
Taking Innovative Products to the Market

Development of a Working Model for Adoption

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Kristina Hedin and Hampus Pettersson

Abstract

Title: Taking Innovative Products to the Market: Development of a Working Model for Adoption in Collaboration with Sony Mobile Communications

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Supervisors: The project was supervised by representatives from Sony Mobile Communications and Lund University. The supervisors were:

Bertil I Nilsson, Division of Production Management,
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Vadim Feldman, Sony Mobile Communications

Nenad Pavlovic, Sony Mobile Communications

Background/Problem Description: Creating innovative products and take them to the market is a struggle for many companies around the globe. At the Department of Security & Enterprise at Sony Mobile Communications in Lund it was believed that the innovation process could be enhanced if more focus would be put on pricing, adoption and timing. The belief at the department was that these three factor play an important role when taking innovative products to the market. This was the base assumption for this master thesis project.

Purpose: The purpose of the master thesis project was to examine what factors are important for the department of Security & Enterprise at Sony Mobile Communications in Lund when taking innovative products to the market. Furthermore, the master thesis project aimed to analyze how employees at Sony Mobile Communications in Lund could improve their innovation process by working with adoption when developing new products and services.

Research Questions: The research questions were designed to fulfill the purpose of the master thesis. When the research questions were answered the project objectives were met.

1. What factor(s) are important to consider in early phases of developing and taking new products/ services/ features to the market?
2. How can one improve evaluation in comparison to special aspects in their innovation process considering the chosen factor(s)?

Delimitations: The master thesis project was delimited to focus on the stage of the innovation process when taking an idea or prototype to market release. It focused on the European market. In early stages the master thesis project was delimited to focus on the three factors pricing, timing and adoption. However, later in the master thesis project the only remaining focus factor was adoption.

Methodology: There was two literature studies conducted, one to determine which factors that can influence the innovation process and one only focusing on adoption. However through the whole master thesis project academic articles, books and other master thesis projects were read and analyzed. The empirical data was gathered through semi-structured interviews at Sony Mobile Communications. Moreover, seven observation sessions were conducted through out the master thesis project at the companies Sony Mobile Communications, Haldex and Höganäs. The observation sessions were performed for validation of the developed model.

Conclusion: This master thesis project has contributed by filling a gap between theoretical models and working models with focus on adoption. The outcome of the master thesis project is the Adoption Canvas, which is a working model for gaining insights about the possibilities and risks regarding adoption of a new product, service or concept by the market. The model has been successfully tested on multiple actors from different companies in different industries.

Keywords: Adoption, canvas, model, innovation development, product development, process development

Abbreviations

MT project - Master Thesis project

SMC - Sony Mobile Communications

S&E - Security & Enterprise

B2B - Business-to-Business

B2C - Business-to-Consumer

B2B2C - Business-to-Business-to-Consumer

TOE - Technology Organization Environment framework

TRA - Theory of Reasoned Action

BI - Behavioral Intention

SN - Subjective Norm

TAM - Technology Acceptance Model

BMC - Business Model Canvas

VPC - Value Proposition Canvas

UTAUT - Unified Theory of Acceptance and Use of Technology Model

MAT model - Motivation Ability Triggers Model

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Chapter 1

Introduction

This chapter introduces the project and the report structure. It contains background information, motives for the project and the project objectives. Furthermore, it introduces the company Sony Mobile Communications from the project perspective.

1.1 Context

Today there are many procedures of work when taking innovations to the market. Yet many companies are struggling with developing new features, products and services that can bring value to customers and be profitable for the company. Taking innovative prototypes to the market is challenging, and managers at the department of Security & Enterprise (S&E) at Sony Mobile Communications (SMC) in Lund were curious to see if their innovation process could improve if more focus would be put on pricing, adoption and timing when taking innovative prototypes to the market. The belief was that these factors are the most important in order to determine in an early stage if a product, service or feature will be profitable or not. This was the base assumption for the master thesis project (MT project) and the research started by investigating which factor(s) that were believed to have the highest impact for market success.

The MT project was developed by the authors together with the supervisors from SMC and the faculty of engineering at Lund University. The motivation for the MT project came from different sources, one being the article "Eager Sellers and Stony Buyers" by Gourville 2006 that describes how different actors on the market view a new product. The article states that product developers usually overrate their new product by a factor three and that

the customers usually underrate the new product by a factor three. The developers are usually blinded by thinking that there is a need for their essential innovation on the market. At the same time consumers are usually unable to see the benefits with the new innovation and satisfied with the existing product. This leads to a mismatch between the stakeholders of how they view the same product by a factor nine which means that new products/ services have to be nine times better than existing products on the market to exceed the markets expectations. The authors of the MT project felt that this mismatch between stakeholders was an interesting topic and decided to perform further research, trying to better understand which factors that influence the markets acceptance of new products and services.

Another motivation for the MT project was Everett Rogers theory about innovation diffusion. (Rogers 2003) Adoption of technology is defined as the stage of selecting a technology for use by an individual or an organization. (Carr Jr 1999) Potential adopters will mostly be addressed as customers in this report to acclimate the report to the needs of SMC. Diffusion is defined as the stage in which the technology spreads to general use and application, and hence gets adopted by the masses. (Rogers 2003) A high rate of adoption of innovations is what innovators strive for, and according to Everett Rogers rate of adoption is defined as the relative speed with which an innovation is adopted by members of a social system. (Rogers 1995, chap 6, p. 204-251) Rogers developed different curves for visualizing the adoption distribution of innovations. These are called the S-curve of innovation and the Bell-curve, and they can be seen in Figure 1.1. The S-curve is relatively flat in the beginning and gradually increases as the innovation is diffused. The Bell-curve represents the number of adopters that adopt the innovation at certain times. In the beginning and end of the innovation cycle less people adopt the innovation.

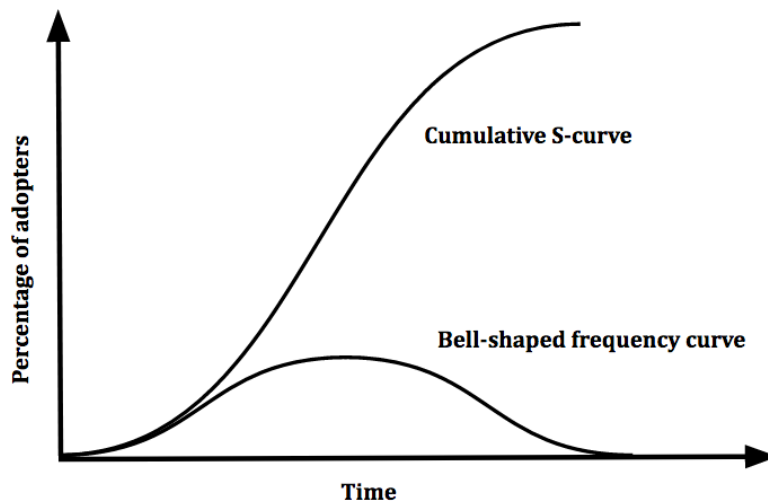


Figure 1.1: The curves of adoption diffusion. Figure developed from Figure 7-1 in Rogers 1983.

Predicting customers' reactions to an innovation involves both studying the different persona characteristics of the customers and analyzing how the properties of innovations affect the adoption rate. (Rogers 1995, chap 6, p. 204-251) The properties of an innovation can

be described by the five perceived attributes: relative advantage, compatibility, complexity, trialability and observability. (Rogers 1983). Other important attributes of innovations are the type of innovation decision, the nature of communication channels diffusing the innovation at various stages in the innovation decision process (see section 3.1.1 for more on the innovation decision process), the nature of the social system in which the innovation is diffusing and the extent of change the agents' promotion efforts in diffusing the innovation. (Rogers 1995, chap 6, p. 204-251)

1.2 Sony Mobile Communications

Sony Mobile Communications is a subsidiary company to Tokyo based Sony Corporation. The companies portfolio includes smartphones, tablets and accessories for consumer as well as professional markets. (S. M. C. Inc n.d.) In March 2016 Sony Mobile Communications declared a profit of about 760 million SEK and had about 1400 employees. (allabolag.se n.d.)

1.3 Project Objective & Research Questions

The objective for the MT project was to determine what the best practice could be for SMC and the department of S&E to take innovative prototypes to the market. Furthermore, the purpose of the theoretical research was to explore which factors that are important for taking innovations to the market, and determine how this could be incorporated in a corporate setting. Research on best practice for taking prototypes to the market was conducted, and the three factors pricing, timing and adoption were found. The objective was later to explore how the employees on the department of S&E at SMC could incorporate the findings in their innovation process.

This led to the formulation of the research questions that are to be answered in this report:

- What factor(s) are important to consider in early phases of developing and taking new products/ services/ features to the market?
- How can one improve evaluation in comparison to special aspects in their innovation process considering the chosen factor(s)?

In the beginning of the MT project neither the research questions nor the desired project outcome was well defined. To reach the goal to improve the innovation process at SMC the aim was first to clearly show which factor of timing, pricing and adoption that had the highest importance for SMC when introducing new product/ services/ concepts to the market and later to investigate how SMC could include this in their innovation process.

As the MT project went on the main objective was changed to only study what factors that matter for products/ services/ concepts to get adopted on the market. To reach the goal to

improve the innovation process the new aim was to create a working model that can be used early in the innovation process to determine if a product/ service/ concept has a high possibility for adoption. The model should be easy to use and fit the products developed at S&E at SMC.

1.4 Delimitations

Through the whole MT project the focus was put on the stage of the innovation process when taking a prototype up to market release. As mentioned earlier the MT project was early on delimited to the three factors timing, adoption and pricing. At this time it was also delimited to the European market, to include business-to-business (B2B) and business-to-business-to-customer (B2B2C) markets. A 2x6 matrix, visualized in Figure 1.2, was created to picture the delimitations. The objective was to further delimit the project to only target one or a few of the squares in the matrix.

	Pricing	Timing	Adoption
B2B			
B2B2C			

Figure 1.2: The first delimitations of the MT project.

During the MT project process it was discovered that adoption was of greatest importance to the employees at SMC when it came to identifying if a product or service would be successful on the market. Therefore it was decided to solely look at adoption as a focus factor. The project continued by investigating if and how the employees at SMC could determine if a new product/ service has a high possibility of being accepted and adopted by the market. The project was delimited to the two highlighted squares furthest to the right in the 2x6 matrix in Figure 1.3.

