings, such as Patton (2001: 39) states that "real world setting [where] the researcher does not attempt to manipulate the phenomenon of interest." It is the kind of research that produces findings arrived from real-world settings where the "phenomenon of interest unfold naturally" (Patton 2001: 39).

Researchers who use quantitative research employ experimental methods and quantitative measures to test hypothetical generalisations (Hoepfl 1997). Therefore a qualitative research paradigm was chosen for this study because the study aims to understand the customer service environment of the case company and produce findings from the real-world customer service setting. This study does not test hypothetical generalisations.

The research design is based on the action research model. Collis & Hussey (2003: 67) describes action research is a methodology which is used in applied research to find an effective way of bringing about a conscious change in a partly controlled environment; for example, a study aimed at improving the communication between different business units of a particular company. Action research is usually conducted within a single organisation and is therefore similar to a case study approach. The main aim of action research is to generally probe a challenging area of an organisation, attempt to correct the situation and finally monitor the results.

Therefore action research was chosen for this study because improving customer service for the case company is an effective way of bringing about a conscious change in a partly controlled environment.

2.1 Research design

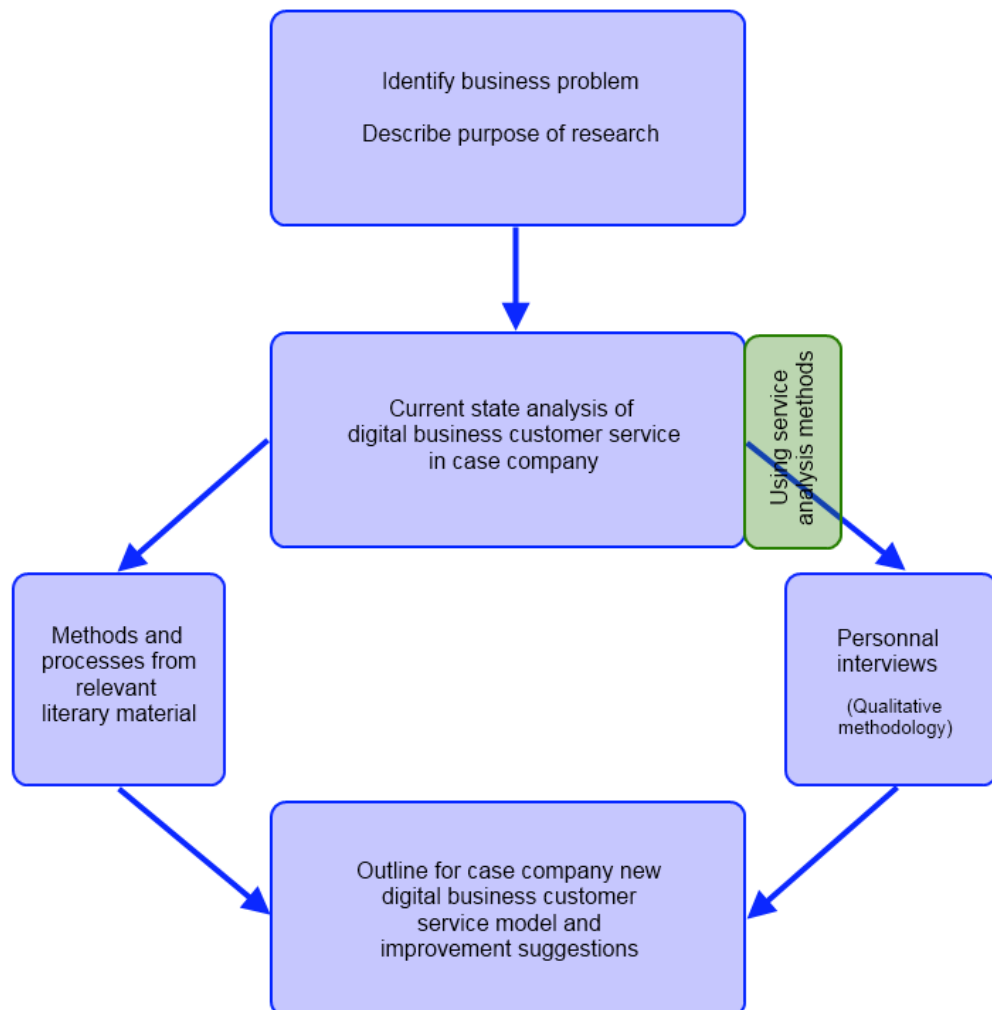


Figure 1. Research design.

Figure 1 outlines the research design of this study. As previously mentioned this study is based on the action research model. The action research elements supported by this study are the evaluation of the current state analysis by having unstructured interviews with key management figures of the case company. The research planning facilitates service analysis methods for drafting the current service model of the case company. Action involves proposing the draft service model to DBU personnel. The reflection element is composed of semi-structured interviews with the DBU personnel. The analysed interview results are fused with the methods and processes from the relevant literary material to illustrate a new customer service model outline for the case com-

pany. The managerial implications present methods on how to support and measure the performance of the new customer service model outline.

The questions for the semi-structured interviews conducted with the DBU personnel are grounded on the methods and processes of the relevant literary material. The conclusions for this action research study are formulated upon the results of the semi-structured interviews conducted with the DBU personnel.

The main goal for action research in this study is to propose a solution for improving customer service in the case company. Trying to achieve this goal the study contributes to science by producing a new customer service model outline through investigating customer service and the digital business environment.

In beginning of this study, the theory of action research is introduced and the reliability and validity variables are described. During this time, the study is also explained in the action research framework. The results of the unstructured interviews and service analysis methods applied in the current state analysis produce the current service model of the case company. The current state analysis and case company service model are described after the action research theory. Subsequently, the results of the semi-structured interviews conducted with the DBU personnel are interpreted and reported. Thereafter the new customer service model outline is presented and improvement suggestions are provided with reference to the theories from the literature. Finally the reliability and validity variables are revisited to subsidise the credibility of the study.

2.2 Action research

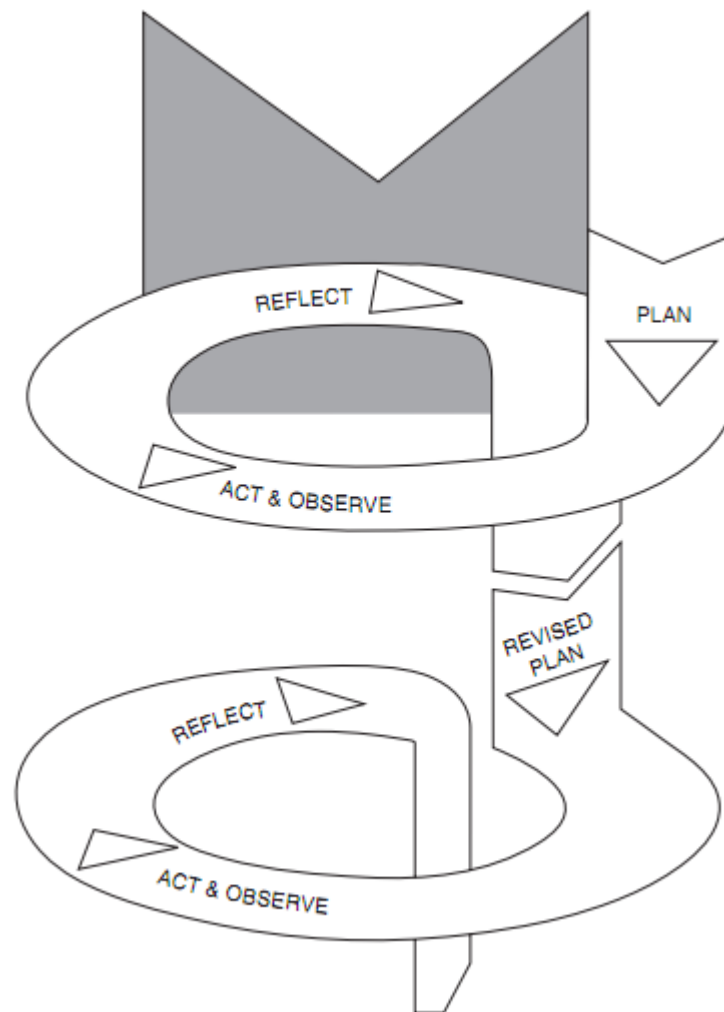


Figure 2. Action research spiral (Kemmis & McTaggart 2000).

The main aim of action research is to enter into a situation and attempt to rectify the situation then monitor the results. Therefore action research is the understanding and planning of change in social systems and thus is a suitable research methodology for business organisations. (Collis & Hussey 2003: 68)

Many people view the cycles of action research, planning, acting, observing and reflecting as the dominant feature of action research, see Figure 2. However Kemmis & McTaggart (2000: 280) view seven key features in action research which are equally

important as the cycles in action research. This section describes all seven key features and gives evidence to how each key feature was achieved in the study.

Action research is a social process. Action research explores the relationship between the social and the individual. It tries to understand how they are formed and the relationships between each other. This study too has tried to understand the social relationship between the case company and the customer by analysing the service provided by the case company.

Action research is participatory. Action research engages people by examining their knowledge and interpretation. Through this participation the individual can also do action research on themselves. This study challenged the management of the case company by examining their knowledge and interpretation of customer service.

Action research is practical and collaborative. It is a process in which people explore their practices of communication, production and social organisation and find ways how to improve these practices. The researcher tries to work together with the participants to reconstruct their social interactions. The purpose of the study is to improve customer service. The researcher aimed to find ways to improve customer service by exploring the personnel's communication, production and social organisation practices.

Action research is emancipator. Action research aims to help people release themselves from the constraints and limitations of social structures by exploring the ways in which their practices are created. The semi-structured interviews with the DBU personnel tried to find weaknesses and strengths in the current customer service model thus releasing ways in which the service practices have been created.

Action research is critical. It is a process in which people contest the ways they interpreted and describe their world, ways of working and ways of relating to others. The world in the study represents the customer service. The study first describes customer service of the case company and then in the accomplishment provides ways of improving customer service.

Action research is reflexive. Action research is a deliberate process of critical spirals of cycles of reflection in which people can improve their practices. Figure x depicts the spirals designed to help people transform their world. As stated earlier, the study has accomplished all the elements in action research. First, the evaluation of the current state analysis, by having unstructured interviews with key management figures of the case company. Action involves proposing the draft service model to DBU personnel. The reflection element is composed by semi-structured interviews with the DBU personnel.

Action research aims to transform both theory and practice. Action research does not aim to develop theories that are above practice. Nor does it aim to create practices that cannot be justified without theoretical frameworks. This study analyses the current customer service model and aims to provide a new customer service outline with the aid of the theoretical framework researched in the study.

2.3 Data collection and analysis methods

In action research, one aim of unstructured or semi-structured interviews is to develop an understanding of the interviewee's world so the researcher can independently or collaboratively influence it (Collis & Hussey 2003: 168). Therefore interviews were elected as the data collection method since the purpose of the study is to understand the current customer service model and collaboratively influence the new customer service model outline.

Unstructured interviews have been utilised as a data collection method in the current state analysis of the case company. Minichiello et al. (1990) defined them as interviews in which neither the question nor the answer categories are predetermined. Instead, they rely on social interaction between the researcher and the informant. Zhang & Wildemuth (2009) concludes unstructured interviews are useful when the researcher does not have any understanding of the phenomenon and wants to pursue particular aspects of it. Therefore unstructured interviews were selected as a data collection method in the current state analysis because the researcher had very little understanding on the current customer service model in the case company. Three members in the management team of the case company were interviewed in the current state analysis.

In the unstructured interviews, the service analysis methods provided in Garschhammer et al. (2001) were applied to develop the service model of the case company. The service analysis methodology in Garschhammer et al. (2001) was chosen because it provides a generic top-down approach which monitors all the interactions and regards all possible services resulting in a service model.

In the action research cycle, the reflection process exploited semi-structured interviews. Zhang & Wildemuth (2009) states a semi-structured interview usually includes both closed-ended and open-ended questions, however in the course of the interview, the interviewer can adjust the sequence of the questions to be asked and to add questions based on the context of the participants' responses. Zhang & Wildemuth (2009) concludes semi-structured interviews should be used if the research goals are clearly defined. Therefore semi-structured interviews were used in the reflection processes because the research goal was to improve customer service. A total of ten DBU personnel were interviewed individually and were asked to answer six interview questions.

Cognitive mapping was used as a qualitative data analysis method for the data collected from the semi-structured interviews. Cognitive mapping is a method of analysis which can be used to structure, analyse and make sense of problems (Collis & Hussey 2003: 265). Cognitive mapping has three main stages. The first stage is the problem is broken in phrases of about ten words which are treated as distinct concepts and then reconnected in a graphical format to reveal a pattern. The second phase involves uniting pairs of phrases in a single concept where one provides a meaningful contrast to the other. The third phase involves linking the phrases to form a hierarchy of means and ends; essentially a natural way of prioritising items so that explanations lead to consequences. The cognitive mapping analysis method was chosen for the semi-structured interview data analysis because the customer service delivery problems varied greatly in the interview results. Also, cognitive mapping was used in this study because the three phases in cognitive mapping aided in identifying the distinct customer service problems.

2.4 Reliability and validity

Reliability is how accurately the research represents what is happening in the situation and validity is concerned with the results of the research (Collis & Hussey 2003: 186).

Therefore the study is deemed reliable if anyone repeats the research with the same results and the study is valid if the data collected represents exactly what is being researched.

"Since there can be no validity without reliability, a demonstration of the former [validity] is sufficient to establish the latter [reliability;]" Lincoln and Guba (1985: 316). With regards to the researcher's ability and skill in any qualitative research, Patton (2001) also states that reliability is a consequence of the validity in a study. This relates to the concept of a good quality research when reliability is a concept to evaluate quality in quantitative study with a "purpose of explaining" while quality concept in qualitative study has the purpose of "generating understanding" (Stenbacka 2001: 551). Stenbacka (2001: 552) argues if a qualitative study is discussed with reliability as a criterion, the consequence is rather that the study is no good.

Therefore the validity of the research will be defended on how accurate the findings represent the current customer service situation. Simply, is there a relationship between the program and the observed outcome? The researcher holds a Service Manager position at the case company and therefore exhibits the skills to test the validity of the results in the findings.

Patton (2001) states that reliability is a consequence of the validity therefore reliability measurement instrument of the study will be if the semi-structured interview questions were asked again, re-tested, would the study accomplish the same result.

3 Current state analysis

The current state analysis first provides the background of the case company. The findings of the unstructured interviews conducted with the management of the case company are then described. The current customer service model is illustrated from the interview results. The current customer service model illustration is then explained in detail.

3.1 Case company

The case company is an Information, communication and technology (ICT) service provider in the areas of digital business, information management, software development and software testing. The case company is a well established and recognised ICT services provider in Finland. It is part of a larger IT group operating on the Nordic countries who employs around 1 500 people. The case company is responsible for the operations in Finland and Russia.

The core message of the case company is “The Interactive Art of Business Success”. In the core message, Interactive is achieved by challenging each employee to openly and honestly collaborate with the customer by positively questioning the views of the customer and actively collecting information. Art is accomplished by developing innovative and creative customer solutions which will be used in future references. Business success is achieved by understanding and being narrative to the success factors of the customer’s business in all phases of the collaboration. The commanding imperative of the operational approach enables the case company to ensure an agile response to the customer’s needs and provide the platform to build a strategic and long lasting relationship with the customer.