	Pricing	Timing	Adoption
B2B			
B2B2C			

Figure 1.3: The delimitations after phase 1 of the MT project.

1.5 Stakeholders

The target group was managers and product owners at the department of S&E at SMC. The aim was to provide them with useful information about taking innovative prototypes to the market, and more specifically how they can work with it. Other stakeholders were university master students level 5 and employees within engineering management.

1.6 Report structure

The MT project report is comprised of six chapters; Introduction, Methodology, Theory, Empirical Research & Implementation, Analysis and Conclusions. The second chapter, Methodology, describes different research strategies, explains methods for gathering data and what validity and reliability is. The Theory chapter consists of the theoretical models, frameworks and factors that the MT project is based upon. The fourth chapter, Empirical Research & Implementation describes how the empirical data was gathered in order to develop the final outcome of the project, and how this was tested for validity. The outcome is also described in this chapter. The Analysis chapter analyzes the final outcome of the MT project and the master thesis procedure used. The final chapter, Conclusions, discusses how the MT project objectives were fulfilled, the credibility of the MT project, contributions to the industry and academia and suggestions for further research.

Chapter 2

Methodology

In this chapter different research strategies and methods are introduced. Section 2.3 explains the procedure of the MT project and how it was carried out. The section also motivates the research strategy and methods chosen for the MT project. Finally this chapter discusses validity and reliability, and defines how this can be achieved for a MT project.

2.1 Research strategy

The research strategy describes the overall plan for how to accomplish the research goals. It should be feasible, suitable and ethical for the project. (Denscombe 2010) There are four main different approaches to research. These are exploratory, descriptive, explanatory and predictive research. The strategies have different focuses, depending on how much information is available and how deep the information is in the specific research area. However, more than one strategy can be applied at the same time in one project. (Lekvall and Wahlbin 2001)

With little information in the beginning of the project an exploratory approach is suggested. Exploratory research aims to gain basic knowledge and an understanding of the problem. This is usually conducted in order to be able to specify the assignment or to create new options for how to solve the problem. (Lekvall and Wahlbin 2001) Exploratory research can also be seen as a pre-study or a pilot study, when a more extensive study is performed afterwards. (Lekvall and Wahlbin 2001)

Using a descriptive research approach means that one tries to map the state of affairs within a specific area. (Lekvall and Wahlbin 2001) In this level of research there is a clear formulation of a question, which is not the case in exploratory research. To exemplify this method, it is used to describe the size of a market, how the market is structured or which products there are. (Lekvall and Wahlbin 2001)

The next level of research is to study and explain correlations of the observed area. This level of research is called explanatory. (Lekvall and Wahlbin 2001) The difference between descriptive and explanatory research is not always clear. An explanatory research is often concentrated to a few number of variables while descriptive research has a broader perspective. (Lekvall and Wahlbin 2001)

The most ambitious level of research, predictive research, requires good background knowledge within the area of research. Predictive research aims to forecast the results of the outcome given predetermined conditions. (Lekvall and Wahlbin 2001)

2.2 Research Methods

This section presents different research methods that can be used for collecting data for this type of MT project. Data can be collected from a number of different sources. Examples are through interviews, observations, literature research and workshops. These methods are used in this MT project and explained below. According to Runeson and Höst it is important to use several data sources to limit the effects of only one interpretation of a single data source. (Höst and Runeson 2009) More of this is discussed in section 2.4.1.

2.2.1 Literature Research

The literature research was an important part of the MT project, and can be seen as an investigation process in multiple steps. To find proper information it is important to have basic knowledge about the topic in order to use proper terminology in the search for articles. Literature studies are usually performed in multiple steps and the process can be iterative. In the beginning of the literature research, the researcher has an open minded way to search for data and information can be collected from libraries, books, articles or other sources. The researcher starts by boiling the wanted information down to keywords that can be used when searching in different literature databases. The second step is to limit the search to the most important sources to gain a deeper understanding of the subject area. The last step is to do narrow searches with specific terminology to gain the latest and most relevant information about the subject. (Höst, Runeson, and Regnell 2011)

2.2.2 Interviews

Interviews are a common research method for collecting information in a MT project. In interviews the researcher asks questions to the subject person in focus about the area of interest. Interviews can be held with one or multiple persons at a time. Normally the interview questions are a mix between open questions allowing different type of answers and closed questions to only allow a limited amount of answers. Interviews are normally recorded for the researcher to be able to revisit the answers multiple times afterwards and not fail to include all information in the thesis work. (Höst and Runeson 2009)

There are three different types of structures of interviews. (Höst, Runeson, and Regnell 2011) These are listed below with short explanations.

- Structured interview: The interviewer asks predefined questions in a specific order very much like a survey.
- Semi-structured interview: The interviewer has predefined questions to follow, but the order of questions can be changed during the interview. Depending on the respondent's answers, follow up questions can be asked.
- Unstructured interview: There are no predefined questions which gives the respondent person room to talk more freely about the topic.

If interviews are performed, it is preferable to interview people from different departments and with different knowledge in order to create the best possible picture of the particular situation.

2.2.3 Observations

To examine how a certain task is performed observations can be used. During observations the researcher lets the observation subject person(s) perform a task to gain feedback about the subject person's reactions.

The researchers level of interaction while observing can be high or low. One approach is for the researcher to record the observation and process the outcome at a later stage, and in this way completely avoid interaction with the observed subject persons. Another way could be for the researcher to use a "think aloud" protocol and ask questions during the observation to force the observed subject person to express their thoughts during the observation session. A third way is for the researcher to be a part of the team and act as an observing participant. (Höst and Runeson 2009) There are advantages and drawbacks with all interaction techniques. For example, the approach to completely avoid interaction by the researcher eliminates risks for the researcher to ask leading questions and bias the observation subject person. However, when the researcher participates in the observation session the observation subject person(s) might feel more at ease and act as if not observed. Moreover, the awareness of the observation by the observed subjects can be high or low.

Observations can successfully be used when the researcher suspects a difference between an official view of matters and the actual view, and hence observations can be used for investigating the response to a new model or procedure. (Höst and Runeson 2009)

2.2.4 Workshops

Workshops are usually connected to conferences where the latest articles can be discussed. They can be used to communicate new information and tools to many persons at once. The focus is normally to discuss the newness of the articles and the maturity of the results is not always that important. Sometimes workshops can be used to try one specific part of the research or to test unfinished studies. (Höst, Runeson, and Regnell 2011)

2.3 Procedure

The whole MT project was divided into four parts; Initiation & Planning, Literature Research, Empirical Research & Observations, and Summary & Presentation. In the Initiation & Planning part an exploratory research approach was used where information was gathered from multiple types of sources to gain information about the subject. As the MT project went on and the authors gained a deeper knowledge, the research strategy approach was successively changed to be descriptive. During the descriptive part the formulation of goals of the MT project was developed and a rough time plan of the project was created. The Empirical Research & Observations part included two phases in which further theoretical research, gathering of empirical data through interviews and observation sessions and the analysis was conducted. During these two iterations the report was simultaneously developed. In the last part of the project, Summary & Presentation, the MT project was summarized and communicated by the authors through a workshop and presentations. An overview of the different parts of the project can be seen in Figure 2.1.

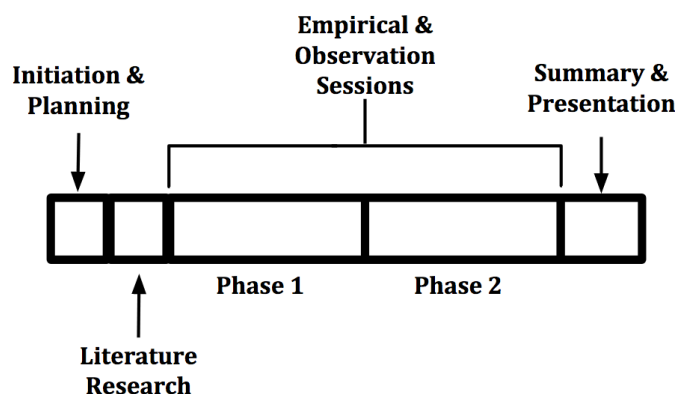


Figure 2.1: The main parts of the whole project.

Another literature research was conducted in phase 1 was to deepen the theoretical knowledge and to later compare the theory with empirical data to reach conclusions that could answer the main questions of the MT project. The empirical data was gathered through interviews and observations with representatives from different teams that work with development of new products/ services/ features directed to B2B at SMC. Further, representatives from external companies participated in observations for further validation. The external companies were Haldex and Höganäs. Haldex is a world-leading supplier of brake adjusters for drum brakes. They aim to create innovative solutions for the commercial vehicle industry. (Haldex n.d.) Höganäs produces various innovative solutions from metal powders. The global company is today world leading within their area. (Höganäs n.d.) Finally the empirical data was summarized and analyzed together with the theoretical research findings.

The motivation for using observations as a means for validation of the model developed was to capture the "true" reactions of the participants in the observation sessions. This way the feedback from the people who tested the model was believed to be more reliable than if the feedback would have been collected solely through interviews.

Interviews were chosen to use for data collection in the beginning of phase 1. The reason for choosing interviews was that the project scope included investigation of the innovation development process at the department of S&E at SMC. Had the authors instead chosen to send a survey to all employees at SMC, the opinions and needs of S&E would have been neglected. Furthermore, it was believed to be gainful to gather information from a few knowledgeable persons rather than many persons with unknown knowledge background.

2.4 Validity & Reliability

When gathering data for research there is a risk for measurement errors depending on the measuring instrument. Low validity and low reliability are imperfections in the measuring technique that can cause measurement errors. It is important to construct the research method to contain validity and reliability. (Lekvall and Wahlbin 2001) Explanations of validity and reliability follows below.