The case company has casted three business units each focusing on a specific service area. One of these business units is the DBU. The DBU is consists of around thirty employees. The team has members in Helsinki and in St. Petersburg. The St. Petersburg team accounts for about five percent of the team’s employees. The unit is lead by the Director of Digital Business and Software Development. The majority of skills exhibited by members in the business unit are software development specialising in internet

technologies. Two experienced Senior Service Managers are part of the team. The Senior Service Managers service some of the most important customers. Project managers, art directors and designers account for the balance of the team.

The fast pace and challenging landscape in digital business has led the case company to be innovative in delivering satisfying service to its digital business customers. Information technology, digital design and problem solving skills are abundant in the digital business unit. The organisation is able to offer education on a regular basis to its employees to remain competitive and abreast of the customer's needs. Communication between employees is relatively easy as the predominant of the digital business unit employees are positioned at the Helsinki office. Customer service is of utmost importance as the case company is a service oriented organisation.

3.2 Case company current state analysis

Unstructured reiterative interviews were conducted with management of the case company during the period of January and February 2011 at the Helsinki office. The case company does not have a customer service model illustration. Therefore the objectives of the interviews were to understand the concept of digital business customer service and illustrate the customer service model. A service analysis methodology was used in the customer service model illustration process. The head of the digital business unit, a sales director and a Senior Service Manager were interviewed individually. Email was also incorporated as a communication tool during the interviews.

The service analysis methodology in Garschhammer et al. (2001) was utilised in the current state analysis. The services analysis methodology provides a systematic and top-down oriented used to analyse the necessary actors and corresponding relationships in a service. Therefore the researcher focused on analysing the actors and the relationships in the unstructured interviews.

The first interview with the interviewees was to understand the concept of customer service in the case company. After the first interview, the researcher produced the customer service model draft 1 using the service analysis methodology. The subsequent interviews were to refine the customer service model illustration. In the interview proc-

ess, a second draft of the customer service model was produced and finally the customer service model.

Sales Director

The first engagement with the Sales Director (SD) was on the 31 January 2011. The thesis instruction was explained and it was expressed that his assistance in the development of the service model was required. The SD gave a sales presentation that explains what the customer can expect when purchasing a project assignment from the case company. The presentation was discussed and it was agreed an operational service model for digital business would add much value to the potential buying customer.

The SD was presented with the first draft of the digital business service model by email on the 7th February 2011. He responded by email on the 10th of February. He said the model emphasis is great for the project delivery and queried whether the model could somehow be extended to cover other service areas.

The SD reviewed the second draft of the service model and replied by email on the 15th February 2011. He proposed changing the resource pool to special expertise, services and projects.

Head of Digital Business Unit

The Head of Digital Business (HDB) was previously responsible for the operations in the software development business unit of the case company. In the first interview with the HDB, he said that his customer service concepts were successfully applied to the software development business unit and therefore would like to see the same customer service concepts applied in the digital business unit.

The first interview conducted with the HDB unit portrayed the main challenge of improving customer service in the digital business unit. He said he would like to improve customer service since they had many unsatisfied customers. He admitted the lack of a service model illustration conceived a sense of vagueness on how to correctly service customers. In his opinion, successful customer service exists in continuous feedback

from the customer and adjusting the service. In the interview he explained how he would like the service model to work. It was agreed the first draft of the service model would be sketched and reviewed in the following interview.

The HDB unit was presented with the first draft of the digital business service model by email on the 30th January 2011. He responded by email on the 8th of February. He said the model looked promising and looked forward to the second interview so discuss how the model could be applied in practice.

The second interview took place on the 11th February. The HDB explained the current service process at one of the largest customers at the case company. The HDB it explained the service model must have two focal points, the customer and the scheduled service meetings with the customer. The service analysis methodology identifies the two focal points as the relationship in the service. He explained the roles of the Service Manager and Account Manager in the customer service delivery. The service analysis methodology identifies the Service Manager and Account Manager as the roles in the service.

The HDB said that the Service Manager is the customer support and the Account Manager is the customer commercial support. In his opinion the first draft of the customer service model only satisfied the first focal point of the customer. He explained that the service meetings are to be used as a tool to deliver service to the customer and showed how the service meeting tool has been applied at a few the customers.

Using the service analysis method, the service meeting is identified as the relationship in the service. The HDB said the service meeting schedule must be agreed with the customer because the service meeting is an integral to building the relationship with the customer. The HDB explained in some customer cases, the service meeting schedule has been stipulated in the contract agreed between the customer and case company. Agreeing on the fixed schedule, for instance on a monthly basis, create openness with the customer. The customer's main objective in the service meetings is to give feedback and any new requirements. The case company's main objective in the service meetings is to improve on processes and also to create and react on sales opportunities when any requirements may arise. The outcomes of the service meetings are ac-

tion on the negative feedback and to ensure the customer's resource requirements are 100% fulfilled. The service meeting must also have a fixed meeting agenda thus the meeting is structured, all attendees know what will be discussed and past minutes can be referenced.

Using this analysis method, the Service Manager and Account Manager were identified as the roles in the service. The HDB said the role of the Service Manager in the service model is to provide the customer service support. The Service Manager understands his customer's business and requirements best thus the Service Manager can deliver service above expectations and identify future sales opportunities. The HDB said the role of the Account Manager in the service model is to provide commercial support for the customer. Commercial support requires the account manager to be responsible for the customer contract and to ensure the customer promise is delivered. The Account Manager and Service Manager should be in continual communication in any case new sales opportunities can be acted upon promptly.

In the customer service model, the Service Manager is also responsible for the resources that are utilised by the customer. The HDB explained the Service Manager should be responsible for the resources or special expertise or the team in the second draft customer service model. The special expertise is responsible for delivering the project to the customer. The special expertise team is employed by the case company, however he said the customer should have access to the special expertise to collaborate and communicate. Therefore the special expertise should be in constant communication with the customer, discussing and delivering the requirements. The service model should display the Service Manager as the manager of special expertise and services while the special expertise team has direct contact with the customer through an Agile Scrum project delivery model.

Senior Service Manager

The Senior Service Manager (SSM) provides customer service at one of the largest customers of the case company. The SSM has a 10 year employment history with the case company and has been for the last five years involved with one particular customer. The service responsibilities of the SSM are to ensure the customer's resource needs are

fulfilled by allocating available resources from case company's available resource pool. The SSM also functions as a software developer at the customer premises. The scores in the service satisfaction surveys for the SSM's customer have been on an excellent level. The scores indicate a good level of understanding of customer service by the SSM therefore the SSM was chosen for this study.

In the first interview 7th February 2011 with the SSM, the SSM was presented with the first draft of the digital business service model by email. He was asked to contribute initial thoughts on the proposed model. He responded by email on the 10th of February. His first said the customer service model is not self-explanatory and would like a deeper explanation on the diagram. He responded with the following value points:

- In the involvement area, a key account manager or sales team should be present and not both
- The test team is missing from the involvement area
- Disagreed with the 100% additions unless 100% is the aim
- 100% visibility is not a goal unless the service consultant is working for several customers at the Helsinki office.

The second interview with the SSM was the 17th February 2011. In this interview the SSM was presented with the second draft of the customer service model. The SSM felt steering group meetings were missing from the service model. He said the steering group meetings were held twice a year with his customer. He explained the purpose of the steering group meetings were to give the customer's upper management a possibility to clarify the long term goals of the particular project or any future projects. Agreeing on a collaboration framework is the main outcome of a steering group meeting. The SSM questioned how the Service Manager is expected to support the resource pool. He said the support title is a bit too vague and required clarification. It was agreed that the resource pool is to be renamed to special expertise, services and projects because the case company does not just provide resources, but people that have experience and are experts in their fields. He rationalised that 100% resource fulfilment under the service meeting outcomes does not fit in the service model and should be renamed. He also said he would like to see the escalation process in the service model. Specifically how the Service Manager can escalate problems to corporate management.

3.3 Case company service model

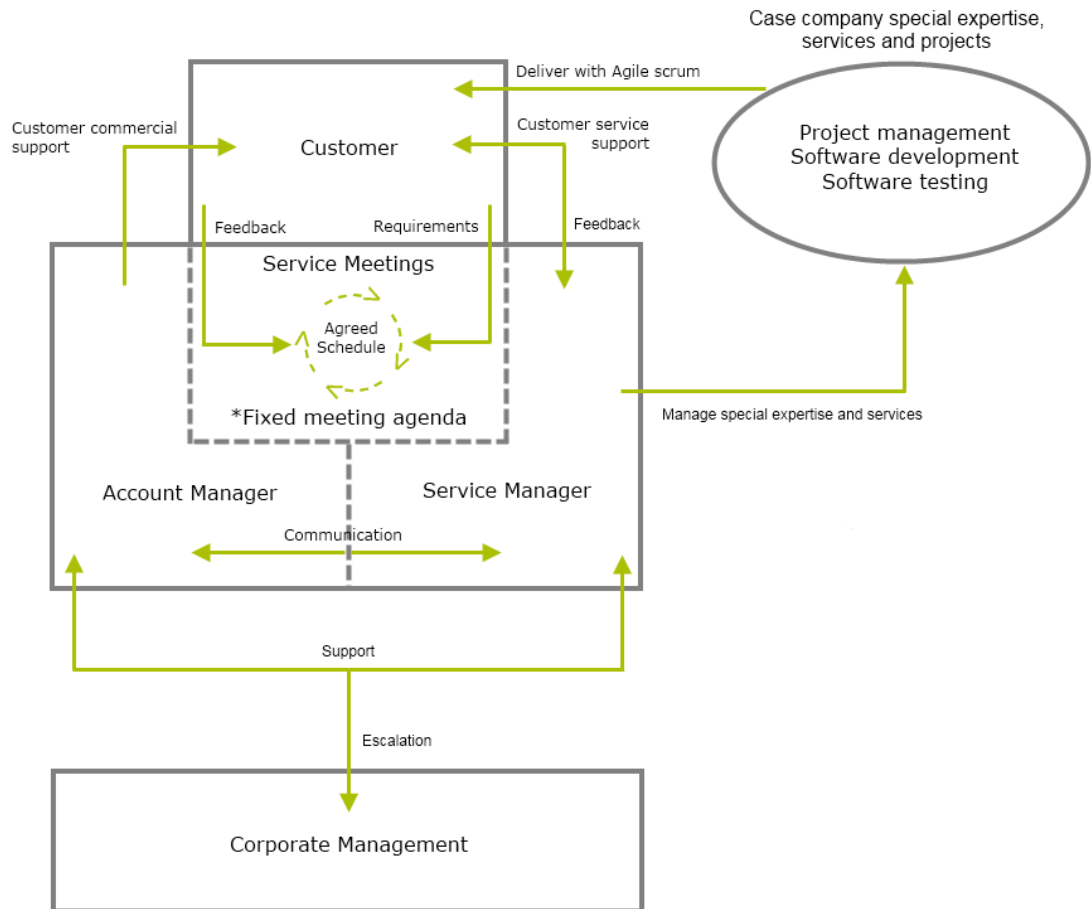


Figure 3. Case company service model.

The service model in Figure 3 aims to deliver customer service to its digital business customers of the case company. The interactions in the service model are the service meetings and the roles the customer, Account Manager and Service Manager. The service model facilitates a channel of continuous feedback provided by the customer. The feedback is transformed into practical and useful action information upon which the case company swiftly reacts to resolve customer complications. The necessity of customer feedback is employed by the special expertise in the delivery of the project assignment. The case company seeks to render good customer service to increase customer satisfaction and ultimately accomplish the strategic goal of being a trusted partner to customers.

Service meetings

In the centre of the service model are the service meetings, which has been identified as the interactions in the service analysis methodology. The service meetings are a prior agreed scheduled assembly which is conducted with a fixed agenda. Compulsory attendees to the service meetings are the customer representative, Account Manager and Service Manager. The agreed schedule is preferably on a monthly basis however the iteration may vary and is dependent on the customer. Typically the meeting schedule could be stipulated in the contract with the customer thus the customer has confidence the service meeting is of high important to the case company. The fixed meeting agenda only serves as a guideline to what may be discussed in the meeting and should be adapted to conform to any individual customer needs. Also, the agenda improves the efficiency of the meeting since the customer is familiarised with the structure of the meeting. The agenda provides the customer with a history on what been discussed and agreed thus allowing the customer to follow up on the execution of previous feedback. The agenda should allow the customer to freely express their concerns and new requirements. Additional, the quality of service (QoS) parameters are adjusted in the service meetings. The service meeting also functions as an additional sales channel.

Account Manager and Service Manager

Critical to the implementation of the service model are the roles of Account and Service managers. The account manager serves are the commercial support for the customer. The Service Manager functions as the customer service support and is the customer feedback channel outside of the scheduled service meetings. The Account and Service manager should have a close relationship consequently improving their effectiveness.

The account manager is responsible for the customer contract and thus responsible for the delivery of the project commitment. The role requires the person to always be aware of the customer project status. Also the account manager commands the organisational problems within a customer project and has the responsibility of escalating the problems to upper management. Therefore the account manager understands the business targets of the customer and tenders the final customer offering and price.

The Service Manager ensures the needs of the customer are satisfied. The Service Manager guides the customer by providing help and advice on the products and the services the case company has on offer. Also, the role of the Service Manager is to communicate courteously with the customer, react upon customer complaints or any major incidents and investigate and solve customer problems. For larger customers, the Service Manager is ideally permanently located at the customer premises. The Service Manager must also lead or supervise the special expertise team who are responsible for delivering the undertaking.

Special expertise, services and projects

The special expertise is a team of highly skilled people responsible for delivering the project assignment. The special expertise team understand the customer requirements and are guided by the project manager. The members are expected to connect and correspond continuously with the customer. Agile project management with scrum is the preferred framework to deliver the project assignment. Scrum is a software development methodologies based on iterative development where requirements and solutions evolve through collaboration between self-organizing cross-functional teams. The services and projects are aids that fulfil the project assignment. The special expertise could also be outsourced to deliver the project assignment.

Corporate management

The corporate management serves as the support mechanism for the account and Service Manager. The account manager would typically request support from the corporate management during the pricing process of the project assignment. The Service Manager assists the corporate management to improve the customer service policy. The inclusion of the corporate management in the service model serves to exhibit that everyone at all levels in the organisation committed to the customer.

4 Digital business and service analysis

As described earlier, this study is based on the action research methodology. According to Kemmis & McTaggart (2000: 280) action research does not aim to develop theories that are above practice nor does it aim to create practices that cannot be justified without theoretical frameworks. Therefore the theoretical frameworks for digital business, service analysis and service performance measurements are familiarised in this study to justify the purpose of the research which is to improve customer service.

First, a short introduction to the history internet is provided. Understanding the beginnings of the internet is important because the internet has provided the operating arena for digital business. Following the history of the internet, the digital business operating framework is unravelled. Understanding digital business is important in this study because the purpose of the study is to find ways to improve digital business customer service and without the theoretical digital business framework the practices cannot be improved. Cronin (2000) has been elected as an important reference for this study as she understands the Web landscape and dissects the critical issues in digital business.