2.4.1 Validity

Validity determines if the results obtained in the measurements meet the requirements of the research method. It concerns whether or not the measuring technique actually measures the target wanted to research or not. (Lekvall and Wahlbin 2001) When a model or process is constructed for people to use, the validation is done by letting people who will use the model test it and give feedback. (Höst, Runeson, and Regnell 2011)

The validation of results obtained can be done by using different techniques. Writing down a log book during the course of the MT project can help the authors to remember why a certain conclusion was drawn or how the results made them take different decisions. To secure that the results from observations are accurate, the observed practitioners can be asked to validate that the results comply with what the person actually said during the observation. During the project the authors can have a peer reviewer (e.g. the supervisor) who examines the work continuously to reduce the risk of errors in the study. (Höst, Runeson, and Regnell 2011)

One means of increasing precision when gathering data is by using triangulation for the empirical research. This means using different types of data from different angles in order to obtain a broader picture. There are four different types of triangulation: data triangulation, observer triangulation, methodological triangulation and theory triangulation. Data triangulation is when using multiple sources of data or collecting data at multiple occasions. When an observation is performed for gathering data, observer triangulation can be used meaning that there is more than one observer present. Methodological triangulation is when combining qualitative and quantitative research methods and theory triangulation is when using different theories and/ or viewpoints. (Höst and Runeson 2009)

2.4.2 Reliability

Reliability of measurement results determines the measuring instruments resistance to coincidences meaning that one measurement should give a general result. There are three different ways to secure a higher reliability, test-retest method, parallel tests and split-half method. The test-retest method means that multiple measurements are made on the same individuals. When using parallel tests, two similar measurement instruments are created and applied to two different individuals. If the outcomes are similar the reliability is good. Split-half-method is a method in which one measuring instrument is divided into two equal parts. The results from these can then be compared in order to determine the reliability of the measurement. (Lekvall and Wahlbin 2001)

Chapter 3

Theory

This chapter introduces the theories, models and factors that are covered by the MT project. The models and theories were retrieved in the literature research as described in section 2.2.1.

3.1 Models

Business models are helpful to use when developing and taking new products/ services to the market. Business models are a statement of how value is created and captured. There are many different types of models, all of them trying to serve the purpose of guiding academics and managers to the understanding of value creation and value capture. They can also be used for communicating and visualizing different parts of a business to others. (Baden-Fuller and Mangematin 2015) In this section different business models concerning innovation development and taking new prototypes to the market are described.

3.1.1 Innovation Process in Organizations

The individual's decision to adopt is modeled by (Rogers 1983) as a process of steps that the individual (or decision making unit) goes through when adopting an innovation. This model is called the Innovation Decision Process and it includes the five steps knowledge, persuasion, decision, implementation and confirmation. The knowledge step occurs when the individual learns about the innovation and its functions. The second step, persuasion, occurs when the individual forms an opinion, either positive or negative, about the innovation. The adoption step is when the individual decides to adopt or reject the innovation

based on the opinion formulated in the previous step. If the innovation is adopted, the decision step is followed by the implementation step in which the innovation is put into use. The last step in the Innovation Decision Process is the confirmation step in which the adopter of the innovation determines whether or not adopting the innovation was the right decision. In this step the decision to adopt could be reversed if reinforcement that the decision was correct is not obtained. (Rogers 1983)

According to (Rogers 1983) there are five stages in the innovation adoption process in a company. These stages are the agenda-setting stage, the matching stage, the redefining/restructuring stage, the clarifying stage and the routinizing stage. Each stage has certain events and decisions that need to be carried out before moving on to the next stage. The five stages occur in the two different phases initiation and implementation. In the initiation phase the decision to adopt has not yet been made. In this phase searching, planning and preparation for an adoption decision occurs. In the implementation phase however, the decision to adopt has been made. The implementation phase includes all events involved in implementing and putting the innovation into use.

The first stage in the initiation phase is the agenda-setting stage. In this stage an individual or group inside a company identifies a problem and starts looking for an innovative solution. The agenda-setting can be either seeking an innovative solution to fill a performance gap in the company or searching for innovative solutions that might benefit the company. (Rogers 1983)

The second stage is the matching stage that involves testing the found innovation against the problem to investigate if the innovation is feasible enough to solve the problem in question. If the decision making unit determines that the innovation does not meet the demands for solving the problem, the innovation adoption process is ended and the innovation is rejected. However if the decision making unit decides to adopt the innovation, the process proceeds with the innovation implementation phase. (Rogers 1983)

The implementation phase begins with the redefining/restructuring stage. In this stage the adopted innovation is reinvented in order to fit better in with the organizations configuration and needs. In some cases the organization has to be reorganized to better fit with the adopted innovation. The redefining/restructuring stage is followed by the clarifying stage. In this stage the innovation is spread into wider use in the organization. If the spread of the innovation in an organization happens too fast, this can lead to difficulties with adoption from all company workers. The last stage is the routinizing stage in which the innovation is completely incorporated into the company. At this stage the innovation is no longer considered an innovation. (Rogers 1983)

3.1.2 Technology Organization Environment Framework

The technology-organizational-environment framework (TOE model) was introduced by L.G. Tornatzky and M. Fleischer in 1990. The framework looks closer at one part of the innovation process, namely the firm, its surroundings and how it influences the adoption as well as the implementation of innovations. The model is based on three factors that explain the surroundings of the firm. These three factors are technological, organizational and environmental. (Baker 2012)

The technological factor deals with all technologies that a firm possesses. This includes both technologies that the firm has released to the market and technologies that the firm has access to but not yet introduced to the market. All the technologies that a firm possesses influence the adoption process due to that it sets boundaries for how breakthrough new technological innovations can be for the firm. Innovations are divided into three categories, incremental, synthetic and discontinuous. Incremental innovations impart small changes for the user e.g. new displays with better resolution or a new update of a software-system. Synthetic innovations include a bit bigger changes e.g. combining two or more technologies that already exist into one new product. Discontinuous innovations are completely new technologies and/ or products. In a discontinuous environment firms have to be agile and quickly decide whether to adopt a new innovation or not to sell to their customers. (Baker 2012)

The organizational factor includes all connections/ channels, from a broad perspective, in a firm, both internally and externally. It also includes firm size, communication processes and slack resources. Some elements that have a positive impact for innovations in a firm are cross-functional teams, a supporting environment for formal and informal meetings between employees from different departments as well as from other parts of the value chain. Top management should have a positive attitude towards change and be supportive to new ideas that can develop the vision and mission of the company. How the firm is structured is also important for its own adoption and implementation. To achieve best possible adoption of an innovation process a decentralized structure is favored but for implementation of an innovation process a centralized structure is favored. (Baker 2012)

The business environment factor describes the whole industry and sees to factors like technology service providers and the regulatory environment. The shape of the industry can also influence the adoption of innovations. (Baker 2012) If the value chain has one dominant firm, it can influence other firms in the value chain to innovate. (Kamath and Liker 1994) Another element is that an intense environment with many competitors also leads to a stimulated market when it comes to adoption. The government regulatory can also influence the innovation in an area either positively or negatively. (Baker 2012)

The TOE model has been used in different industries in many different countries, both industrialized and developing countries. However the three factors have always had an influence of how a firm adopts new technologies. (Baker 2012) A picture of the framework is shown in Figure 3.1.

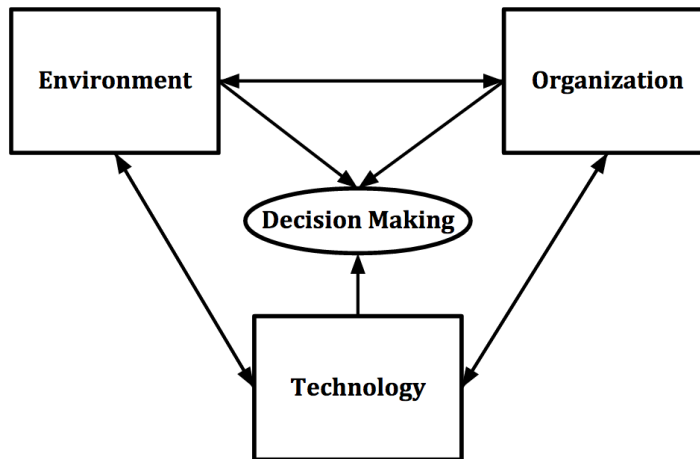


Figure 3.1: The Technology-Organization-Environment Framework. Figure developed from Figure 12.1 in Baker 2012.

3.1.3 Technology Acceptance Model

The background behind the Technology Acceptance Model (TAM) lies in researchers having had a hard time understanding the factors behind people's acceptance or rejection of computers. Researchers looked at the internal beliefs and attitudes of the users and tried to come up with factors that influence their usage behavior. The research has not been consistent, however factors that have had an influence in one way or another are the characteristics of the systems technical design, how much user involvement there has been in the development of the system, the development process itself and how well the system fits its purpose. (Davis, Bagozzi, and Warshaw 1989)

To understand the users behavior many researchers have studied the models from the social psychology perspective. One model from this area that has been successful in explaining and predicting the behavior is the Theory of Reasoned Actions model (TRA model). The TRA model is shown in Figure 3.2, and in short it states that a person's actual behavior is based on their behavioral intention (BI). BI is influenced by two factors, attitude towards behavior and subjective norm (SN). Attitude towards behavior in its turn is affected by beliefs and evaluations and SN is influenced by the motivation to adapt and normative beliefs. (Davis, Bagozzi, and Warshaw 1989)

Based on the TRA model Fred Davis developed the Technology Acceptance Model, (TAM model). The TAM model was developed to better map why information systems are ac-

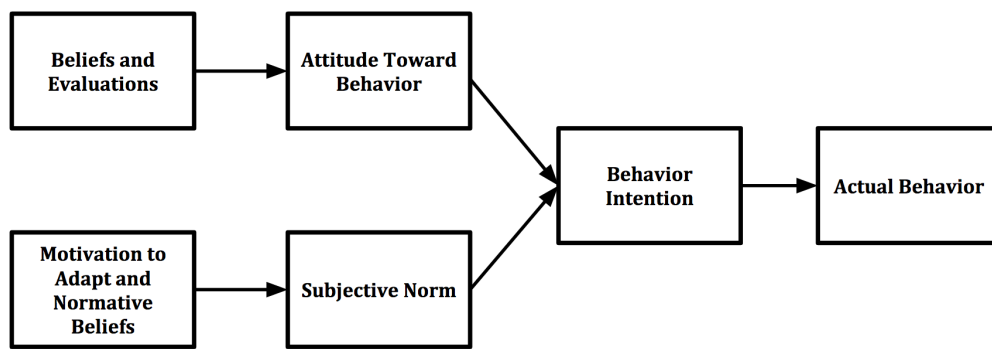


Figure 3.2: Theory of Reasoned Actions Model. Figure developed from Figure 1 in Davis, Bagozzi, and Warshaw 1989.