Thereafter a generic top-down service analysis approach is provided. The approach can be applied in an array of scenarios that assists in the analysis, identification, structure and the organisational associations of the participants in the service delivery process. The service analysis approach is utilised in the results of this study to compile the new customer service model outline.

Finally, service performance measurement processes are presented. It is important to measure services as the service provider can then determine if the service needs to be adjusted accordingly. The service performance measurement processes will be used in the managerial implications of the study so that the result of this study, a new customer service model outline can be measured.

4.1 The Internet

In 1957 the Russians launched the first satellite called sputnik. At that time, the cold war accelerated the competition between the Americans and Russians as who would be the first to venture in outer space. After the launch of sputnik, the USA propelled computer research by investing into a project called ARPA – the United States Department of Defence Advanced Research Projects Agency. (Soskin 2010: 2)

ARPA found value in enabling researchers to communicate. The researchers were distributed all over the USA and had communication difficulties. Through innovation in the ARPA project, network packets were devised which could transport small amounts of data between networked computers. The idea behind the packet data was to communicate and share data among users within a network. The data packets became the building blocks of the Internet today. As early as 1969, the first message was transmitted over the internet in the USA. The transmitter sent the word 'login' but due to the systems failure the receiver received only 'lo'. Nonetheless, the communication capabilities for the internet were set. (Soskin 2010: 3)

Twenty years later, the focus shifts to Europe, specifically to CERN near the Swiss border. It was here the World Wide Web (www) was invented. On 6th August 1991, the first website went online, 'info.cern.ch'. The full address was <http://info.cern.ch/hypertext/WWW/TheProject.html>. The commercial possibilities of the internet were then unknown. For about 20 years the Internet was only used by scientists, researchers and computer hobbyists. After the launch of first website, the number of internet users grew from 600,000 to 50 million in only 4 years. (Soskin 2010: 5)

The economic value of the internet was being realised. Broadband subscriptions were on the increase and people spent ever more time on the internet. The internet was born from technological and business idea innovations however certain events were to come that would subject the internet to structural change. (Waldman 2010: 22)

The first major event that contributed to the structural change in the internet was the wave of destruction in the dotcom crash in 2000/2001. This was the first monumental

shift on how business was done on the internet. The websites who managed to survive the crash were running on bare necessities. People were spending more money on the internet, which indicated that some potential growth opportunities still existed, but it took five years for digital business to recover. (Waldman 2010: 42)

Financial downturns have accelerated structural change in the internet. During financial downturns, internet consumers look to the internet to save money. Websites focusing on cheaper prices experience an increase in business during these periods. In the recession of 2009, Priceline.com sold 44% more air tickets than the previous year. Google for example has created an advertising business model based on user response. As a direct consequence, during the downturn companies were able to closely monitor their advertising expenditure. During the downturn media companies were trying to reduce costs by printing less and started looking to the internet to reduce costs. Fortunately, the structural change of moving to the internet had a positive effect on media businesses. (Waldman 2010: 42)

Fish (2010: 41) also notices that the turning point of the internet was the dot com crash. According to him prior to the crash the internet was treated only as a consumption medium and the birth of Web 2.0 which based on ideas and social media was born after the crash.

The internet has expanded beyond expectations, and vast amounts of wealth have been created on the internet over a short period Soskin (2010: 260). The internet is still a growing industry open to much undiscovered innovation. This section highlights how many opportunities still exist on the internet and the potential of the growing digital industry.

Region	Internet users Dec 2000	Internet users Dec 2010	Penetration % Population	Growth 2000-2010	Users %
Africa	4,514,400	110,931,700	10.9 %	2,357.3 %	5.6 %
Asia	114,304,000	825,094,396	21.5 %	621.8 %	42.0 %
Europe	105,096,093	475,069,448	58.4 %	352.0 %	24.2 %
Middle East	3,284,800	63,240,946	29.8 %	1,825.3 %	3.2 %
North America	108,096,800	266,224,500	77.4 %	146.3 %	13.5 %
Latin America/Caribbean	18,068,919	204,689,836	34.5 %	1,032.8 %	10.4 %
Oceania / Australia	7,620,480	21,263,990	61.3 %	179.0 %	1.1 %
Total	360,985,492	1,966,514,816	28.7 %	444.8 %	100.0%

Table 1. Internet usage statistics (Internet World Stats 2010).

The current world population is estimated at about 7 billion. The amount of internet users is almost 2 billion, see Table 1. This equates to around 29% internet penetration rate. The world growth of the internet has increased to 444% between the years 2000 and 2010. Asia ranks first with the most internet users, with Europe second and North America last. However the penetration rate in Asia is only around 22%. The infancy connection rate in India is due to the low penetration rate in Asia. The connections in India are growing rapidly and India is expected to have the third largest user group by 2013 (The Times of India 2009).

Entrepreneur	Company	Innovation	Company value
Larry Page and Sergey Brin	Google	Access to information	£150bn June 2010
Jeff Bezos	Amazon	Book retailing	\$55bn March 2010
Pierre Omidyar	eBay	internet auction	\$30bn
Dave Filo and Jerry Yang	Yahoo!	Idea of the internet 'portal'	\$22bn
Mark Zuckerberg	Facebook	Social network	\$10bn 2009
Mark Benioff	Salesforce.com	CRM solution	March 2010 \$8,7bn
Reed Hastings	Netflix	Movie rental	March 2010 \$3,6bn

Table 2. Digital business entrepreneurs (Waldman 2010: 27).

The fastest shareholder value creation has been created through the internet and the commercial capacity on the internet has only existed for fifteen years (Waldman 2010: 26). The most well known and top four digital businesses – Google, eBay, Yahoo! and Amazon, have a combined market value of around \$300bn, see Table 2. Google's revenues have increased by 25,200% from \$86m in 2001 to \$21.7bn in 2008. Waldman (2010: 47) estimates advertising on the internet only accounts for 10% of advertising globally.

The internet has created new business opportunities and greater customer value. However the internet has forged disruptions in traditional business (Waldman 2010: 46). For example, Amazon challenges corner book stores with lower prices and a wider selection of books. The challenges that drive profound change are turned into money making opportunities by online entrepreneurs. Online entrepreneurs have seized the technological advances by doing things a different way to transform the internet domain. A new technological innovation, the kindle is a portable e-book reader available from Amazon. The consumer can read digital copies of books purchased from the online store at Amazon.com. Amazon has disrupted the digital world with the introduction of the e-reader. The profound change of the e-reader innovation has allowed corner book stores to sell digital version of their books through Amazon thus sharing in the profits.

Opportunities for digital business entrepreneurs also exist in governments. Governments are not always reluctant to adopt new technologies. A small country like Estonia has welcomed the digital age by having one of the most advanced digital infrastructures in the world and a government that it fully digitised. (Soskin 2010: 243)

Waldman (2010: 62) has described IBM as surviving the ultimate disruption. Since 1964, for thirty years IBM were the market leaders in mainframe computers. However in the nineties things started to change as IBM's competitors caught up. In 1993 IBM announced it had made a \$5bn dollar loss which at that time was the largest in US history. The new CEO Louis Gerstner took over the struggling company and turned IBM into giant it is today. Louis shifted the core business of IBM away from mainframes and into the service business arena. Gerstner focused the business on software and digital services which he believed to the future. In 2008 IBM was estimated to be worth £16.7bn and had experienced seven consecutive years of double figure income growth.

4.2 Digital business

Traditional business is referred to as brick and mortar business due to the physical presence and possession of buildings or stores for operations. A click and brick business is a business that has moved some of its operations onto the internet, for example a store that also allows its customers to order items online. Since the birth of the internet a new flavour of business has emerged, digital business. In the readings, digital business is also referred to as e-business, electronic business, internet business, dot-com and virtual business.

Cronin (2000: 3) proposes a digital business is a business that replaces the traditional value chain with digital value chain that is focused on managing the information and relationships that support all activities in the digital economy. The five critical elements of a digital value chain are information, trust, real-time relationships, customised services and e-marketplaces. The internet has created a universally accessible electronic marketplace by distributing goods and services through well established existing channels that has been able to link manufactures and service providers to suppliers and customers.

According to Soskin (2010), a digital business is a market driving company that aims to educate its users and customers on how to use its value proposition. Digital business is a brains business which depends on the creativity of its people. The internet does not replace bricks and mortar but internet businesses have successfully provided access to the internet for the old economy.

In the research by Amit & Zott (2001), a digital business is defined as a business that derives at least 10% of its revenue from transactions conducted over the internet. The transactions are conducted over open networks based on fixed and wireless internet infrastructure. Digital businesses innovate through novel exchange mechanisms and transaction structures that are not available in more traditional business offerings.

Waldman (2010) describes digital business as a new physics of business. He argues that since the start of the internet traditional businesses are even more challenged by an era of creative disruption. The creative disruption on the internet in digital business brings forth new exciting challenges and the certainties of traditional brick and mortar business are no longer valid.

Fish (2010) describes digital business is a model of creation, engagement and collaboration that creates value for users to contribute their data or digital footprint. Internet users leave a digital footprint as they navigate the web. This digital footprint comprises anything from user accounts to simple hits on a websites. The digital footprint created by internet users has fathered the digital opportunities for digital business. The analysis of the digital footprint is the key contributor to digital wealth creation that leads to value creation for the user and the digital business.

Actor level or value activity level creates confidence in a digital business idea (Gordijn & Akkermans 2001). Actor level or value activity level in digital business is simply the aptitude to create traffic on an internet service. The traffic directly transcends into profit shown in an organisation's balance sheet. Porter (2001) refutes the claim to accomplish a definition of revenue constructed on the number of site visitors, or click-through rates. He argues this downplays the traditional measure of profitability and economic value.

A digital business is characterised in Tapscott et al. (2000) as distinct set of suppliers, distributors, commerce service suppliers, infrastructure suppliers and customers that use the internet to for their primary source of communication and business transactions. The internet consists of many sets of digital businesses called a business webs (b-web). A b-web is responsible for creating customer value propositions and transforming the rules of competition. Each digital business participates in a particular b-web are intercommunicated, for example, Microsoft and Google have developed competition web browsers. This intercommunication means that, for instance, Amazon which operates in its unique b-web, uses digital technology like a web browser developed by another company to deliver its own customer value proposition. The internet has become a digital infrastructure of collaboration with abundance of rich digital tools used in transaction searching, knowledge management and the delivery of application software.

4.2.1 Digital business strategy

The questions what is your digital business strategy and how technology can be used as a strategic asset to maintain a competitive advantage are challenged in Mithas & Lucas (2010). A digital business strategy should also enable new competencies. Technology as a strategic asset is a digital advantage. The digital advantage can be achieved using three pillars. First, the firm must have a basic understanding of how to synchronise its business strategy and Information Technology (IT) strategy. Second, how often the firm should govern IT effectively. Last, how the digital business ought to manage its IT infrastructure and implement IT projects.

Synchronising Information Technology and business

A strategy of synchronising business and IT to gain a greater competitive position requires the digital business to understand how to manage IT and industry transformations. Porter & Millar (1985) defined three proposals to gain a competitive advantage. The first proposal is to tilt the balance of supplier power, customer power, competitive rivalry and the threat of new and substitute products in your favour. In the second approach digital businesses should use IT for superior cost differentiation or providing cost-effective products and services to a niche market segments. The last proposal is to introduce IT innovate new businesses.

Govern Information Technology effectively

Managers need to govern IT effectively by ensuring that the digital strategy is fused with the organisation's management processes. Governance of IT involves five obligations. First the management must decide on key IT decisions and who will execute them. The second obligation involves how the IT centre is to be organised, profit or cost centre. Third, the management must decide on how much they would like to spend by accurately forecasting and setting IT project budgets. Fourth, the organisation must prioritise IT projects in accordance with key strategic objectives. The last obligation is the choice on resourcing, particularly deciding on an outsourcing strategy.

Manage Information Technology infrastructure and projects

Managing IT infrastructure and IT projects for a coherent digital business strategy means to manage IT with discipline. To apply discipline and be successful managers are required to develop a vision on the progression of the digital market and technology that the digital market will consume. At the same time managers need to manage risk and make critical decisions on maintaining and upgrading legacy IT systems. The decisions should be approached with correct system development lifecycles and frameworks.

Porter's five forces framework

The influence of the internet on strategy derives from the basic forces of competition. Porter's Five Forces framework for digital industry analysis and digital business strategy development is applied in Porter (2001). The forces model illustrates how the internet affects the forces and probes whether internet or traditional strategic methods to compete. He argues both digital and traditional strategy will provide the greatest strategic advantage.

Barriers of entry are eliminated or easier to reduce due to technology. Technology has allowed digital business to bypass a physical sales team, access to channels and physical assets. Internet applications and internet solutions are difficult to keep as an asset

from new organisations entering into the market. Many new internet entrants from various industries have also contributed to the lowering of the barriers of entry.

The rivalry among existing competitors is increased as the internet is available over a wider geographical area thus increasing the number of competitors. The differences between offerings are also reduced as competitors have found it hard to secure ownership of the particular service offering. This has led competitors price discounting as the variable cost relative to fixed cost is lowered thus all competition is established on price.

Bargaining power of suppliers is increased since the channels to reach the end consumer are much easier accessible through the internet. Suppliers can directly deal online without the intermediary. Also, the internet has made it easier for the consumer to find and transact with the supplier thus giving the suppliers access to more consumers. All organisations have equal access to suppliers on the internet in digital procurement which pushes products towards standardisation and reduces differentiation.

The threat of substitute products and services is escalated as substitutes are much easier accessible. The internet presents consumers with more choice than before and can comfortably substitute a traditional product or service. However by increasing the efficiency of the internet through technology, current digital markets on the internet can be expanded.

The reduction in switching costs has shifted the buying power and bargaining power to the end users. Low switching costs has also increased the buying power of the internet consumer. Powerful traditional buying channels are eliminated and digital channels improve bargaining power for buyers.

Porter (2001:10) concludes digital businesses should do things differently to their competitors in a way that delivers a unique type of value. The internet affects operations and strategic positioning which opens new opportunities for a strengthened market position. A competitive advantage on the internet can only be achieved by integrating the digital business strategy in the overall business strategy.

4.2.2 Digital business model

Researchers have attempted to describe business models in different perspectives which have resulted in a loose conception on how a company does business and generate revenue (Porter 2001: 13). However, accelerated growth in companies transforming to the internet supported by technological innovation digital businesses has placed more focus on e-business models (Pateli & Giaglis 2003: 330). Several undertakings have been conducted to classify digital business models to understand how digital businesses are or are not making money (Torbay et al. 2002: 2).

Amit & Zott (2001: 511) defines an e-business model as "A business model depicts the content, structure and governance of transactions designed so as to create value through the exploitation of business opportunities". Transaction content refers to the information or goods being traded by the digital business. Also, transaction content refers to the capability of the digital business to trade the goods or information. Transaction structure refers specifically to how the participants are link who take part in the goods or information exchange. Transaction governance refers to the manner in which information and goods are controlled by the participants. Governance also refers to the legal entities of the digital business.

Objectives for studying digital business models

The motivation for studying digital business models depends on the interests of the investigators and their background. If the purpose of a service provider is to service its customers more proficiently then the service provider must have a deeper understanding of the consumer and more specifically how the consumers business operates. (Pateli & Giaglis 2003: 330)

Waldman (2010) observes traditional organisations are subjective to profound structural change and they should observe the business models of successful internet organisations as the successful organisations are creating a new business context that all new internet organisations must operate in. Defining the digital business model of an organisation is helpful, however through solving and implementing the business model can profits be actualised.