cepted and in general terms explain which factors that influence the acceptance of information systems. Compared to the TRA model, the TAM model focuses on which external factors that impact the internal beliefs, intentions and attitudes. The TAM model states that there are two main beliefs that impact the acceptance of information systems; these two are perceived usefulness and perceived ease of use. Perceived usefulness is based on the personal view of the probability that an information system will increase the performance of work. Perceived ease of use is defined as how big the effort is to use the system properly. (Davis, Bagozzi, and Warshaw 1989)

The TAM model also states that the actual system use is based on behavior intention (BI) but differs in explaining factors. The TAM model states that BI is directly influenced by perceived usefulness and attitude towards using. However perceived usefulness influences the attitude, which is also influenced by perceived ease of use. Perceived ease of use and perceived usefulness are both influenced by external variables. The TAM model is visualized in Figure 3.3. (Davis, Bagozzi, and Warshaw 1989)

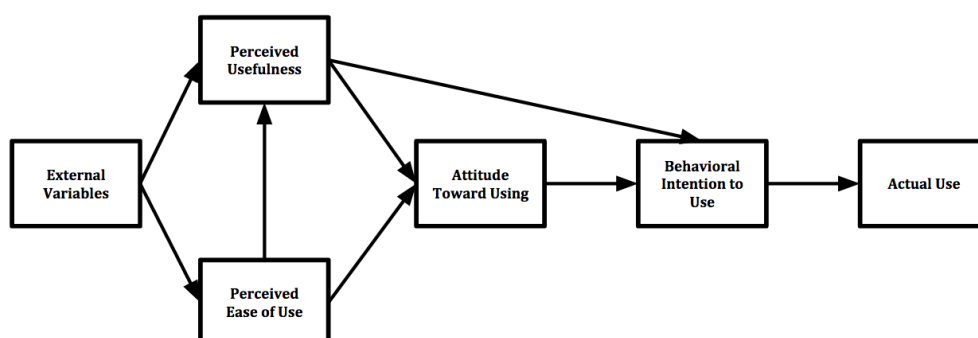


Figure 3.3: The Technology Acceptance Model. Figure developed from Figure 2 in Davis, Bagozzi, and Warshaw 1989.

3.1.4 Model of PC Utilization

The model of PC utilization is based on the TRA model, the TAM model and a model called Factors Influencing Behavior by H.C Trandis. Trandis's model is also based on the TRA model with the main difference that Trandis makes a clear difference of beliefs. He separates beliefs into two categories, one part that deals with emotions of use (beliefs created during the act of use) and the other part being based on future related beliefs. Further Trandis argues that behavior is based on people's attitude, social norms (influenced by what they believe is right) and habits. Attitude is influenced by both knowledge and feelings (affect) of the person using it. (Thompson, Higgins, and Howell 1991)

From Trandis's model Factors Influencing Behavior and complemented knowledge from other sources like the TRA model and the TAM model Thompson stated six factors that he believed would influence the utilization of PCs. The six factors are social factors, affect, complexity, job-fit, long-term and facilitating conditions. (Thompson, Higgins, and Howell 1991) This resulted in the model of PC utilization pictured in Figure 3.4.

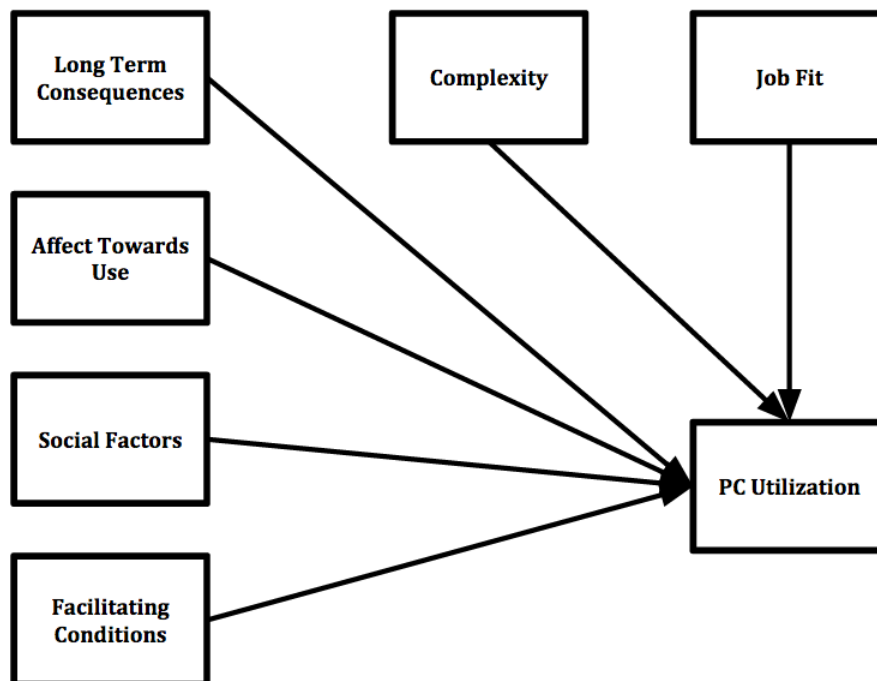


Figure 3.4: The model of PC Utilization. Figure developed from Figure 2 in Thompson, Higgins, and Howell 1991.

For each of the six factors Thompson created and tested hypothesis to see which had an influence of the utilization of PCs. His results show that four of the six elements tested were statistically significant at a probability level of $p < 0.01$. These four factors are social factors, complexity, job-fit and long-term consequences. (Thompson, Higgins, and Howell 1991)

The significantly positive factors had an influence of the utilization of PC. However the two factors that did not test positive need an explanation. For the affect factor an explanation according to Thompson is that computers do not bring strong emotional feeling, and are more seen as a tool. The factor facilitating conditions resulted as slightly negative. However, Thompson argues that it cannot be excluded since only one way of measuring facilitating conditions was performed. Other types of measuring could have given a different result. (Thompson, Higgins, and Howell 1991)

3.1.5 Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology model (UTAUT model) was developed through a review of eight existing adoption models and data from four companies over 6 months time. The eight models that were reviewed are Theory of reasoned action (TRA model), the technology acceptance model (TAM model), Theory of planned behavior (TPB model), the Social cognitive theory, the Model of PC utilization, the Innovation diffusion theory and a model merge between the TAM model and the TPB model. (Venkatesh et al. 2003)

The UTAUT model can be used for assessing if a new technology will be successful and understanding the drivers of acceptance of this. It includes four core determinants and four moderators of key relationships. The four determinants of intention are performance expectancy, effort expectancy, social influence and facilitating conditions. Each determinant of intention has multiple constructs that are determinants of intention gathered from the eight reviewed models. Furthermore, the model includes key moderators that can affect the determinants of intention positively or negatively. The key moderators are gender, age, voluntariness of use and experience. (Venkatesh et al. 2003) The model is illustrated in Figure 3.5.

Performance expectancy is defined as the degree to which an individual believes that using the system will help her/ him to attain gains in job performance. The constructs gathered from the eight models are identified as performance expectancy, perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations. Among these, perceived usefulness is the strongest construct. The constructs belonging to performance expectancy are listed with definitions in Table 3.1.

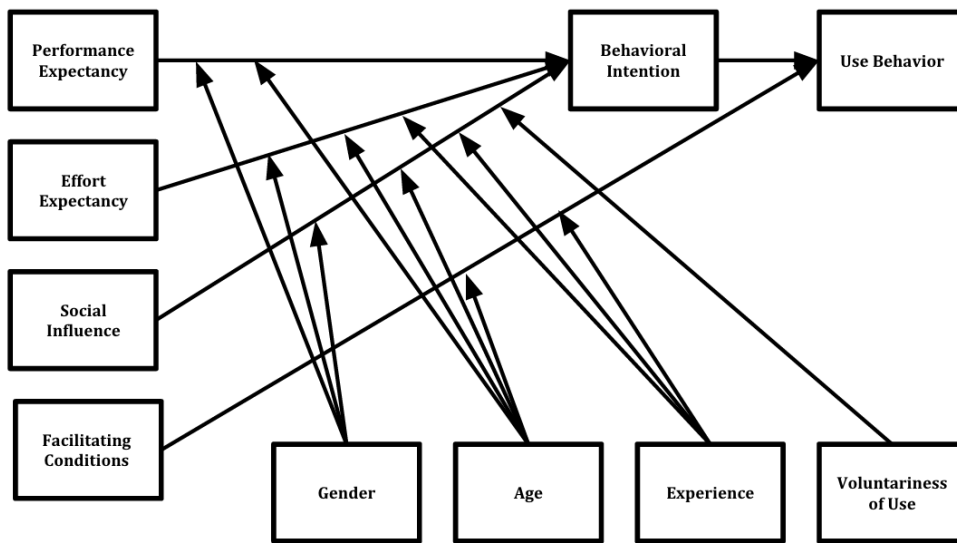


Figure 3.5: The Unified Theory of Acceptance and Use of Technology Model. Figure developed from Figure 3 in Venkatesh et al. 2003.

Table 3.1: Constructs belonging to performance expectancy and their definitions. (Venkatesh et al. 2003)

Root Construct	Definition
Perceived usefulness	Degree to which a person believes that using the system will enhance her/his performance
Extrinsic motivation	An activity is perceived as crucial for achieving valued outcomes that are distinct from the activity itself
Job-fit	How a system enhances the individuals job performance
Relative advantage	Degree to which using a new system is perceived as better than using the systems precursor
Outcome expectations	Outcome expectations are related to the consequences of the behavior, and can be divided into performance expectations and personal expectations

Effort expectancy is defined as the degree of ease associated with the use of the system. The constructs identified as effort expectancy are perceived ease of use, complexity and ease of use. The constructs belonging to effort expectancy are listed with definitions in Table 3.2.

Table 3.2: Constructs belonging to effort expectancy and their definitions. (Venkatesh et al. 2003)

Root Construct	Definition
Perceived ease of use	Degree to which a person believes that using a system will be free of effort
Complexity	Degree to which a system is believed to be difficult to understand and use
Ease of use	Degree to which and innovation is perceived as being difficult to use

Social influence is defined as the degree to which an individual perceives that important others believe that she/ he should use the new system. This has to do with image, and how people can convey others to adopt new innovations through social norms. Constructs identified as social influence are subjective norm, social factors and image. The social influence constructs are listed with definitions in Table 3.3.

Table 3.3: Constructs belonging to social influence and their definitions. (Venkatesh et al. 2003)

Root Construct	Definition
Subjective norm	Persons perception that people who are important to him/her believe that she/ he should perform a certain behavior
Social factors	The individuals internalization of the subjective culture and agreements that the individual has made with others in specific social situations
Image	Degree to which and innovation is perceived to enhance a persons status in the social environment

Facilitating conditions is defined as the degree to which an individual believes that an organizational or technical infrastructure exists to support the use of the system. Constructs identified as facilitating conditions are perceived behavioral control, facilitating conditions and compatibility. The constructs belonging to facilitating conditions are listed with definitions in Table 3.4.

Table 3.4: Constructs belonging to facilitating conditions and their definitions. (Venkatesh et al. 2003)

Root Construct	Definition
Perceived behavioral control	Perception of internal and external constraints on behavior
Facilitating conditions	Factors in the environment that make the act easier to perform
Compatibility	Degree to which and innovation is perceived as being consistent with existing values, needs and experiences of potential adopters

3.1.6 Business Model Canvas

A business model should describe how an organization creates value for its customers, how to capture and how to deliver that value. A business model needs to be both relevant and easy to understand, meaning that it should capture the complexity of the reality but at the same time keep the complexity at an understandable level. (Osterwalder and Pigneur 2010)

The Business Model Canvas (BMC) describes the business environment using nine different building blocks. These blocks are Customer Segments, Value Proposition, Channels, Customer Relationship, Revenue Streams, Key Resources, Key Activities, Key Partnership and Cost Structure. The arrangement of the blocks are pictured in Figure 3.6. (Osterwalder and Pigneur 2010)

It is recommended to first focus on the right hand side of the model, start by defining who the customers are. This box is essential for all organizations and firms because without profitable customers a business cannot run for long. Different tactics to select customers can be mass market, niche market, segmented, diversified or multi-sided platforms. (Osterwalder and Pigneur 2010)

The next step is to define the value proposition, the solution that is offered to a customer problem. This block should match the needs of the target customer segment. The value

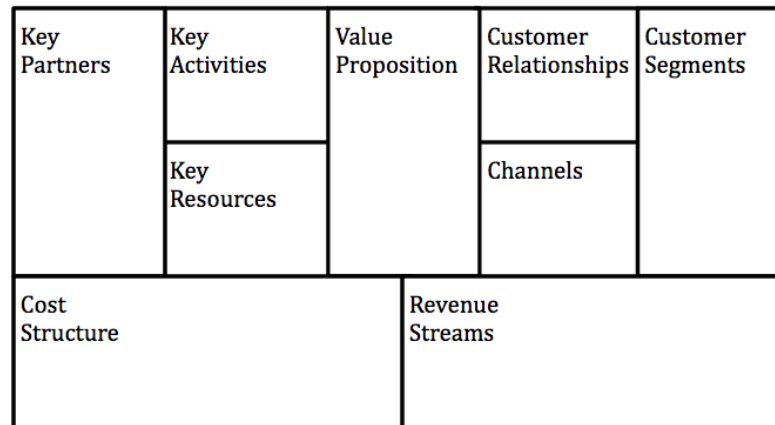


Figure 3.6: The Business Model Canvas. Figure developed from Business Model Generation, page 44. (Osterwalder and Pigneur 2010)

proposition can differ a lot, some factors that can influence is newness, increased performance, customized, price or design with many more. (Osterwalder and Pigneur 2010)

Channels deals with how to deliver and communicate the value proposition to the customers. This step includes five different phases which are to create awareness of the firms value proposition and to help the customer to evaluate the products/ services, how the customer purchases the value proposition, how to deliver it and provide service support for the products/ services. (Osterwalder and Pigneur 2010)

The forth step is to decide and organize customer relationships. There are three main goals in this step, to acquire customers, to keep customers, and to boost selling. This can be done in many ways such as through personal assistance, self-service and automated services. (Osterwalder and Pigneur 2010)

To complete the right side of the model the next step is to study the revenue streams. This step is about understanding the willingness to pay by the customer. There are many different kinds of revenue streams, but the most common one is to sell the ownership of a physical product, so called asset sale. To mention some other alternatives there is licensing, leasing/ renting, usage fee and advertising. There are two types of pricing strategy, either one can use a fixed price strategy meaning that static variables decide the price or one can use a dynamic pricing strategy in which the price differs depending on market conditions. (Osterwalder and Pigneur 2010)

On the left hand side of the model there are four building blocks where key resources is one of them. Key resources includes how the firm's value proposition is created. Depending on which firm it is, key resources look different, however often included as key resources are physical, human, intellectual and financial resources. (Osterwalder and Pigneur 2010)

The next building block is Key activities, which also deals with creating value proposition but on an operational level, activities that has to be performed in order to deliver the value proposition. Examples of activities are production and supply chain management, problem solving and networking. (Osterwalder and Pigneur 2010)

To the far left in the model the building block Key partnership is situated. This block includes how a company works with partners in order to optimize its business and reduce risks and uncertainties. The building block answers who the key suppliers are and what resources and activities are performed by partners. (Osterwalder and Pigneur 2010)

The final building block in the model is cost structure which summarizes all costs in order to operate the business model. It focuses on organizing the costs from key partners, key activities and key resources. There are two main cost structures. A company can focus on a cost-driven structure and try to reduce all cost to its minimum, or a company can be value driven and focus on delivering the highest value possible. In every business it is important to reduce costs but some companies take it one step further and uses it as the main differentiation factor, being the cheapest alternative on the market. (Osterwalder and Pigneur 2010)

3.1.7 Value Proposition Canvas

The Value Proposition Canvas is a working model taking base from the Business Model Canvas and the environment map. The definition of a value proposition is the benefits customers can expect from certain products or services. The purpose of the Value Proposition Canvas is to create a value map that lists products and services, gain creators and pain relievers, and later map these things to fit a customer profile which contains customer jobs, gains and pains. The goal is to achieve a fit between the value map and the customer profile, which means that the customers requirements for a solution are met. (Osterwalder, Pigneur, et al. 2014) The Value Proposition Canvas is illustrated in Figure 3.7.

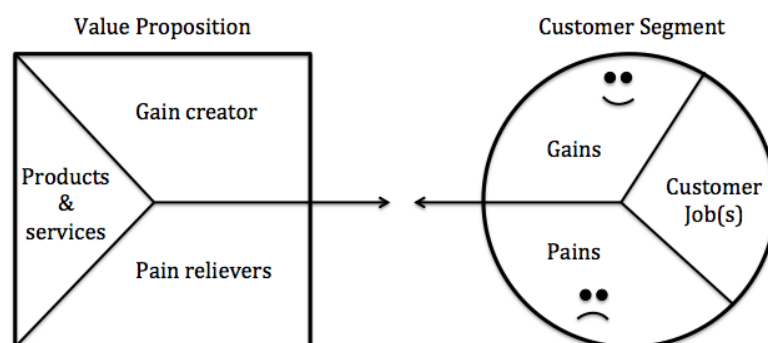


Figure 3.7: The Value Proposition Canvas. Figure developed from figure on pages 8-9 in Osterwalder, Pigneur, et al. 2014.

The practitioner of a Value Proposition Canvas starts out by creating a customer profile. The customer profile includes customer jobs, pains and gains. The customer jobs describe things that the customer wants to do and they can be functional, social and/ or emotional. This can be tasks to complete, problems to solve or needs to satisfy. Customer pains are things that make it difficult or prevent the customer from getting a job done. These can also be related to risks when potentially not getting a job done. Customer gains are expected or surprising beneficial outcomes that a customer wants. They include functional gains, social gains, positive emotions and cost savings. (Osterwalder, Pigneur, et al. 2014)

After creating a customer profile the practitioner of the Value Proposition Canvas creates a value map. The value map is built of products and services, pain relievers and gain creators. The products and services include the offering that is created for the customer, and are formulated in a list. The products and services help the customer complete customer jobs, and they only create value when being mapped to customer jobs, pains and gains. There are different types of these including physical/tangible, intangible, digital and financial products and services. Pain relievers describe how the products and services are actually relieving the customer from pains. The gain creators describe how the products and services provide the customer with gains. (Osterwalder, Pigneur, et al. 2014)

B2B customer profiles are different from B2C customer profiles in the sense that value propositions for B2B customers typically demands the consideration of more than one stakeholder. All stakeholders have different jobs, pains and gains to consider, and therefore separate customer profiles should be created for each of these. The different types of stakeholders in a B2B value proposition context are influencers, recommenders, economic buyers, decision makers, end users and saboteurs. The influencers are people that decision makers are typically influenced by. Recommenders are the people who search for, evaluate and make recommendations of whether to buy a product/ service or not. Economic buyers control the budget, and are the people that make the final purchase. These people are mostly considering the financial performance of an investment. Decision makers have the ultimate authority and decides whether or not to buy a product/ service. End users are the people who ultimately benefit from the product or service. Saboteurs are people who can interfere with the process of searching for, evaluating and purchasing a product or service. (Osterwalder, Pigneur, et al. 2014)

Lastly the practitioner ranks the pains, gains and jobs by order of importance for the customer and creates a fit between the customer profile(s) and the value map. There are three different types of fit; problem-solution fit, product-market fit and business model-fit. The problem-solution fit occurs when evidence shows that a customer cares about the jobs, pains and gains in the customer profile and when the value proposition addresses these jobs, pains and gains. A product-market fit happens when the customers are proven to be satisfied with the value proposition. Lastly, the business model fit is obtained when the value proposition can be successfully integrated in a business model. (Osterwalder, Pigneur, et al. 2014)

3.1.8 MAT Behavior Model

Fogg's MAT Behavior Model is used for understanding human behavior and what factors are important for creating a behavior change. (Fogg 2009) The model highlights three important factors that have to be present at the same time for a certain behavior to occur. These elements are motivation, ability and triggers. (Fogg 2009, Fogg n.d.) It is a conceptual model which shows the relationship between the three factors. If a certain behavior does not occur, one of the main elements are missing. This model can help identify what element is deficient for a product or service to get adopted by customers. (Fogg 2009)

There is a trade-off between motivation and ability. This means that if motivation is high, ability can be low and the behavior can still occur and vice-versa. (Fogg 2009) The relationship between the two elements motivation and ability can be seen in Figure 3.8.