Cronin (2000: 68) discovers that e-business business models evolve. Due to the rapid pace of the changing business environment, an e-business can assume various roles over time. This however requires the service supplier to constantly access its customer and the customers operating environment so the service provider can tailor the service delivery best suited to the service receiver.

E-Business model framework

The e-business framework is a theoretical framework for doing business on the internet. The first step in the framework is to classify the digital business model with principle dimensions. Principle dimensions offer a digital business a multi-category approach to accept the position of the business model in a web of many classification schemes. Dubosson-Torbay et al. (2002: 11) defines principle dimensions for classifying digital business models:

- Determine the role of the user. Is the user a provider or purchaser of goods or services?
- The interaction pattern of the users. Do many users interact with many other users or are the relationships one to one?
- Determine the nature of the offerings. Is the online business providing information, services or products to its online consumers? Is the online offering free and the online business generates revenues through other channels? Or the website is only used as a promotional tool.
- How are the users charged for the services? Various pricing models are, usage rate, fixed subscription fee, fee system (percentage or fixed amount), price list or dynamic pricing (ie. auction). The service could also be provided for free.
- Level of customisation by the user.
- The economic control of the digital business. Are the transactions of the digital business automated?
- The level of security to monitor and verify purchases on the website.
- The level of integration with other online providers.
- The value versus the cost of the offerings. Is the product offering add value to the product or is the product offering a low cost proposal?
- The amount of traffic the website receives. High or low volumes or traffic.

- The level of innovation of the website. Does the online provider offer something that has existed before?
- The power of the buyer.

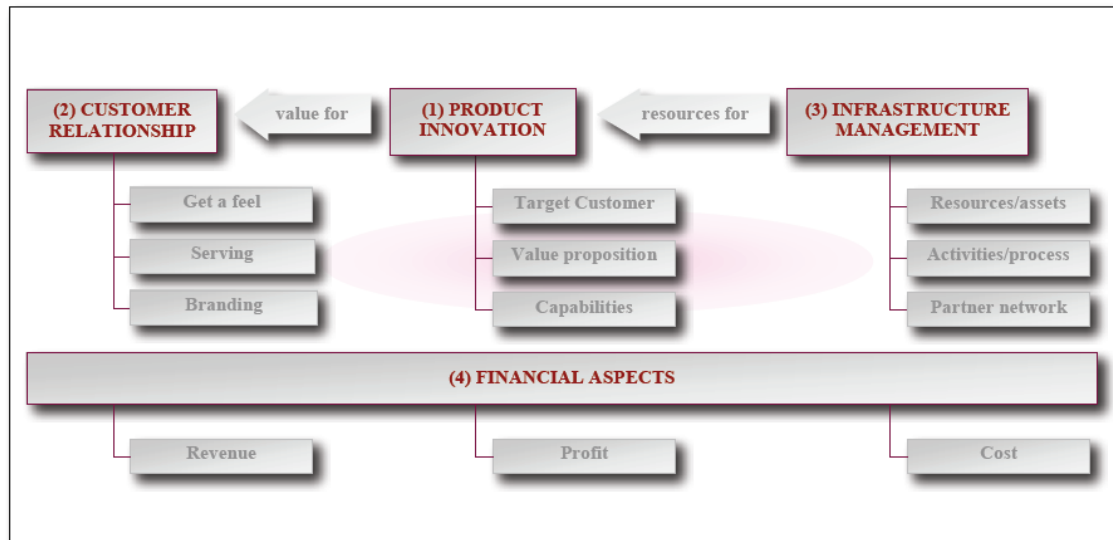


Figure 4. eBusiness Model decomposition (Dubosson-Torbay et al. 2002: 3).

The e-business model framework can be adopted following the principle dimensions which are applied in the classification of business models. The e-business framework and some of its classification dimensions can offer an insight into the digital business. The eBusiness Model framework is divided into four principle components, product innovation, customer relationship, infrastructure management and financial aspects, see Figure 4.

The first principle component in the eBusiness model framework is the products and services which the e-business offers, namely product innovation. The products and the services represent the value proposition which contributes a substantial value to the customer. The targeted customer segment studies have to be completed to observe the effective value recognition by the customer.

The customer relationship also referred to as the relationship capital in Tapscott et al. (2000: 192) is the relationship the digital business builds and maintains with the customer. However Dubosson-Torbay et al. (2002: 4) affirms the customer relationships are often forgotten as business models are mainly focused on the products and exchange patterns between different actors.

The infrastructure and network of partners are required to maintain a good customer relationship. The infrastructure is necessary to deliver the value proposition. It represents the in-house and partner resources, assets and the network of partnerships. The partner network describes how the value creation process is distributed among the partners in the digital business.

The financial aspects exist in all three principles and can be described as a consequence of all three principles. The financial aspects are the costs required to create the customer value and the revenues collected from the sale of the value. The difference between the revenues and costs determine the overall profit of the digital business.

Dubosson-Torbay et al. (2002) concludes that for an organisation to achieve profit, the business model of the organisation is the architecture of the firm and the network of partners in the firm that are utilised in creating, marketing and delivering value and relationship capital to a specific or many segments of customers.

E-Business model framework applied to digital business models

Soskin (2010: 68) provides seven distinct internet business models:

1. Providing qualified leads

Cheapflights.co.uk did not generated revenue from selling airline tickets to users but rather from selling the information of the flights the users had interest in that were displayed on the cheapflights.co.uk website.

2. Benefit to traditional business

The traditional business in this context can also be referred to as the click and brick business. These businesses generally use the internet as another distribution channel for their tangible goods.

3. E-tailing

E-tailing involves creating shops on the internet. Anything could be found in an online store.

4. Charging a subscription

Online dating services primarily use this business model. Dating services first lock the user in by offering free registration however, for example, when the user would like to contact a prospective partner a subscription fees apply.

5. Freemium service

F-Secure, a Finnish antivirus software provider reported almost 30 000 new viruses for January 2011. The antivirus industry has create a new opportunities for freemium anti-virus companies who offer antivirus software at no cost. A company like avast.com offers the basic antivirus software for free. After the user has installed the free anti-virus software the user has the option to upgrade or update the virus protection for a fee.

6. Selling data

Selling of user private data or buying habits without request of notification chokes the trust relationship between the merchant and consumer, Cronin (2000). Thus the selling of information must be clearly understood by all parties.

7. Selling advertising

Selling of advertising is not a new business model. Google has managed to tap into digital advertising by providing value to the consumer and advertiser. Value has been created for the advertiser by providing accurate information on how many consumers have been reached. This allows the advertiser to quickly change advertising tactics so that the consumer group can be targeted accurately.

A Freemium service is an online offering that attempts to create consumer value by offering the basic services for free and later charging a fee for advanced features (Soskin 2010: 55). Freemium services have become increasingly popular as more internet users have learned to expect services on the internet for free. This particular type of service is a good way to get interested customers educated about the service or product. The basic business model of a Freemium service is to convert the users into paying customers.

The principle dimensions are a multi-category approach to determine the position of the business model in a web of many classifications schemes. The principle dimensions are applied to Soskin's Freemium business model to categories the business model within the framework described in Dubosson-Torbay et al. (2002).

Using the framework and classification dimensions, an online storage Freemium service like dropbox.com, for instance, the user's role is the provider and also the customer. Dropbox.com facilitates the interaction pattern by allowing user to share personal files with other users of Dropbox.com. The company offers a free online storage service of up to 2GB. The pricing model changes to a monthly or annual fee for an upgrade to larger storage space. Upon purchasing an upgrade the user can select to pay with a credit card or PayPal. PayPal is a worldwide accepted form of payment so the level of security to monitor and verify the payments is placed with a trusted authority. The level of customisation is quite high as the user can upload any type of digital content from any computer to dropbox.com. The degree of innovation is quite low as online storage is a reasonably old service. Dropbox.com has only provided a tool to make it easier for users to store and version their digital content online as opposed to storing the content on their local hard drives. Dropbox.com does not require considerable site traffic to generate income. Contrary, heavy site traffic may serve as an inhibitor for the service as content delivery bottle necks may appear.

Soskin (2010: 56) concludes that that quality of the service determines the price. A Freemium service gets the consumer interested. If the consumer finds value in the Freemium service then the user will be willing to pay a premium for added benefits. A mediocre service that charges users is a difficult model to sustain.

4.2.3 Digital business customer value

Cronin (2000: 47) introduces the digital value system. A digital value system is mediated by a collaborative framework that is internet focused for the expanding domain of networked relationships and processes. An organisation uses a digital value system model to implement the strategy by harmonising the flow of information between the internal and external activities. The digital value system focuses on five strategy areas, information, trust, real-time relationships, customised services and e-marketplaces.

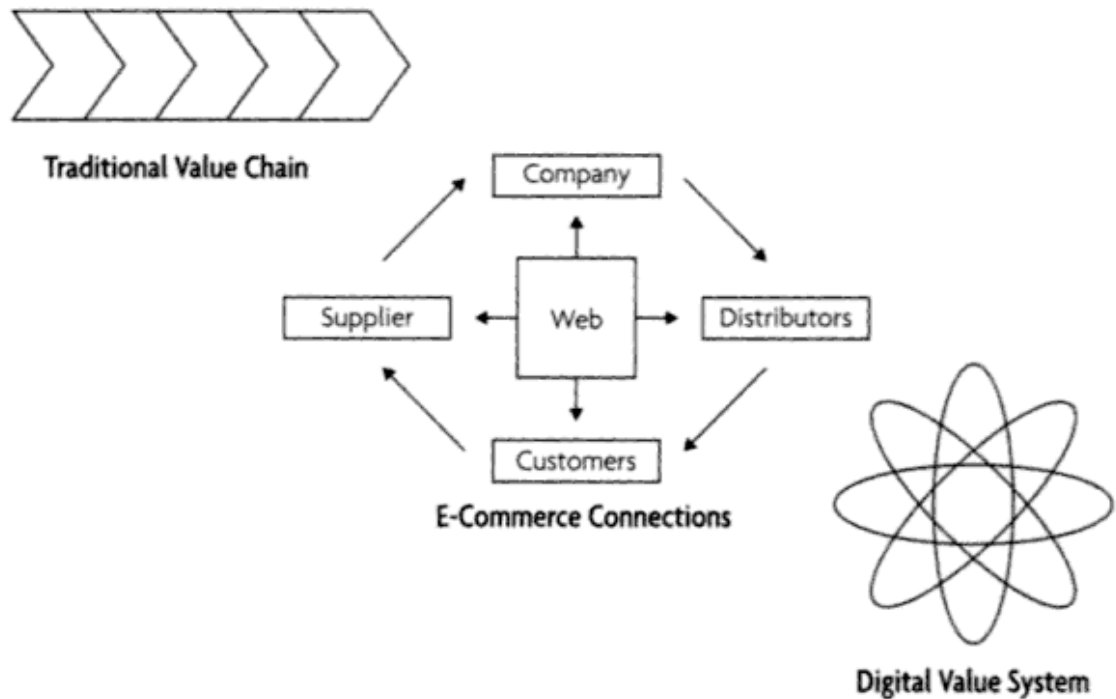


Figure 5. The changing value structure in business (Cronin 2000: 47).

The traditional value chain in Figure 5 represents an organisation's major activities. The major activities are depicted as a tightly integrated chain of arrows (Cronin 2000: 23). The arrows flow in logical sequence, from the raw materials at the start, the sales and support in the centre and the finished manufactures product in the end. The model also includes the support activities such as infrastructure, technology development, human resource development and the relevant value chains.

The digital value system model also correlates the interrelationship of information and services with an organisation. A traditional value system in figure 4 limits an organisation to create new links among business partners and customers. To enhance communication the web is placed in the centre of the e-commerce connections however the participants in e-commerce transactions continue to operate independently. The e-commerce connections design limits the participants to grow at the same pace of the internet. The relationships in a digital value system are more complex thus the formation must enable all participants to communicate effectively. As more participants join the digital value system depicted in Figure 5, the amount of information and number of transactions is increased exponentially.

Tapscott et al. (2000: 145) introduces distributive networks. A distributive network service the digital business by allocating and delivering goods or services to the consumer. The core value of a distributive network is to facilitate the exchange of goods or services by providing the commerce or infrastructure to customers and content providers. The network consists of both providers and consumers and is only reaches its potential when passive customers are turned into active contributors of information which transcends into value. Similarly to the complex formation of relationships described in the digital value system in Cronin (2000: 47), distributive networks enable all participants to communicate effectively to deliver value to the consumer.

The key building blocks of a traditional value system are logistics and operational management. The opposite is valid in a digital value system as managing information and relationships are the fundamental in all activities in a digital economy. Large organisations have started to realise that e-business creates customer value by integrating the value chain and accelerating information flow (Kalakota & Robinson 2000).

We have moved into the information age where organisations have amassed data. The digital value system attempts to create value from the data for the organisation. Soskin (2010) could at any given point search from cheapflights.co.uk data to determine accurately the value of their customers by the amount of potential sales leads they had collected. The formation of a digital value system will bring all the participants into constant interaction with each other.

According to Cronin (2000: 46) a fully functional digital value system consists of three components. The first component is the set of online relationships that that accelerates growth. Trusting relationships are core to any business, however in the web, relationships are created much faster. The relationships not only refer to B2B relationships but also the relationships that are forged with the digital supplier and online consumer. Despite the internet value system is built on scale where the value of the organisation is determined by the amount of site visitors. A large scale of users does not degrade the level of online service or performance (Porter 2001). The value creating potential can be increased by the scalability of the amount of transactions and information that flows through the e-business platform (Amit & Zott 2001: 504).

The second component in a functional digital value system is a structure for secure real-time access to information, trust relationships and services. The information created by the contributors is mutually beneficial for all users of the digital service. The research of Amit & Zott (2001: 506) suggests that the once the trust relationship has been created with the consumer in the digital world, the more likely the user will remain loyal to the online service rather than switch to a competitor. Earning the trust and solidifying the relationship is critical in digital business as the consumer is only a click away from the competitor.

The third and last component of the digital value system is a strategy to create recurring revenue from capturing the same online participants. The main purpose of iteration the same participants are so the benefits provided are clear and continual. This premise of business to attract and retain new customers also stays true to digital business, yet only on a much larger scale. Gordijn & Akkermans (2001: 15) also notices that a seller builds a relationship with the consumer if the consumer buys a product or service from the seller regularly. According to their model, the seller owns the consumer which is important when providing more personalised products or services.

Information

Cronin (2000: 71) claims all enterprises are information businesses. However the strategic challenge arises in digital business of how to determine the value of the information. She observes that information has become a corporate asset in e-business. Information is the engine of the internet. Information as a corporate asset raises more complex issues such as use, access and more specifically who owns the information. Selling goods on the internet is more complex as initially perceived. The consumer entrusts that the seller has the correct security measures in place to safely store and not distribute the sensitive information.

Fish (2009: 29) expresses digital private data is increasingly becoming someone else's business. Businesses have started exploiting private data for their own gains. Fish (2009: 26) explains this is a twofold problem since advertisers are seeking more effective advertising by targeting the correct groups but for this to happen users must give up private information. For example, adverts are shown in Finnish when the advertiser

detects that the user's internet access originates from Finland. This of course becomes more complex as the user has no control on the location information passed onto the advertiser.