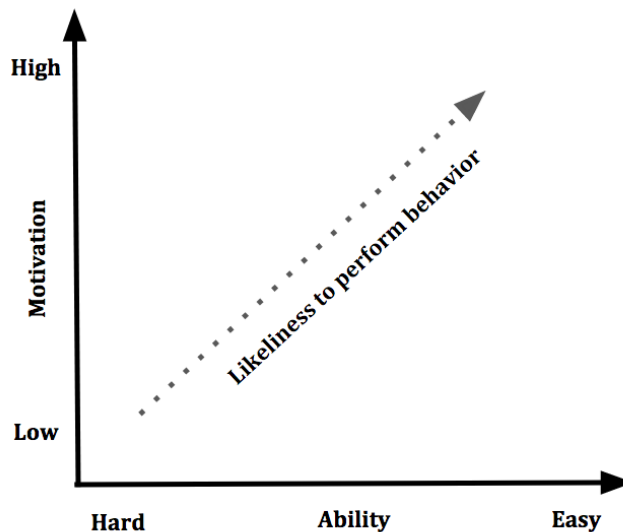


Figure 3.8: The MAT Behavior Model. Figure developed from Figure 1 in Fogg 2009.

Each of the three main elements has sub components. The motivation element has three core motivator components, ability includes six simplicity factors and there are three types of triggers. (Fogg n.d.)

Motivation is modeled by B.J. Fogg as a framework in which there are three core motivators which all have two sides. (Fogg 2009) The core motivators are sensation, anticipation and belonging. Sensation has the two sides pleasure and pain, anticipation has the two sides hope and fear and belonging has the two sides acceptance and rejection. (Fogg n.d.)

Ability means that a person needs to be able to perform a specific behavior to do it. It is important not to overestimate a customer's abilities when designing a new product or

service. Therefore, Fogg advocates for simplicity meaning that the innovation that is developed should need an easy target behavior to perform. Another way is to educate the customers on how to perform the target behavior. This is however not simple, and should be avoided. So focusing on simplicity will increase the ability of use. (Fogg 2009, Fogg n.d.)

There are six simplicity factors that need to be considered for increasing the availability of a behavior. These are time, money, physical effort, brain cycles, social deviance and non-routine. The simplicity factors are listed in Table 3.5 with explanations. (Fogg 2009)

Table 3.5: Fogg’s six simplicity factors with definition. (Fogg 2009)

Simplicity Factor	Definition
Time	If a person does not have sufficient time to perform a behavior it is not simple
Money	If a behavior is costly and a person does not have sufficient amount of money the behavior is not simple
Physical effort	If a behavior requires too high physical effort it is not simple
Brain cycles	If a behavior requires a person to think too hard it is not simple
Social deviance	If a behavior requires a person to go against societal norms it is not simple
Non-routine	If a behavior demands a person to do something that deviates from their regular routine it is not simple

Another element is triggers, which are external events that trigger a certain behavior. Without these triggers a specific behavior will not occur. Other names for triggers are cue, prompt, call to action and request. (Fogg n.d.) There are three types of triggers; spark, facilitator and signal. A spark is a trigger that can be used when a person lacks motivation for performing a certain behavior. A facilitator is appropriate to use when a person has a high motivation, but lacks the ability to conduct a behavior. The last trigger, the signal, can serve as a reminder to conduct a behavior. It is preferably used when both the motivation and the ability for a person is high.

3.2 Factors

This section presents two factors found in the literature research that influence adoption. The reason that these factors are chosen to be included in the report is that they were not directly found in any of the other models, but are believed to play a key role for gaining adoption.

3.2.1 Switching Cost

A switching cost is defined as “the onetime costs that customers associate with the process of switching from one provider to another” by Thomas A Burnham, Judy K Frels and Vijay Mahajan. (Burnham, Frels, and Mahajan 2003) Professor Kretschmer from LMU Munich has a mathematical definition of switching costs shown in Equation 3.1.

$$U_c = \Delta_u - C_c + G \quad (3.1)$$

In Equation 3.1, U_c is defined as the customer benefit from switching to a new supplier, Δ_u is the utility increase from switching, C_c is the customer's switching cost and G is the good received by the customer from the new supplier after switching. (Kretschmer n.d.)

To work with switching costs, a firm wants to create as high switching costs as possible for its own customers to choose another supplier in order to keep them. This can be done in several ways, for example a firm can develop loyalty programs, sign long-term contracts, give supportive services or produce complimentary products. (Kretschmer n.d.)

Other factors that influence the switching costs are how expensive it is in monetary terms to change supplier and how much time and effort it takes. Switching cost can also be personally related meaning that having a strong personal connection or a good personal support can increase the switching cost. (Kretschmer n.d.)

There is also the customer side of switching costs, which is important to understand and think of when developing factors that create higher switching costs. A customer wants to have freedom of choice, over what products or services to buy and when to buy it. This means that customers do not like to be locked-in by a specific firm over a long period of time. (Kretschmer n.d.)

3.2.2 Personal Identity, Customer Aim & Tribal Mores

In the past 50-60 years there has been a power shift between companies and customers. The market was in the past very company-centric meaning that the main focus for the companies were "who we are", trying to create a picture of a well functional and modern

company. Companies are doing that today as well but with focus put on "who they are", they being the customers. It is not enough to know who your customers are, companies need understand what their customers want to be and then help them become that. There has been a shift from company identity till personal identity. One reason for this shift is digitization which has enabled customers to easily connect with each other, share photos, stories and experiences about the companies. (Neumeier 2016)

Customer identity is important to consider when building a brand and when to decide whether a new product/ service will be adopted by the target market. Instead of considering customer segments through geographies, demographics and behavior companies should build tribes. Tribes consist of people who share the same values and goals, and who would gladly purchase and spread a new innovation that is customized for them. (Neumeier 2016)

When identifying which customer belongs in a tribe the three aspects customer identity, customer aims and the tribes' mores should be taken into account. The customer identity is who the customer is, the aims target what they want and their mores involve how they belong together in a tribe. In order to get a grasp of the customer it is important to determine these three aspects of them. (Neumeier 2016)

Chapter 4

Empirical Research & Observations

This chapter describes the outcomes of the two main phases of the MT project, phase 1 and phase 2. The sections for each phase begin with explanations of the procedure conducted in each phase. This is followed by the results obtained in each phase.

4.1 Phase 1: Exploring & Finding

Phase 1 began with an exploratory research through semi-structured interviews at the department of S&E at SMC to determine the procedures and methods used for innovation development there. At the same time an extensive literature research was conducted to explore the theoretical framework regarding the three factors adoption, timing and pricing. After having performed data triangulation, gathered data from multiple sources, a first draft of a working model was produced.

4.1.1 Procedure

To gather data about the processes for innovation development at the department of S&E semi-structured interviews, with six persons with different positions and responsibilities at the department, were held. The different types of positions are listed in Table 4.1.

People with different positions were chosen for the interviews to gain a more complete understanding of the needs and beliefs at SMC. If only people with the same background would be interviewed, the outcome would risk being biased by one group's opinion.

Table 4.1: The different positions interviewed at SMC.

Interviewed
Product owner, S&E
Product owner, S&E
Global experience planner within B2B, S&E
Section Manager, S&E
Customer Product Management, SMC
Global B2B Sales & Marketing Leader, SMC

The questions developed for the interview, which can be found in appendix A, were formulated to investigate how the different employees work with taking innovations to the market and what their definitions and views were on the three factors pricing, timing and adoption. The goal of the interviews were to gain an understanding of the organizational processes and what the employees at SMC believe is important to look further into when it comes to taking innovations to the market.

4.1.2 Adoption as Delimitation

After transcribing and analyzing the result from the interviews it was clear that all interviewees thought that adoption is the most important factor, of the three, to be able to foresee if a new product/ service offering will gain traction and give return on investment. The factors pricing and timing are also relevant for taking new solutions to the market, and were believed to be sub categories for adoption. However, the only method for determining the possibility for adoption of a new offering at the department of S&E was benchmarking against other companies, conversing with partners and looking at previous sales numbers. Therefore it was decided to introduce adoption as delimitation for the project thereafter, and thereby to focus on how working with adoption could be incorporated into the procedures at S&E.

A second extensive literature research focusing on adoption theory was conducted. Several research models concerning adoption were found, but all of them were believed to be complex and too difficult to easily understand and use by the employees at SMC. Most of the adoption models and frameworks found were not working models and a gap in the literature was detected between theoretical research models and working models. Working models such as the Business Model Canvas and the Value Proposition Canvas do not include all important factors regarding adoption that were found in the literature research.

It was then decided to create a working model for analyzing possibilities and pitfalls regarding adoption of a new product/ service/ concept that could be used by employees such as product owners and managers at SMC as validation for their new idea. Taking base from the theoretical framework a first draft of a working model for investigating adoption was produced. This model was developed from a few of the models and concepts found in the adoption literature and described in chapter 3.

Many of the theoretical models found in the literature research were based on one-another. The UTAUT model was the latest model which is a combination of eight of the other previously developed models. Since the UTAUT model is a combination of many other adoption models it was determined that it was suitable to partly base the model on the four core determinants of intention from the model. These determinants of adoption, performance expectancy, effort expectancy, social influence and facilitating conditions, are therefore the foundation of the model.

4.1.3 First Model Draft

The model that was developed in phase 1 was created for product owners, managers and consultants that would like to test if their new product/ service/ concept idea is likely to be adopted by the target segment. It consisted of seven blocks of entry with different headlines that had different purposes. These headlines were customer identity, customer problem, customer's core aim, alternatives/substitutes, barriers for adoption, new offering and facilitating conditions. Each block of entry included questions corresponding to the headline that the practitioner of the model was supposed to answer in order to gain an understanding and an overview of the possibilities for adoption of a new product/ service/ concept. It could also give the practitioner indicators that the new product/ service/ concept faced important barriers for adoption. The model is displayed in Figure 4.1.

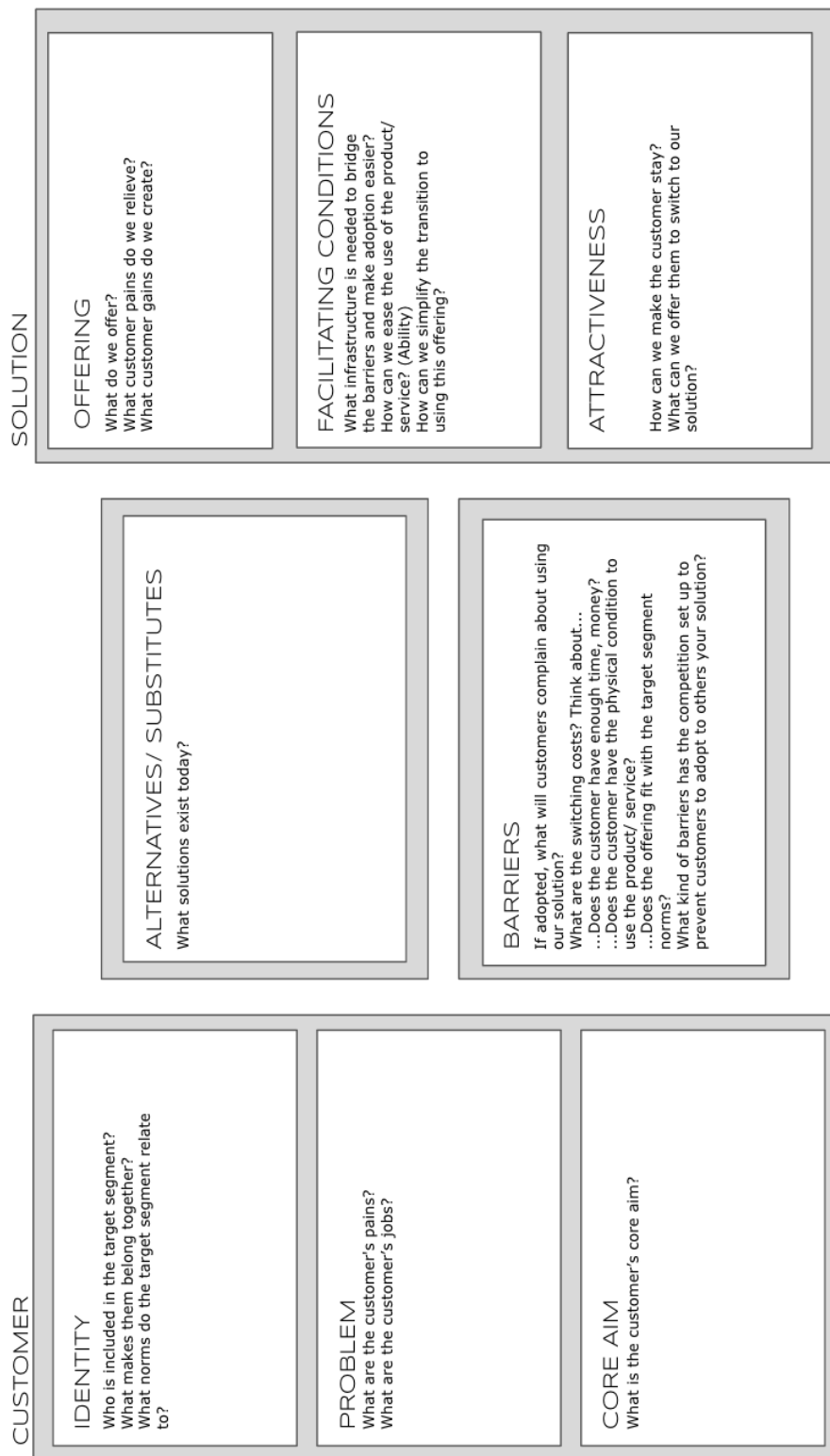


Figure 4.1: The first working model draft developed in phase 1.

Customer Identity

The customer identity entry block in the top left corner of the model is connected to the social influence determinant of intention from the UTAUT model. The identification of the customer's identity is important for determining whether or not the individual believes that a certain product/ service will enhance their image.

The customer identity entry block is to be used for the practitioner to identify the customer segment. The questions in the entry block, which are listed below, are based on the book *The Brand Flip* by Neumeier 2016. They help the practitioner identify the customer tribe, their mores and their identity.

1. Who is included in the target segment?
2. What makes them belong together?
3. What norms do the target segment relate to?

Customer Problem

The customer problem entry block is designed to help identify the problem that the customer needs solving. It is situated below the customer identity entry block to the left in the model. It is connected to the performance expectancy core determinant from the UTAUT model. More particularly, the root constructs perceived usefulness, job-fit and outcome expectations are considered in this entry block.

The questions, which are listed below, are taken from the Value Proposition Canvas model that is described in section 3.1.7. They are designed by Osterwalder, Pigneur, et al. 2014 to create a customer profile and therefore they were determined to be well suited for gaining an overview of the performance expectancy of the customer.

1. What are the customer's jobs?
2. What are the customer's pains?

Customer's Core Aim

The customer's core aim is there for the practitioner to identify what the customer's vision is. There is only one question in this entry block and that is "What is the customer's core aim?". The customer core aim entry block is located in the bottom left corner, and constitutes the customer profile together with the customer identity and the customer problem entry blocks. This entry block is also connected to the core determinant performance expectancy from the UTAUT model and, more closely, the outcome expectations and extrinsic motivation root constructs.

New Offering

The new offering entry block includes questions that should help the practitioner describe the new solution product/ service/ concept as an offering to the customer. It is situated in the top right corner of the model. The first question is general for describing the offering. The purpose of this question is for the practitioner to validate that the offering is well defined. The other two questions are taken from the value map in the Value Proposition Canvas model. The purpose of these questions are to describe how the offering can facilitate with the customers jobs, relieve their pains and create excitement for them. The questions are listed below. Furthermore, the new offering entry block is connected to the performance expectancy core determinant from the UTAUT model.

1. What do we offer?
2. What customer pains do we relieve?
3. What customer gains do we create?

Alternatives & Substitutes

The entry block named alternatives & substitutes contains one question designed to identify the competition by letting the practitioner name the alternatives that the customer can use for solving their problem. By identifying the competing alternatives or substitutes the practitioner can more easily find ways to differentiate their offering to gain more traction. The question asked in this entry block is "What solutions exist today?". The entry block is located in the middle of the model as a bridge between the customer side and the solution side. This entry block is connected to the core determinant perceived usefulness from the UTAUT model and especially to the root construct relative advantage. The purpose of the entry block is for the practitioner to determine if the new solution product/ service/ concept is actually better than the competing solutions.

Barriers for Adoption

The barriers for adoption entry block helps the practitioner describe the difficulties that the adopter might have with using the new offering. It is important to detect difficulties that the adopter might have with the new offering to be able to facilitate the transition to and usage of it. The barriers for adoption entry block is also located in the middle as is can be seen as hinders for the customer to be able to use the solution. This entry block is connected to the effort expectancy core determinant from the UTAUT model. The questions, that are listed below, take base from Kretchner's lecture about switching costs and Fogg's MAT Behavior Model. (Kretschmer n.d., Fogg 2009)

1. If adopted, what will customers complain about using our solution?
2. What are the switching costs? Think about...
 - ...Does the customer have enough time, money?

- ...Does the customer have the physical condition to use the product/ service?
 - ...Does the offering fit with the target segment norms?
3. What kind of barriers has the competition set up to prevent customers to adopt to others your solution?

Facilitating Conditions

The entry block named facilitating conditions is connected to the barriers for adoption. Here the practitioner should think about how the transition to and usage of the new offering can be simplified for the customer and what infrastructure is needed for the customer to be able to use the solution. The facilitating conditions entry block is part of the solution and therefore it is located to the right in the model. This entry block is connected to the core determinant facilitating conditions from the UTAUT model. Special emphasis is put on the root constructs facilitating conditions and compatibility when designing the entry block's questions. It is also connected to the MAT behavior model which discusses how simplification of a product can ease the use of it. The questions are listed below.

1. What infrastructure is needed to bridge the barriers and make adoption easier?
2. How can we ease the use of the product/ service?
3. How can we simplify the transition to using this offering?

Attractiveness

The last entry block, attractiveness, is designed to describe how the customer can be attracted to adopting the new offering and to discuss possibilities of how to make the customer stay with the offering. Many companies want to "lock in" the customer, and this can be discussed in this entry block. The attractiveness of the offering is also connected to the solution and therefore situated in the lower right corner of the model. The questions about attractiveness are listed below.

1. What can we offer the customer to switch to our solution?
2. How can we make the customer stay?

Connection Between Entry Blocks

As stated in chapter 3 section 3.1.7 the practitioner of the Value Proposition Canvas can validate their offering by finding a product-market fit between the value map and the customer profile. This can be made similarly between the customer problem entry block and the new offering entry block. If the offering can cancel out the customers problem the practitioner has a product-market fit.

The barriers for adoption entry block is connected to the facilitating conditions block in the sense that the practitioner should identify barriers through the questions in the barriers for adoption entry block, and later identify or develop facilitating conditions that can eliminate the barriers and ease the adoption for the customer.

Multiple Stakeholders

In the B2B case there can be multiple stakeholders to consider when looking at who is going to adopt the product/ service/ concept. It is often the case that a company is going to invest in the offering to later resell it to a customer. In this case the Adoption Canvas can be applied to all stakeholders, obtaining multiple models, or the different stakeholders can be identified in each entry block working simultaneously with all stakeholders.

Design of the Model

The Adoption Canvas has a customer side and a solution side. The design was made so that the practitioner of the model can start by identifying the customer tribe on the left hand side and later look at the solution on the right hand side. The barriers for adoption and alternatives & substitutes are placed in the middle since these hinder the solution from solving the problem.