Internet users ought to be informed that information on the internet is connected to other sources of information. Lack of digital boundaries, information sharing has no limitations on the internet (Cronin 2000: 80). Unfortunately, the personal information exchange happens behind the scenes. A consumer must know that as soon as they register on seller A's website the information can be passed onto other merchants. Ingenious websites keep track of a user's every move, for example, Amazon.com provides suggestions on the next purchases based on the consumer's previous searches and purchases. This does, however, create a highly valued personalisation for the user. The information can also be unwittingly to the user, sold, as in the case of Cheapflights.co.uk Soskin (2010).

Trust

Trust in the context of the internet is the reliance and confidence on the integrity between the digital provider and consumer. The less is known about the supplier the higher level of trust is required to accomplish a transaction (Cronin 2000: 106). To create relationships of trust, consumers rely on the physical and organisational boundaries and therefore trust relationships on the internet are ever more important.

Trust leads to loyalty and strengthened loyalty enables the organisation to create capital which enables innovation, revenue and growth (Tapscott et al. 2000: 201). Digital business organisations should adopt the simple and classic idiom of honesty is the best policy. Trust starts with the trustworthiness behaviour of the organisation and through this confidence in the organisation itself can a trust relationship be built with the consumer. Digital business trust is established through secure transactions, delivering real value and protecting personal privacy.

Organisation can not only rely on complex security technology to create trust relationships as a difference exists between security and trust (Cronin 2000: 103). Digital businesses take great care in choosing the right security technology and participate in

expensive security audits. There is no doubt that security plays a big role in electronic commerce and the consumer wants assurance that their private data and credit card information will not be hijacked and used in malicious activities. Cronin (2000: 104) explains the security paradox with an example: Customers are accustomed to seeing a security guard at the front door when visiting the bank, similar to the internet consumers are presented with a security certificate when imputing their credit card details. The security guard performs an important function but does not form the foundation of the trust transaction and information sharing that will be performed in the bank. Consumers are pleased to see the security certificate when transacting on the internet and know this is a security measure but it is not the pre-condition to establishing the digital trust and customer relationship.

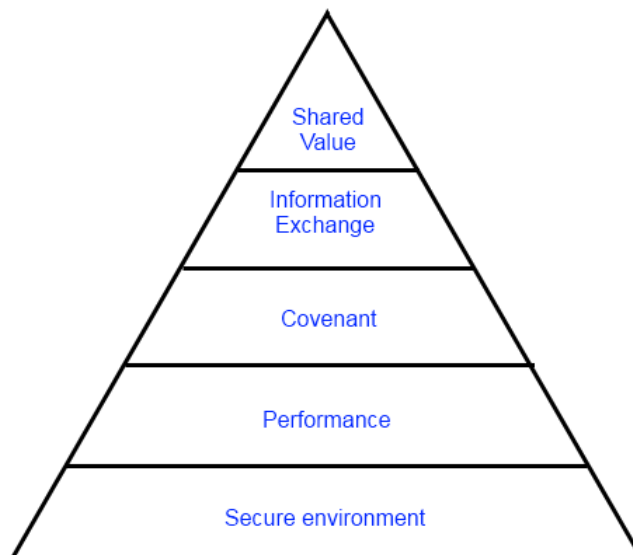


Figure 6. Digital trust hierarchy for consumers (Cronin 2000: 107).

Cronin (2000: 107) supports a hierarchy of independent requirements. The five level digital trust hierarchy is important to the digital business for establishing customer relationships that can unlock the shared value in online consumer information, see Figure 6. Dynamic trust cannot progress to the next level of the hierarchy until the independent requirements of the previous level have been satisfied. Once the consumer digital trust has reached the top or level five, the trust relationship can be established and the internet purchasing can commence.

The foundation or the first layer of digital hierarchy is a secure environment. A secure environment is the basic pre-requisite for any digital commerce. Cronin suggests that websites make it clear how dedicated they are to security preparations of protecting the user's private data. The bedrock of the first layer is typically moulded from technology.

The second layer involves the performance of the website. The performance determines responsiveness and interaction of the website. Bad performance and invalid data and links show sloppy workmanship (Cronin 2000: 108). The inability of a website to perform will frustrate the user and cause them to abandon the purchase and seek the competitive alternative. The following factors contribute towards a successful performance layer: recognisable brand, website navigation, presentation, up to date technology and seals of approval. After all of the factors have been appeased in the second layer, the trust hierarchy can progress to the next level of the covenant.

In the covenant level, the consumer must be convinced that the information exchange is a positive step towards an interactive relationship and the online supplier will treat the user's personal information with respect. The covenant is usually achieved through a privacy policy and a mandatory selection of terms and conditions. Quite often the privacy policies are in legal jargon which makes a difficult positive decision for the consumer. (Cronin 2000: 110)

In the information exchange stage the consumer is satisfied with the basic security, performance and the safety of any private data infringement. The user will be ready to exchange more explicit personal information, for example, credit card information with the digital commerce provider. Business models are built on the information exchange level as the barriers for the consumer to move to a competitor have increased as the effort to move all the personal information has drastically increased. At this level, the element of loyalty begins as the user is most likely to return to the same supplier and purchase.

The top level in the hierarchy is the stage for harvesting mutual value. This level is named shared value as the consumer and the online trader have developed a contract of trust. Upon the contract of trust commercial transacting can take place that is bene-

ficial to both participants. Extended mutual benefits can be developed for the consumer. The digital business benefits by mutually sharing the control and rewards in the use of personal information. For instance, the consumer could be rewarded with a discount coupon for allowing the website to share personal information with other commerce partners.

Winning online trust on the first contact and continuously expanding the trust is vital to building consumer loyalty that will result in creating customer value through digital business. Achieving shared value, the highest level in the hierarchy may seem like a lethargic process however all the steps could be achieved in one single visit (Cronin 2000: 112). Unfortunately many websites boast poor design and usability which inhibits and just plainly frustrates the consumer.

Real-time relationships

A real-time relationship is a trusted, relationship building process that recognises a returning customer by presenting different types of content and ways of interacting with the customer depending on the individual needs and getting the individual to actively contribute to the process (Cronin 2000: 126). The core element that enables real-time relationships is the power of exponential relationships. Exponential relationships mean the more participation and exchange occurs on the internet the more value is available to users. Online consumers receive better personalisation as more consumers join the digital value system.

Fish (2009: 106) argues real-time relationships are not an advanced customer relationship management (CRM) system. CRM systems today are about stock piling user information that aims to find a single point to create added value for the consumer. Real-time relationships are about a value creating service that targets refinement and improvement in the value process through the feedback from the user. Real-time relationships are CRM on steroids.

Fish (2009: 110) illustrates a virtuous circle of relationships. The virtuous circle demonstrates the feedback model of collection, store, analysis and value. The circle starts with the collection of the user information. The next step is storing the information so

that information can be analysed in the third step. Closing the virtuous relationship circle is value. The value represents how the value between the consumer and company is accomplished. However, the virtuous circle of relationships is the typical process of a CRM system. Unless the connected elements of trust, risk and privacy, which build the bonds and bridges, are not extracted from the virtuous circle, a real-time relationship cannot be formed and the user will stop using the service.

The wealth that is embedded in the online customer relationships has outstripped the value in capital contained in land, factories or buildings (Tapscott et al. 2000: 192). Tapscott et al. (2000) describes real-time relationships as relationship capital. The value of relationship capital is the ability of a digital business to engage with customers, suppliers and partners where mutually beneficial exchanges occur. Online businesses can place large values on relationship capital because for the first time with the internet they are capable of cheaply reaching consumers on a large scale. Products can be tailored to needs and wants so customers can feel they have a direct and meaningful relationship with the online business. The transaction cost increase when the relationship costs increase, for instance improving service in a brick-and-mortar business by appointing more sales staff. However in the online world, the online merchant can get to know the consumer, educate the consumer, inform them pro-actively and deliver services on a personal basis by closely monitoring the consumer without affecting the service level.

Real-time relationships have two ambitions. First, trying to figure out what the customer really wants. Second, once the customer needs have been determined the relationship is leveraged to deliver in a way that brings value to the consumer.

Customised services

Even more internet companies are focusing on internet based services to increase revenues (Cronin 2000: 150). Regardless of high website traffic volumes at some point an e-business must like any other brick and mortar company generate profits. Figuring out how to make profit is after all the aspiration of any business, even internet companies. The desire in e-business is converting free services in profit generating engines.

Efficiency is enriched when customers have access to services that complement the product (Amit & Zott 2001: 499).

Cronin (2000: 151) argues the focus of services in the digital value system is to create increasing value for the online provider and digital consumer. Organisations will fashion self sustaining incomes at a lower cost margins through services fertilised with information, trust and relationships. Simply selling the product is unlocking the key in the door but providing services opens the door for recurring revenue and customer loyalty. The most sustainable business is providing services and not selling products.

E-services, short for electronic services, are not services in the traditional sense like buying a book from an online store. E-services are services are designed for the internet and attempt to accomplish something that was previously unknown or impossible (Cronin 2000: 152). E-services also transform the economics of a service so that the service is available in different markets where they were once unavailable. The ultimate goal of e-services is to render services cheaper with greater value for the consumer and online merchant.

Cronin (2000: 167) provides three types of e-services:

- Personalisation services that add greater value to the user experience with the functionality that they are already familiar with.
- Introduction of new services that convenience current relationships and current digital delivery options
- Entirely new categories of services that are specifically suited to internet development and deployment

The data analysis conducted by Amit & Zott (2001) discovers that vertical complementary services e.g. after sales service or horizontal services (one-stop online shopping) are often directly related to the core transaction related to the firm. Amit & Zott (2001) suggests bundling of the complementary services is a potential for value creation.

Service is the key for customers to remain interested in the online offering and coming back to the website to make additional purchases (Soskin 2010: 66). Digital customers are presented with more choice on the internet. As the amount of choice increases so does the competition as it is easier for the consumer to switch to the competitor ser-

vice. Information flows quickly and freely on the internet. The reputation of a poor service provider will reach consumer fast. Nevertheless, information spreads rapidly on the internet and new service recommendations will reach consumers just as fast.

Cronin (2000: 167) recommends companies to first develop information, trust and relationships in the digital value system. Once the first three components of the digital value system have been established, the digital business should attempt to define and create the right package of services. Consumers do not want random e-services. They expect E-services to be integrated which take advantage of multifunctional service providers. Established organisations, who understand their online customers, are the pioneers in first e-services category.

E-marketplaces

E-marketplace is a general term for online trading venues (Cronin 2000: 171). Business models take advantage of the e-marketplaces that have been erected, (Cronin 200: 18). E-marketplace is the digital platform created by the digital business where online trading of goods or services takes place. The e-marketplace may also be a trading venue for other prospective sellers (Soskin 2010: 68).

The e-marketplace benefits the buyer and the seller. Cronin (2000: 184) notices the access to broader buyer group, advantage of transaction speed, rapid of turnover, direct market-related feedback and opportunity to establish consumer relationships are the benefits for the online seller. The buyer potentially benefits by having the accessibility of information on the popularity and scarcity of products. Also the buyer has the ability to be proactive by leaving a product review. As a consequence choice increases and prices are lowered in an e-marketplace.

Kalakota & Robinson (2000: 26) refers to e-marketplaces as collaboration hubs. A collaboration hub attempts to create one single common web platform. The web platform allows are the participants in the supply chain to share information, execute transactions and collaborate on strategic operations and planning. The platform also facilitates relationship building. Market liquidity is driven by premium value added services available in a collaboration hub.

Tapscott et al. (2000) refers to an e-marketplace as the marketpace. He introduces the term marketface. The marketface is the interface between the physical world marketplace and digital world marketpace. However, the term marketface, in the context of Tapscott et al. (2000), is only described in terms of click and brick organisations and not pure digital businesses.

In conclusion, for a digital business to be successful in a digital economy they need push beyond the limits of a short-term e-commerce strategy and forge a new digital value system (Cronin 2000: 16). Information is the first and most essential piece of the digital value system. Trust is second and the most frequently misunderstood. If trust is not confused with technology and the summit of the digital trust hierarchy is reached then a trust relationship can be sculptured. Trust is the foundation to building innovative customised online services and relationships. Online services are valuable if they have been launched from real-time, trusted and information rich relationships. Growth of a digital value system is dependent on the network of relationships which fruits loyalty over time. Once information, trust, customised services and relationships are in place can the digital business built an e-marketplace, the arena for doing business and generating profits.

4.3 Service analysis

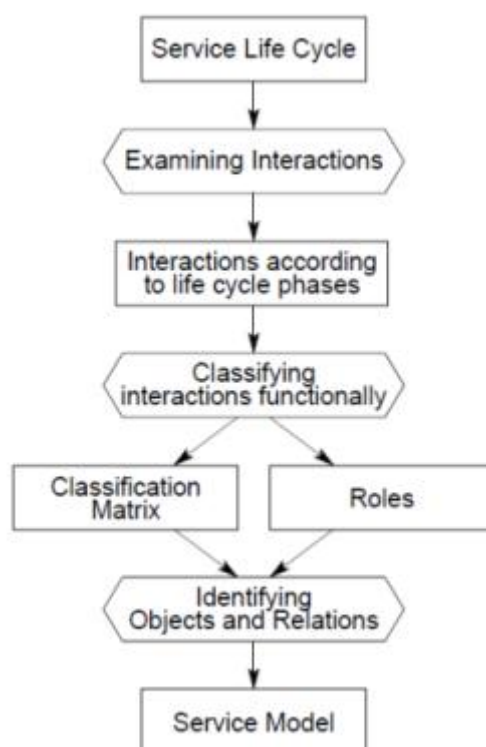


Figure 7. Service analysis method (Garschhammer et al. 2001: 723).

Garschhammer et al. (2001: 723) illustrates a service analysis method which is a top-down methodology to analyse the interactions taking place in the service environment. The analysis in Garschhammer et al. (2001) results in a generic service model which describes the relations between the service provider and customer.

Every service involves two major participants: one offering the service, the provider, and one requesting the service, the customer. Both the provider and customer interact to accomplish a service. The service functionality can be derived by examining the interaction between the provider and customer which disregards the implementation of the service. Thus the service life cycle is used to identify the interactions in the service analysis method, see Figure 7. Classes are used to group the interactions as it is a formidable task to identify all interactions for all services. Therefore the life cycle phase leads to the first grouping of interactions.

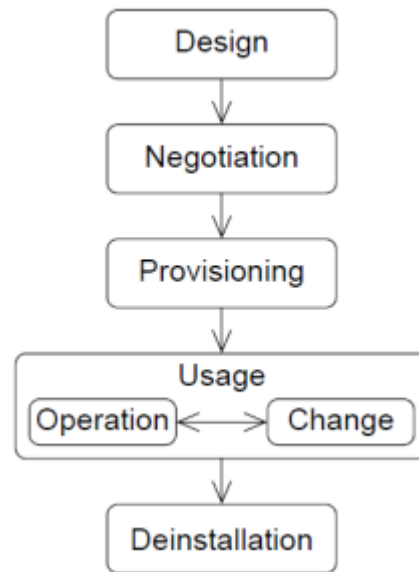


Figure 8. Service life cycle (Garschhammer et al. 2001: 724).

The service life cycle starts with the design of the service. Garschhammer et al. (2001) has split the life cycle phase into five phases: design, negotiation, provisioning, usage and deinstallation, see Figure 8. The life cycle starts with the design phase which is the specifications for the interactions. The QoS parameters and the cost assessment of the service are done in the design phase so that the service can be rated in the following phase. Thereafter the provider can enter in the negotiation phase with the customer. The negotiation can be a time consuming task since some service require lengthy negotiations. The provider and customer generally negotiate the QoS parameters, tariffs, penalties, discounts, escalation mechanisms, terms of usage and management of the service. Ultimately the negotiation ends with the signing of a service agreement. The provisioning phase requires the provider to implement, configure and test the service. Often the service agreement is amended as several factors are unknown until the service has been tested. The provisioning phase is completed with the statement of acceptance of the service by the customer. During the usage phase the service is operational and the service is utilised by the customer. The operation phase in the usage phase is all the activities needed for the service to remain operational. Any service functionality modifications are determined in the change phase. Finally, in the deinstallation phase the contract ends, the service implementation is removed and the resources are released.

Life Cycle Phases \ Interaction Classes	Design	Negotiation	Provisioning	Usage	Deinstallation
Design	█				
Contract Management		█	█	█	█
Provisioning			█		
Accounting Management			█	█	
Problem Management			█	█	█
Security Management			█	█	█
Customer Care			█	█	
Usage				█	
Operation				█	
Change Management				█	
Deinstallation					█

Figure 9. Classification of interactions according to the service life cycle (Garschhammer et al. 2001: 725).

As stated previously, it is impossible to investigate all interactions thus an abstraction of the interactions is required. The life cycle phases can be used for classifying interactions as every phase corresponds to a class. The example matrix in Figure 9 classifies the interactions. The interaction class horizontal bar indicates the phases of the life cycle it spans. From the matrix, two major interaction classes can be concluded: usage and management. The classification in the matrix also assists identifying the roles which may exist multiple phases.

The main goal of the methodology is to define interactions and participating roles. The consolidation of roles and interactions results in objects, relations and interfaces which are needed in the service model. Only a single role from provider and customer participate in every interaction. In the previous paragraph, the two major interaction classes identified can help identify two major roles on the customer side: users and customer. Users are those who consume the service and the customer performs all the management activities. Service management and service usage activities must also be performed by the provider.

Frei (2008) argues organisations should design service models that are specific to customers and customer's business. It is nearly impossible to design a generic service model for all customers while remain competitive.

Using the service analysis method, Garschhammer et al. (2001) proposes a scenario independent service model. The generic service model addresses some of the problems associated with service management and commonly defines the service-related terms, concepts and structuring rules for service model development. The service model can be applied in an array of scenarios that assists in the analysis, identification, structure and the organisational associations of the participants in the service delivery process. The service model is a result of a top-down oriented and systematic methodology. The methodology ensures the service management functional, organisational and life cycle aspects are acknowledged.

The generic service model achieves five milestones.

- The model provides a generic abstract service definition by providing a common understanding for service regardless of the environment. The generic approach grants the application of the model to all kinds of services which can range from communication services to complex value added services.
- The modelling approach caters for the integration of associations between organisations that provide and use services. The approach can be applied in complicated actual scenarios such as supply-chains.
- The model separates the service from the implementation of the service thus allowing service providers to implement service in their closest proximities without restrictions or adapting the implementation.
- The model does not impose the implementation of service rather the model uniquely identifies generic building blocks that are necessary to implement a service.

Finally, management is considered as an integral part of the service. The model exercises life cycles to identify roles and interactions that ensure all the functional aspects. The functional aspects are fundamental in the management of the services.

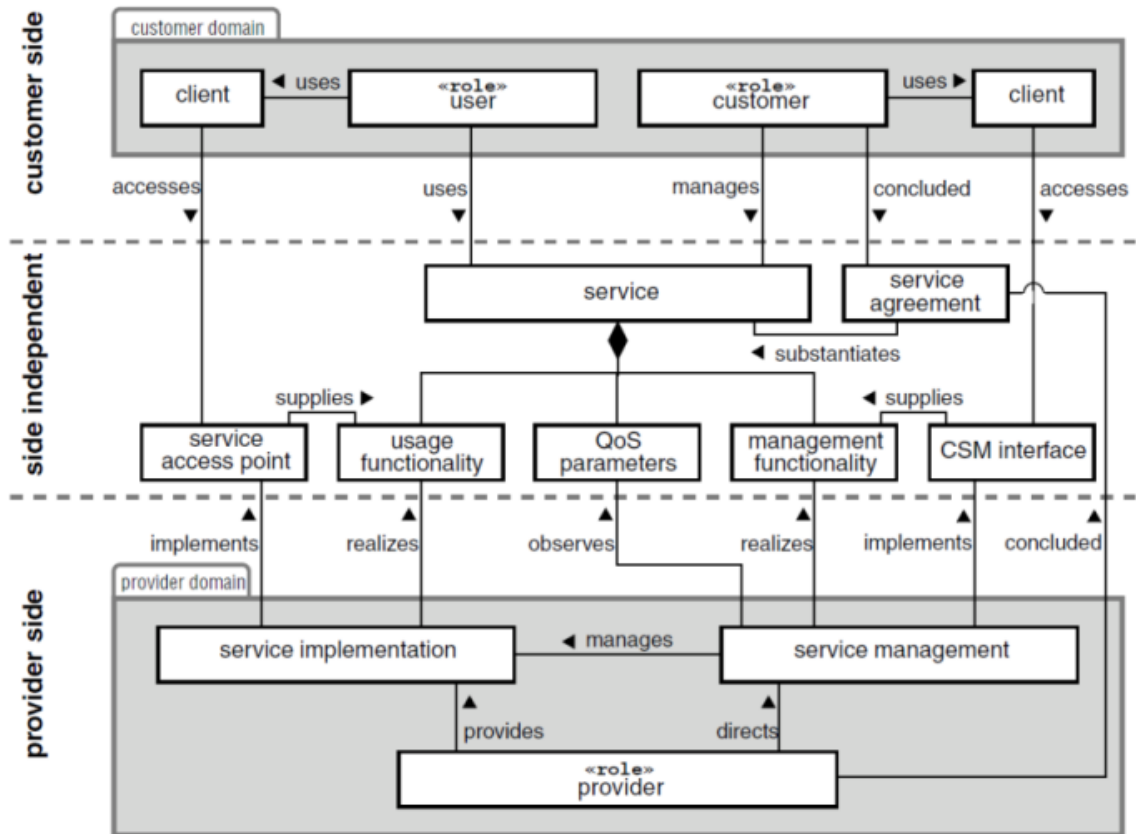


Figure 10. Example service model (Garschhammer et al. 2001: 727).

In the service model phase the definition of service is defined. The definition of service must be understood by the provider and the customer. Figure 10 presents an example service model with side independent aspects. The service model must follow a service orientation concept which is implementation independent service description from the perspective of the customer. The service model exhibits a provider, customer and information independent sides. The side independent information is shared by the provider and the customer however must be presented in the model from the customer point of view. The side independent information is an integral part of the service agreement as it describes the usage and management functionality.

For the model to be usable, a service interface must exist between the provider and customer side, see figure 5. Physical connectors represent the service interface. Additionally the interface definitions must also be included in the service agreement. According the methodology in Garschhammer et al. (2001), the interface is not part of the service and is the point where the responsibility of the provider ends. The inter-

faces allow the provider to change or add interfaces without affecting the service, although service agreements are to be amended. Therefore the interfaces for usage and management can be erected which were previously identified.

The main task of the provider in the service model is to make the service available which includes usage and management functionality in the side independent information which enables the customer to interface to the usage and management. The service implementation is the combination of knowledge, staff, software and hardware required in the service usage. The provider is also responsible for the service management and therefore implements the management interface allowing the customer access to the management functionality. Service management are the activities for keeping the service above the agreed quality level. Additionally, service management is the optimisation of the service operation.

4.4 Measuring service performance

Services are highly customisable and the people who are responsible for delivering the service have varying experience, skills and motivation for the job. Many managers have to realise that hiring more staff to accommodate for the degree of service support variance is a waste in costs and inefficient. For this reason, Harmon et al. (2006: 31) suggests monitoring service performance and its variance to improve service productivity.

Harmon et al. (2006: 33) identifies the reasons why service performance is hard to measure. Firstly, services are different, for example, providing outsourcing services to the assortment of digital business models. Banking requires high security systems as opposed to a Freemium digital business which can be accessed by any unauthenticated user. Secondly, service level-agreements are different. Certain customers expect more from a service than others, for example, customers may need 24hour standby. Thirdly, customer environments and infrastructures are different. Each customer environment is different and has unique aspects which can be difficult to measure. Fourthly, variance in work volumes is also a reason for wide variance, therefore the scale of the customer must be considered when measuring the performance. Lastly, the data problem, identifying what must be measured and how the data must be normalised across different environments.

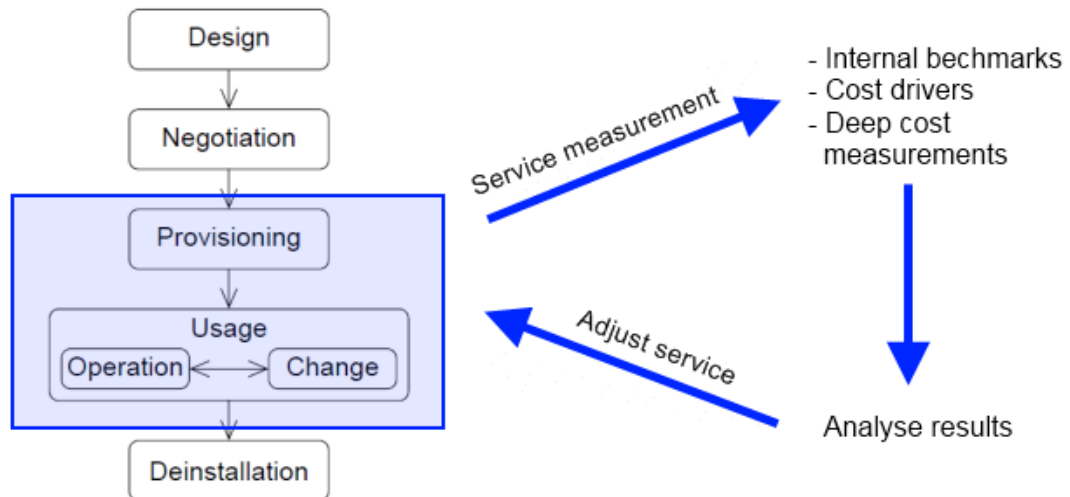


Figure 11. Applying service measurement principles from Harmon et al. (2006) to service life cycle in Garschhammer et al. (2001).

The theory in the previous section provides a pleasing approach to service analysis. Garschhammer et al. (2001) meticulously describes QoS parameters and the provisioning phase in the service life cycle. The QoS parameters define the metrics for measuring the service. The testing and adjustment of the proposed service is accomplished in the provision phase. The service must be measured to determine if the service matches the requirements of the QoS parameters. Harmon et al. (2006) proposes three principles to measure the performance in services. Therefore, as depicted in Figure 11, the service measurement principles provided in Harmon et al. (2006) can be applied to the service modelling methodology in Garschhammer et al. (2001) to measure the performance of the service in the provision phase. After the final service modelling phase, the service measurements can also be applied to the service model to monitor the success of the service model.

Service measurement principles

The first service measurement principle is the measurement of services against internal benchmarks. Harmon et al. (2006: 34) states organisations make the mistake of measuring their service performance against their competition's service performance. Competitor's performance data is only samples of data with little explanation therefore organisation who measure against external benchmarks often finds their measurement

figures grossly disproportional. Internal benchmarks convey more detailed and accurate figures which allow the company to quickly recognise their achievements. Using internal benchmarks the organisation can also determine which costs are included and how costs are allocated. These details are lost in external benchmarking.

The second service measurement principle dispensed in Harmon et al. (2006: 35) is the measurement of cost drivers. Measuring the underlying cause of each individual expense the organisation can peek into deeper into its own financial costs. By measuring, for example, incidents per employee per day, the service variance, which is directly related to cost, can be closely monitored.

The last service measurement principle proposed by Harmon et al. (2006: 36) to measure service performance is service companies must set up broad cost measurement systems. Costs are easily shifted to other business units in an organisation so cost measurement systems report and compare all expenses across the organisation. The broad cost measurement is be used to reduce variance and improve productivity of cross-functional services.

The main purpose of measuring is to enable process management which eventually eliminates waste. Equally, measuring improves the delivery of services. The principles emphasise the areas where costs accumulated so that organisations can price services more accurately to avoid freighting revenue on wasteful activities. (Harmon et al. 2006)

Configuring measurement systems

Harmon et al. (2006) volunteers cost trees as an effective method to measure the service performance. A cost tree can be synthesised once an organisation has identified the allocated costs and cost drivers. A cost tree should be detailed enough to spot inefficiencies and broad enough to cover operating units in the organisation. The main purpose of a cost tree is to draw attention to the effects of service performance in one area on another.

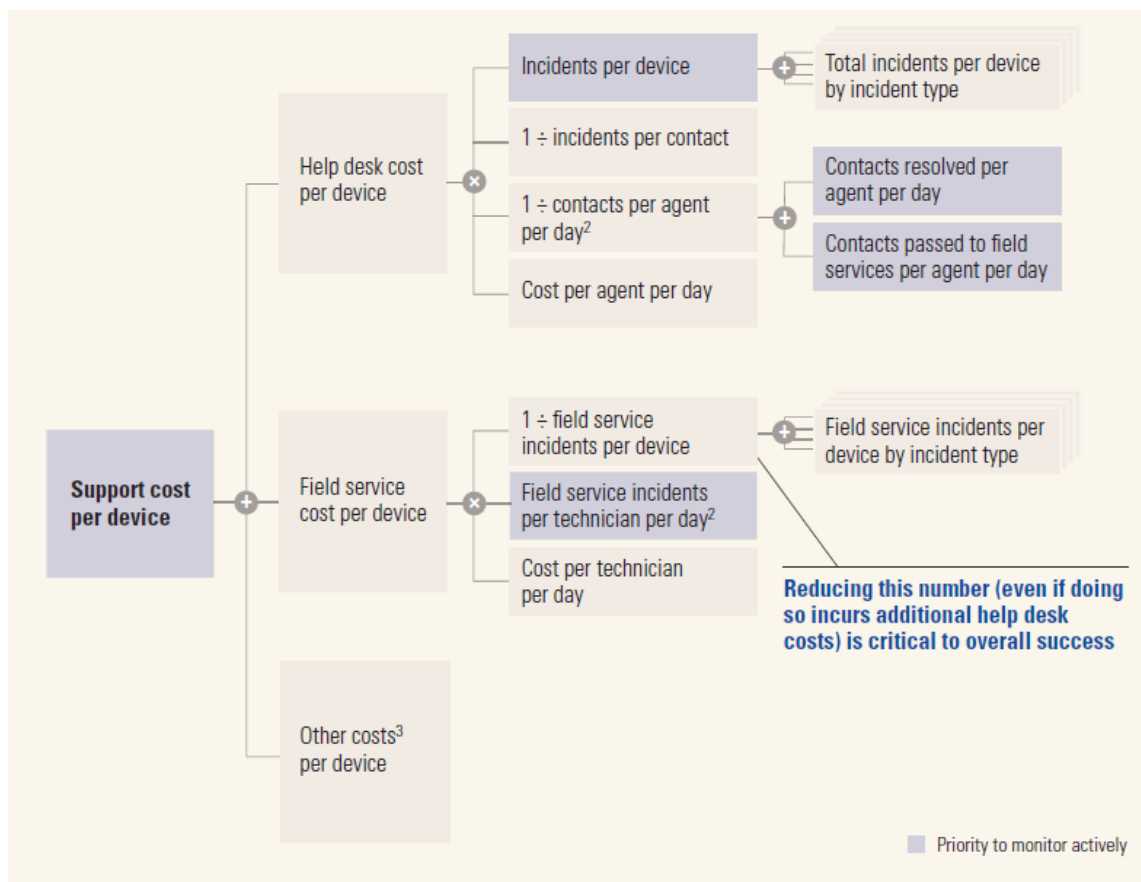


Figure 12. Cost tree example (Harmon et al. 2006: 36).

Harmon et al. (2006) does not provide the design details of a cost tree, instead affirms the application of the service principles in the cost tree to find inefficiencies. See Figure 12 for a cost tree example. To implement new and efficient processes the organisation must first define the metrics and then collect the data. He presents three guidelines when setting up a cost tree.

The first guideline for building a cost tree is choosing the metrics. Broad total cost metrics are vital in capturing all the costs for delivering service. The tree must be constructed so that key metrics can be compared over a range of environments. Keeping the environments intact, the detailed costs are then dissected across the leaves of the tree.

The second guideline is collecting data with care. Unclearly defined metrics and the incorrect data collection techniques can lead to time wasted in data collection and re-

dundant data. Training employees can help improve the data collection process. Therefore the organisation must review the data collection techniques of all the units across the organisation as the data comparison results will be inaccurate. Additionally sharing the reports across the units can help identify unusual data patterns.

The last guideline for building a cost tree is consistent data measuring techniques. The organisation must ensure the data measuring is viscous across all units. Visible interest from top executives into measurement techniques, portrays a clear message the organisation is intent on identifying variance and improving service performance.

Cost trees help the organisation identify the areas of demand for services. The service demand areas have the biggest potential for improvements. Measuring the service performance can assist the organisation in managing the demand and implementing the process improvements.

Summary of digital business and service analysis

A digital business is a business that transacts with the customer on the internet and uses technology to provide value to the customer. Value for the customer in the digital business environment is secure real-time access to information in an electronic marketplace that is built on a trusted online relationship between the consumer and provider. The electronic marketplace is an area on the internet where buyers and sellers can interact. Through the trusted online relationship can the digital business deliver services that mutually benefit the user and online service provider. Online services are highly customisable services that attempt to achieve something with the aid of technology that was not previously possible.

A top-down methodology is used to analyse the interactions in a service environment. The top-down methodology approach analysis the interactions between the service provider and service consumer. The methodology provides a more detailed description of the service provider. This resulted in a generic service model distinguishing the relationships between the customer and the service provider.

The QoS parameters are defined in the service analysis methodology, however no measurement processes were provided in the analysis. It is important to measure the service as the service provider can determine if the service is working and adjust the service accordingly. The service performance measurements that were proposed in the literature were, firstly, measuring services against internal benchmarks and not external metrics. Secondly, the service provider must identify the cost drivers of the services. Finally, the service provider must configure broad cost-measurement systems.

5 Digital business unit interview findings

Interviews are an appropriate method when it is necessary to understand his or her opinions and beliefs about a particular matter or situation (Collis & Hussey 2003: 168). Therefore semi-structured interviews were conducted with the DBU personnel understand their opinions and beliefs on customer service and the case company's service model.

A total of ten DBU personnel were interviewed individually in the beginning of March 2011. Only DBU personal at the Helsinki office were interviewed as many of DBU personal are permanently positioned at the customer premises. The target interview group were chosen at random and were not interviewed in any give order.

The interview questions were designed to question customer service knowledge of the interviewees. The current customer service model was introduced into the interview from question two to observe their perception of customer service model. Simply, the aim of the interviews was to determine how the employees felt about the current customer service model. The interviewees were also given an opportunity to identify any shortcomings in the service model.

The interview consisted of six questions. Attached to the questions was a printed diagram of the current service model. Upon first contact, the interviewer explained the academic purpose for the study. After each question, which was read together with the interviewee, the interviewee had an opportunity to answer the question. If the interviewee indicated the question was not clear, a deeper explanation was given referencing the literary material. Question two to six required the interviewee to reference the attached service model diagram. Before question two was read, the proposed service model was interpreted to the interviewee, with reference to the attached diagram.

Question two is not included in the findings. The analysis of the findings determined that the reliability of question two to be low because many interviewees did not understand the question and many of the interviewees did not answer question two.

As stated earlier, cognitive mapping was used as a data analysis methodology in this section. Cognitive mapping tries to find the patterns on the responses and creating phrases from the patterns. The phrases are then paired to find a meaningful contrast and then the phrases are linked to form a hierarchy of means. The hierarchy of means is a natural way to prioritise issues. The following text provides the interview question, a short description of the question and its purpose and then presents the analysis results for the question.

5.1 Interview findings

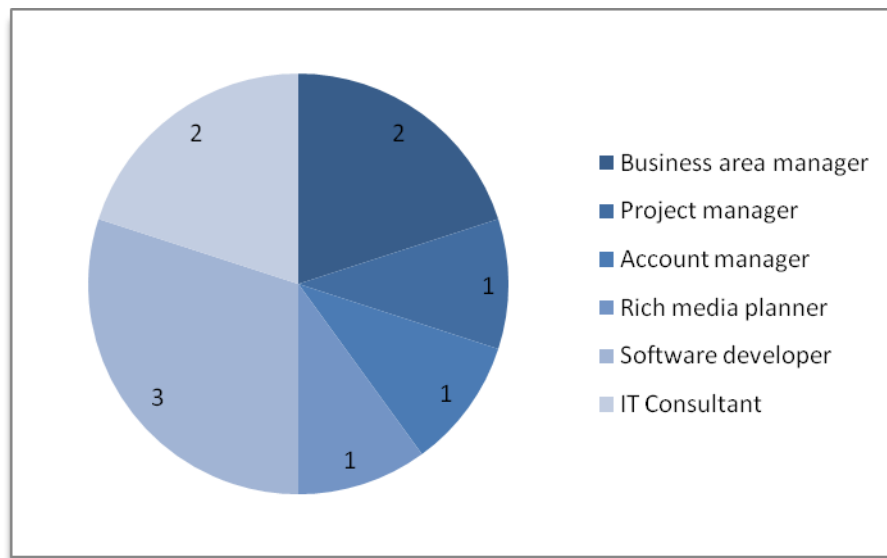


Figure 13. Interviewee job title dispersion.

The interviewee job title sample distribution is shown in Figure 13. The legend in Figure 13 shows the job title of the interviewee and the numerical values in the pie chart in Figure 13 depict the amount of persons interviewed who hold that particular job title. Therefore a total of 10 persons were interviewed.

The purpose of showing the interviewee job title dispersion in Figure 13 is to highlight that the data results were polarised since the responsibilities of those interviewed vary greatly. A large portion of the interview data was extracted from employees with seniority. The case company strives to provide its customers the best possible expertise thus most employees are in seniority positions. The Software Developers made up the largest interview group. Both managers in the DB unit were interviewed. All the interviewees report to the business area managers which constitute 20% of the interview group.

Question 1: How do you define customer service in the digital business unit?

The case company is an ICT services company providing services in digital business, thus aim of first interview question was to determine what the individual perceived to be customer service. The understanding of the term "service" within the realm of digital business transcends into the needs and requirements of a functional service model. Each employee has customer oriented tasks to complete that gives them direct exposure to the customer. The direct contact with the customer has equipped the employee with a personified understanding and method to deliver service. The service model should be adapted to fit the personified understanding and methods that aid service delivery. The answers provided insight on how important service is to the individual and how the individual delivers service to the customer.

Offer expertise for business problems
Set of activities that provides value for the customer
Communication with the customer
Customer requests in decent time
Rely and depend on delivering more than the promise
Understand the customer's business

Table 3. Most regular phrases paired in interview question 1.

Using the cognitive mapping methodology, the most regular phrases were found and are depicted in Table 3. The phrases are paired in Table 3 to find meaningful contrasts so that the issues can be prioritised. Offer expertise for business problems and set of activities that provides value for the customer are identified as priority issues.

Customer service for the case company could mean offering expertise for business problems and a set of activities that provides value for the customers. Offering expertise for business problems refer to any general type service function and set of activities that provides value for the customer expertise refers to specific quality service attributes therefore they are in contrast.

Question 3: If one of the key strategic areas of a digital business is trust relationships, how does the service model help us achieve a trust relationship with the customer?

One of the case company's strategic objectives is to be a trusted partner to its digital business customers. Thus the objective of the question is to highlight the value of trust between the case company and its digital business customers. The question scrutinises how the service model entrusts the case company to deliver value to its customers through the trust relationship between the digital business and its consumers.

Dedicated resources
Communication
Closeness with the customer
Correct people in place
Openness

Table 4. Most regular phrases paired in interview question 3.

Table 4 presents the most regular phrases that were discovered in the responses to question three. Dedicated resources is at the top of the hierarchy because it was highlighted as a major problem area for the current customer service model. Communication was also declared as an area that requires major improvements. Dedicated resources and communication are in contrast because dedicated resources is an attribute of trusted relationships and communication is a method used to achieve trusted relationships. Openness was not a common issue but was however noted in the results because communication, which is placed at the top of the hierarchy, facilitates openness with the customer.

Question 4: What are the strengths of the proposed service model?

The overall concept of digital business customer service is a strategic target of upper management of the digital business unit hence the service model was sketched as a result of interviews with management. The aim of the question is determine how the interviewees could identify the areas in the service model which best suited the digital business unit and also their own working environment. The interviewees have personal relationships with customers so are the best equipped to identify how the service

model aids the service delivery. The strengths distinguished will be exemplified in the working service model.

Customer feedback
Dedicated resources
Fixed meeting schedule
Communication
Clear responsibilities

Table 5. Most regular phrases paired in interview question 4.

Using cognitive mapping to identify patterns to the answers in question 4 and the most common phrases are identified in Table 5. The phrases are ordered with the most common phrases at the top and the least common at the bottom. Fixed meeting schedule has not been paired as no meaningful contrast was found.

Communication is extremely important in a software development environment, consequently all of software development interviewed indicated communication as a key strength therefore communication is at the bottom of the hierarchy. In the current state analysis, management indicated the focal points of the service model are the service meetings and customer feedback. The interview results indicated that receiving customer feedback is strength of the service model thus at the top of the hierarchy, customer feedback is a priority issue. The meaningful contrast between customer feedback and dedicated resources is the feedback is a tool to improve the service while resources are responsible for delivering the service.

Question 5: What are the weaknesses of the proposed service model and any improvement suggestions?

The true value of the service model exists in the ability to execute the service model. It is the responsibility of the employees to successfully execute the service model to achieve management's service strategy. By probing the weaknesses of the service model, management can adapt the model suit the needs of the customers and execution of the service model.

Team disconnected with the customer
How to service smaller customers
Communication mechanism
Sub processes missing

Table 6. Most regular phrases paired in interview question 5.

A widespread phrase detected in the interview results for question five is the service model disconnects the special expertise from the customer therefore it has been placed at the top of the hierarchy of means in Table 6. This is quite an accurate observation since communication with the customer is only possible if the special expertise team is close to the customer. Communication has been described as a strength in the previous interview question so to facilitate communication the service model should depict the special expertise closer to the customer. Nonetheless, the communication mechanism and sub processes have been underlined as a weakness by the interviewees. This suggests the interviewees realise that communication is important in delivering service but the service model does not describe how the communication should be conducted.

Question 6: How would the service model improve the digital business customer satisfaction?

The digital business customers satisfaction survey scores have not been on the targeted level as set by the corporate management. The interview question addresses the relationship between the delivery of service with the proposed service model and the possibility of improving the customer satisfaction survey scores. The question intended to find the apprehension level of the service model by the interviewee with the intended result of a satisfied customer.

Better communication
Customer service outline
Match customer delivery needs
Personalised service

Table 7. Most regular phrases paired in interview question 6.

Using cognitive mapping, the researcher has identified and placed the most regular phrases in Table 7 for the answers to interview question 6. Pairing the phrases is to find meaningful contrasts so that issues could be prioritised. Therefore the only meaningful contrast found that could be prioritised is better communication and a customer service outline.

The existence of a service model outline is welcomed and would aid to deliver service to the customer therefore customer service outline is at the top of the hierarchical of means in Table 7. The customer service outline serves to match the customer delivery needs. The results suggest this concept of a customer service model is understood.

One management interviewee said the digital business service sector is extremely competitive and the current customer satisfaction survey results should be measured against the customer satisfaction results of competitors. Reviewing the competitor results will help the organisation to better understand its position on the the digital business service scale.

5.2 Summary of findings

The interview results expose the need for a digital business customer service definition. The definitions of service given in the interviews suggested the service is focused on the delivery and implementation of the expertise. The idea of servicing the customer by offering expertise without the need to understand the customer's business suggests that the value of the service delivered can improved by having a deeper understanding of digital business.

The importance of trust seems to be understood, however the high response to dedicated resources reflects that the focus is on the delivery of the project assignment and

not on servicing the customer. The service model places the customer service personnel in key service positions however the low score for correct people in place also suggests that the service concept is not fully perceived.

The intended strengths of the service model have not been accurately recognised by the interviewees. The value of the service exists in the service meetings which enable communication. Communication is emphasised as a strength, however the interviewees have not recognised the value of communication with the customer to deliver service.

Valid weaknesses were identified in the service model though the largest weakness identified could easily be resolved by adjusting the service model diagram. Servicing the smaller customers could be seen as a weakness of the service model however the answers seem to suggest the smaller customers are not serviced at all and only receive delivery of the project assignment.

The results showed the service model must also be shown to the customer so that the customer is better informed on who and how the service will be delivered.

6 Results

The purpose of this study is to improve customer service for the case company. The results of this study combines the given literature and the results of the DBU interviews to illustrate a new customer service model outline intended to improve customer service for the case company. Following the new customer service model outline the study suggests also improvements for the new current customer service model outline.

6.1 Customer service model outline

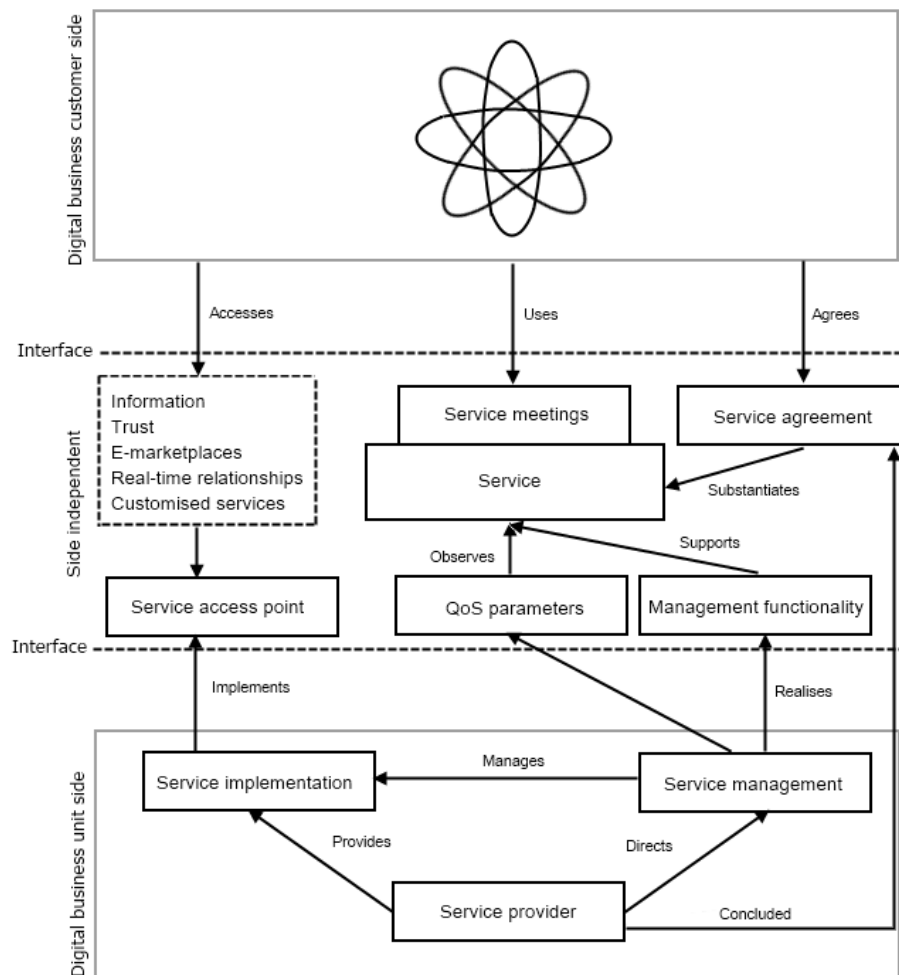


Figure 14. New customer service model outline.

The new customer service model outline, see Figure 14, is based on the generic service model in Garschhammer et al. (2001) which defines a commonly needed service related terms, concepts and structuring rules in a general and unambiguous way.

The new customer service model outline is intended to improve digital business customer service. Therefore the generic service model is adapted in accordance with digital business literature and the results in the findings of this study.

The three side independent aspects, digital business customer side, side independent and digital business unit side have been introduced in the new customer service model outline. The side independent aspects clearly define the usage by the customer and functionality provided by the service provider in the service model.

The service interfaces which are represented by the dashed lines in Figure 14 separate the independent side aspects. The purpose of the service interfaces is to indicate where the responsibility of the provider and service consumer ends. They do not form part of the service. The service interfaces render the service model to be usable and flexible by enabling the independent aspects to be changed while the interfaces stay intact and thus not affecting the delivery of the service.

According to Garschhammer et al. (2001), the digital business customer side in most cases is responsible for the equipment needed to access the service functionality. The technical equipment must be compatible with the service interfaces. The main task of the provider in the digital business unit side is to make the service available. This includes all aspects of the service, namely the usage and management functionality of the service and the fulfilling the QoS parameters and also enabling the interfaces. Garschhammer et al. (2001) also explains the side independent consists of the usage and management functionality which is responsible for satisfying a set of QoS parameters. The usage functionality covers the interactions by the user which represent the actual purpose of the service. The management functionality covers customising the service and controlling the service providers provisioning.

In the digital business side aspect, the digital value system diagram has been introduced to represent the digital business customer. The digital value system diagram

illustrates a customer that replaces the traditional value chain with digital value chain that is focused on managing the information and relationships. This is to clearly define digital businesses as the service consumers.

In the side independent aspect, the five strategic areas of a digital value system, information, trust, real-time relationships, customised services and e-market places are added. The customer always accesses the service with the digital value system intact. Simply, when the customer accesses the service the service provider must always understand operating environment of the digital. In this manner the service provider can provide service that is of most valuable to the customer; essentially understanding the customer's business.

The service meetings have been conjoined with the service. The case company believes that the service meetings form the core of customer service. The QoS parameters are to be reviewed in every service meeting therefore the QoS parameters observes the service and service meetings. The service agreement describes the usage and maintenance of the service and service meetings.

6.2 Improvement suggestions

The proposals for digital business model improvements are in accordance to the generic service model proposed in Garschhammer et al. (2001). The top-down systematic methodology approach will be applied in analysing the service environment of the digital business unit. The top-down methodology results in service model improvements describing the relations between the case company and its digital business customers.

First and foremost Garschhammer et al. (2001) proclaims service management is impossible if common service terminology is not defined. A contrary service definition was noted in the DBU interview results. The interviewees perceive service as the delivery of final functional requirements requested by the customer. The interview results also revealed that the concept of digital business is misinterpreted. Thus the first service model improvement is to define the common service terminology for digital business customer service.

The analysis of the interview results have also clarified that the roles of the service model are identified. However Garschhammer et al. (2001) argues the term service is more precisely defined through the existence of the roles user, customer and provider and their associations to the service. Analysis of the interview results manifested a lack of a communication mechanism and sub processes between the roles and customers. Therefore a service model improvement is to accurately define the associations of the roles within the service model.

Despite in some instances the service model vision satisfies the service life cycle phase, the QoS parameters have not been defined. Garschhammer et al. (2001) argues the QoS parameters help keep the service operational in the operation phase of the service life cycle. Therefore a service model improvement is to the display the agreed QoS parameters of the particular customer so that the service is delivered in accordance to the service contract.

The interface definitions must be included in the service agreement, Garschhammer et al. (2001). The physical connectors are the interfaces and are not part of the service. In the proposed service model the service interfaces have not been clearly defined. This is also noted in the interview results as the team is disconnected with the customer received the highest score in the service model weakness question. Therefore a service model improvement is to clearly define the service interface definitions and to ensure the interface definitions are not part of the service.

A digital business is a business that replaces the traditional value chain with digital value chain that is focused on managing the information and relationships that support all activities in the digital economy (Cronin 2000: 3). The five critical elements of a digital value system are information, trust, real-time relationships, customised services and e-marketplaces. Therefore the last improvement suggestion for the new customer service model outline is delivering service to the customer using the digital value system as the foundation. Using the digital value system in the service delivery allows the customer to reap all the benefits of the customer service since the service is not only aimed at improving customer service but also help improve the customer's business.

7 Conclusions

The following section provides a short summary of the research. Thereafter the managerial implications of the results are detailed. Finally, the evaluation of the study is criticised which evaluates the reliability and validity of the study.

7.1 Summary

The business problem of the case company is improving digital business customer service. The major challenge in the DBU is improving digital business customer service. Therefore the purpose of this research is to improve customer service for the case company.

The study was conducted in the qualitative research paradigm based on the action research model. Using a service analysis methodology and unstructured interviews in the current state analysis of the study resulted in the current customer service model. Thereafter, semi-structured interviews were conducted with the DBU personnel to determine their view of customer service with regards to the current service model. The analysis of the DBU personnel interview data followed. The results of the analysis combined with the relevant literature produced a new customer service model outline which assists in improving customer for the case company.

Finally, in conjunction with the new customer service model outline the study has provided suggestions how to improve customer service. The managerial implications of this study are principles how to measure the performance of the services provided.

7.2 Managerial implications

The first key implication for management derived from the findings in the interviews is a uniform and comprehensible definition for customer service. The definition of customer service should reflect the set of activities designed to enhance the customer satisfaction. The definition of service should be a template for the QoS parameters. The template for the QoS parameters should be used in every customer service agreement, however can be adjusted according to the customer's requirements.

The second implication directed at the management of the case company is providing training on digital business logic to those who are responsible for delivering service. The DBU interview results conveyed that service is to understand the customer's business and providing solutions to business problems. Therefore if the service offering exhibits understanding the customer's business, then the relevant training and knowledge on digital business is required to fulfil the offering.

The final managerial implication is measuring the performance of the service using the service performance measurement principles demonstrated in this study. First, the service must be measured against internal benchmarks. Next, the cost drivers of the service should be measured to find the underlying cause of each expense. Finally management must set up performance measurement systems. The performance measurement systems aim to compare the cost drivers across operating units. The study suggests employing cost trees as a service performance measurement system.

7.3 Evaluation

The premise of the evaluation in the beginning of the study was reliability is how accurately the research represents what is happening and validity the results of the study. However it was stated that there is no validity without reliability. Therefore, the validity of this study will be ascertained first on how well the findings represent the current customer service situations. Following, the reliability of the study will be assessed.

The study represents the need for customer service improvements well. However, the study does not go deep enough into the cause of the customer service challenges. The study provides a solution for the customer service problem, however did not research the cause of the customer service problem. Therefore the study would suggest further research into the interactions of the responsible for delivering the service. Also, investigating the portfolios of the customers would improve the validity of the study. Therefore the reliability of the study is assessed as reasonable.

The validity of the study is graded as above reasonable because the study only provided a new customer service outline. The new customer service outline must be tested and adjusted according to the needs of the case company and their customers. Further development work is still required to improve digital business customer service.

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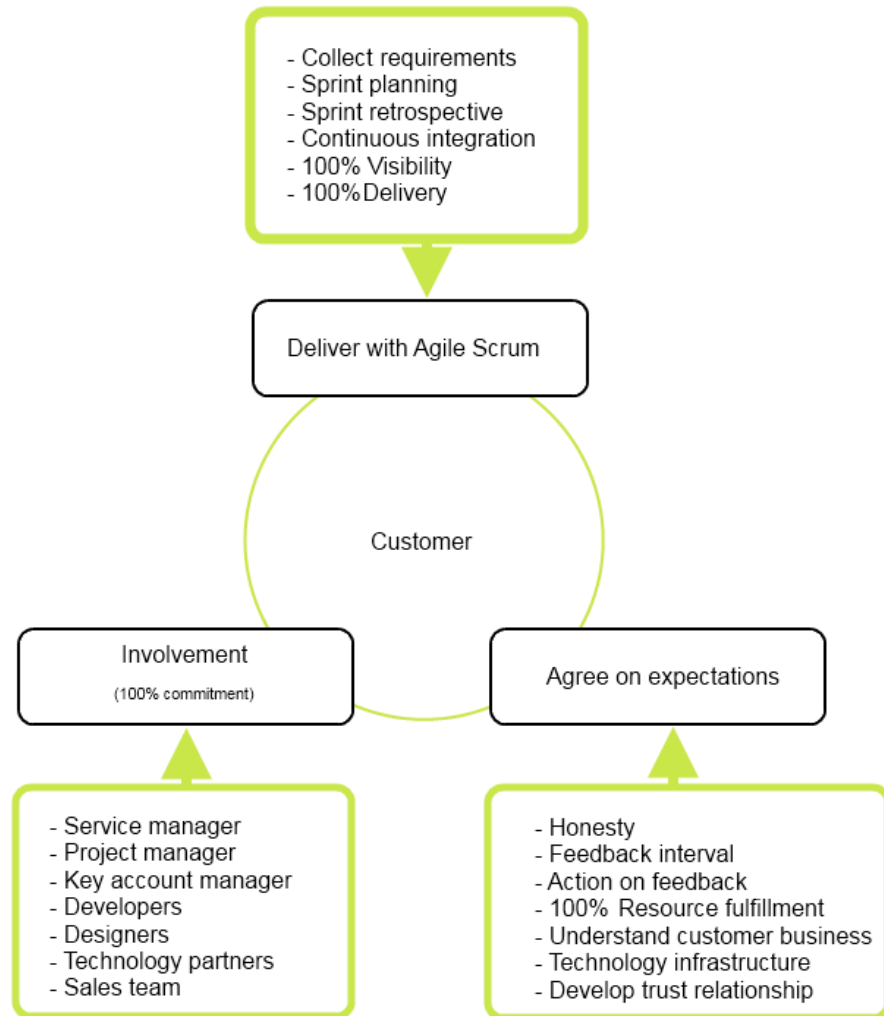
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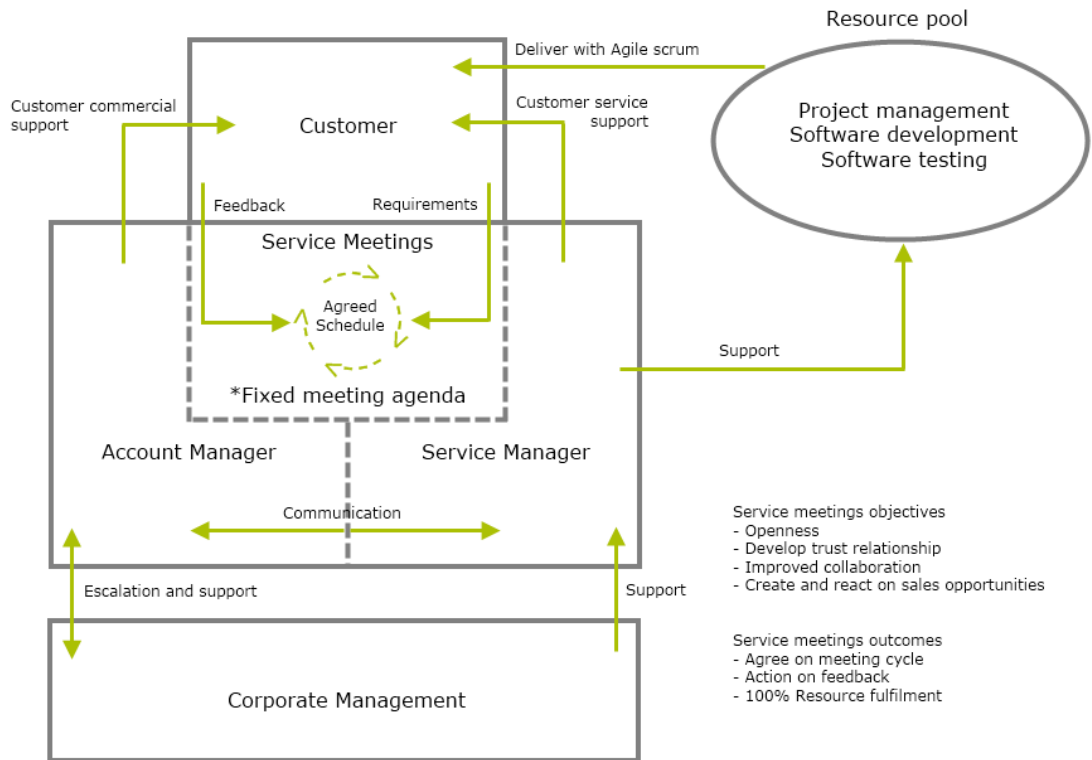
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Case company service model draft 1



Case company service model draft 2



DBU interview questions

1. How do you define customer service in the digital business unit?
2. A digital value system is a collaborative framework that is internet focused for the expanding domain of networked relationships and processes. How do you think the service helps the customer to build a digital value system?
3. If one of the key strategic areas of a digital business is trust relationships, how does the service model help us achieve a trust relationship with the customer?
4. What are the strengths of the proposed service model?
5. What are the weaknesses of the proposed service model and any improvement suggestions?
6. How would the service model improve the digital business customer satisfaction?