Iterative Process

What is stated in the entry blocks should be carefully considered, and to help the practitioner bring forth all information needed in all the blocks it is helpful to iteratively fill out the entry blocks. The order of filling out the entry blocks is decided as:

1. Customer Identity
2. Customer Problem
3. Customer Core Aim
4. Solution Offering
5. Alternatives & Substitutes
6. Barriers for Adoption
7. Facilitating Conditions
8. Attractiveness

The practitioner should fill out the blocks in the defined order, but can later iterate back again to filled out entry blocks as she/ he realizes more factors that should be considered in them.

4.2 Phase 2: Observing & Refining

The goal of phase 2 was to verify if the model developed in phase 1 could be utilized by employees who develop innovations, both internally at SMC and externally at other companies. The validation of the model was made through observation sessions in which the authors facilitated and observed the practitioner(s) who tried out the model on their product/ service/ concept. The authors took notes during the observation sessions which were later analyzed in order to refine the Adoption Canvas. Each observation session ended with a few interview questions for the practitioners who provided further feedback on the model.

4.2.1 Procedure

The model developed in the end of phase 1 was tested by several people from both SMC and other companies. Table 4.2 shows a list of the positions of the observation practitioners. During the observation sessions the authors observed and took notes on what was easy or difficult for the practitioner to understand. The sessions ended with the authors asking the practitioner a couple of questions to get feedback on the model. More information about how the observation sessions were carried out can be found in appendix B.

After gathering feedback on the model from the practitioners the model was edited according to general feedback that was received from the practitioners and conclusions drawn from reactions from the practitioners in the observation sessions. The Adoption Canvas was edited to optimize the amount of entry blocks, the questions and how to work with filling out the model.

Table 4.2: The different positions of the persons who participated in the observations sessions.

Interviewed
Global experience planner within B2B, SMC
VP One way, Haldex
Project Management Office, R&D, Höganäs AB
Global B2B Sales & Marketing Leader, SMC
Product Development Team, SMC

During the MT project six observation sessions were held. The global experience planner within B2B from SMC participated in two observation sessions. One mean of communicating the final model at SMC was through a workshop. During the workshop three employees attended and tested a new product, which was in the development phase and aimed to be launched for the market as soon as possible, on the Adoption Canvas. During the workshop the authors facilitated the process and the employees gained new insights they had not thought about earlier.

4.2.2 Feedback & Improvements

The authors analyzed the feedback they were provided with from the observation sessions and edited the Adoption Canvas if possible according to this to further improve it. Some feedback was only given by one person while other was general for almost all practitioners. The following sections will discuss feedback provided and, if the model was edited according to this, how the Adoption Canvas was edited.

Customer Identity Important

From feedback and observation notes it became clear that the customer identity entry block was of great importance. If not the right information was achieved in this entry block the overall result was poor and uninformative. One mistake was to focus only on the end user of the product, ignoring the direct B2B customer one was planning on selling the solution to. It was difficult for some practitioners to separate between the different stakeholders and it is therefore suggested that multiple models are made at the same time, one for each stakeholder.

Too Time Consuming

One recurrent feedback was that it took too long time to fill out the Adoption Canvas. The time it took to fill out the model was directly connected to the authors moderating skills, and for each observation session the time spent on the model was shortened. The number of entry blocks and questions was narrowed down to shorten the time to fill out the model and ease the use. However, the remaining questions and amount of entry blocks was believed to complete each other and all of them were considered important for achieving an informative result. The practitioners that were not used to work with models took a little more time to fill out the Adoption Canvas than experienced model users. Moreover, if the practitioner of the model has already applied the Value Proposition Canvas on their solution they can easily fill out the customer problem and solution offering entry blocks which would shorten the time it takes to fill out the model.

Design of the Model

The design of the model received some feedback from the practitioners in the observation sessions. One general feedback from the observation sessions was that the key value of the model was the barriers for adoption and the facilitating conditions entry blocks. This was usually where the practitioners gained most insights. Therefore it was decided to enlarge these entry blocks to highlight the importance of these blocks.

Through the observation sessions it was also concluded that the order of filling out the entry blocks was not entirely obvious in the first design. This was considered important for some practitioners to ease the use of the model so the entry blocks in the final design

were arranged in an order that was more straight forward and easier to follow. The order of filling out the entry blocks proved to be important for the outcome as well. In the first draft of the Adoption Canvas from phase 1 the first block to fill out was the customer identity entry block. This entry block was one of the more difficult blocks to fill out because the practitioners were not used to reflecting as much on the customer's identity. Therefore, this entry block was rather challenging to begin with and it was decided to move it further down in the filling out order. The final order of filling out entry blocks is listed below.

1. Customer Problem
2. Customer Identity
3. Our Offering
4. Alternatives & Substitutes
5. Barriers for Adoption
6. Facilitating Conditions

Need of clear Use Case

During one observation session the model was tested on a product that was in such an early development phase that it was unclear what could be implemented in the product offering. This led to difficulties with filling in the other entry blocks. It was recognized that the Adoption Canvas can make the practitioner realize that the offering needs to be clearly defined in order to use the model to its full potential.

Restructuring of Entry Blocks & Change of Questions

Customer identity and customer core aim entry blocks were merged in order to shorten the Adoption Canvas and make it easier to use. The customer core aim entry block only included one question which was believed to be directly connected to the identity of the customer and therefore moved to the customer identity entry block.

To further reduce the number of entry blocks the two entry blocks facilitating conditions and attractiveness were united. The questions "How can we make the customer stay?" in the attractiveness entry block was not connected to a key factor for achieving adoption, but rather a means of making the customer stay after having adopted the solution. Since the model is focused on how the practitioner can gain traction for and achieve adoption of their solution and not on how they can make the customer stay, the attractiveness entry block was removed and the question "What gift can we offer the customer to switch to our solution?" was moved to the facilitating conditions entry block. The questions "What infrastructure is needed to bridge the barriers and make adoption easier?" and "How can we ease the use of the product/ service?" were changed to "What infrastructure is needed to bridge the barriers?" and "How can we ease the use of the offering?" to clarify and align them better to the formulation of the other questions in the Adoption Canvas.

The question in the alternatives & substitutes entry block was after the observation sessions split into two questions, one regarding alternatives and another regarding questions. The reason for this was that the practitioners struggled a bit to differ between the two things. The question developed from phase 1 was "What solutions exist today?". The two new questions developed were "What competing solutions exist?" (referring to alternatives) and "Is it possible to solve the problem in other ways?" (referring to substitutes).

An additional question was added to the entry block named alternatives & substitutes. The question, "How do we differentiate from others?", was added to further let the practitioner think about if and how the own offering can differentiate from the competing solutions.

The barriers for adoption entry block was somewhat confusing for most of the practitioners before the questions were explained by the authors. Therefore the questions regarding customer switching costs listed below were merged into one questions: "What are the customer's switching costs?".

1. What are the switching costs? Think about...
 - ...Does the customer have enough time, money?
 - ...Does the customer have the physical condition to use the product/ service?
 - ...Does the offering fit with the target segment norms?
2. What kind of barriers has the competition set up to prevent customers to adopt to others your solution?

The authors noticed during a few of the observation sessions that they had to moderate the practitioners to be able to think about the infrastructure and eco-system around the offering and what barriers could arise regarding these. Two questions were added to the barriers for adoption entry block in order to let the practitioner think about these things. The questions are "What supportive infrastructure exists?" and "Is the eco-system around the offering compatible with the new offering?".

4.2.3 The Adoption Canvas

The final Adoption Canvas with all its questions can be seen in Figure 4.2. It was successfully tested on 10 different products on three different companies. The observation practitioners gained valuable insights to their own products when using the Adoption Canvas. The main outcomes from using the Adoption Canvas is identifying new customers or specifying the current ones, finding barriers for adoption that have to be overcome and developing supportive services for easing the switch to, and the use of, the new solution.

<p>Customer Problem</p> <p>What are the customer's jobs to be done? What are the customer's pains?</p>	<p>Barriers for Adoption</p> <p>What supportive infrastructure exists? Is the eco system around the product compatible with the new offering? What are the customer's switching costs? If adopted, what will customers complain about while using our solution?</p>
<p>Customer Identity</p> <p>Who is included in the target segment? What makes them belong together? What norms do the target segment relate to? What is the customer's core aim?</p>	<p>Facilitating Conditions</p> <p>What infrastructure is needed to bridge the barriers? How can we ease the use of the offering? How can we simplify the transition to using the offering? What gift can we offer the customer to switch to this solution?</p>
<p>Our Offering</p> <p>What do we offer? What customer pains do we relieve? What customer gains do we create?</p>	<p>Offering: <input type="text"/></p> <p>Date: <input type="text"/></p>
<p>Alternatives & Substitutes</p> <p>What competing solutions exist? Is it possible to solve the problem in other ways? How do we differentiate from others?</p>	<p>Adoption Canvas</p> <p>Name: <input type="text"/></p>

Figure 4.2: The final Adoption Canvas.

The final entry blocks are listed below with short explanations of the purpose of each entry block. The order of which the final entry blocks are listed below is the order that is recommended for filling out the model for optimal results as found in the observation sessions. The model is organized so that the practitioner can start from the top left, go downwards through the entry blocks on the left side and then move over to the right side for the last two entry blocks. The practitioner is still encouraged to iteratively fill out the model to fully utilize its potential.

Customer Problem This entry block identifies the customer problems that need solving, and what pains the customer experience without the innovative offering.

Customer Identity This entry block defines who the customer is on a deep level. It concerns the customer identity, and to what tribe they belong.

Our Offering This entry block the own offering is presented and how the offering can help customers to solve their issues, what customer pains are relieved and also what gains the customer gets from using the new offering.

Alternatives & Substitutes This entry block defines the alternative solutions and substitutes that compete with the own offering. Alternatives are similar solutions that competitors have created. Substitutes are existing solutions that can be used instead of the own offering to solve the customer's problem.

Barriers for Adoption This entry block identifies the hinders that the customer might have with switching to, and using the offering. These hinders can be problems in the infrastructure and the eco-system around the offering.

Facilitating Conditions This entry block is about identifying what infrastructure that needs to be in place for overcoming barriers for adoption. To ease the transition to and use of the new offering, supportive services should be developed here as well.

The observation practitioners in phase 2 were asked if and when they would use the Adoption Canvas. The main belief was that the model would provide most insights to the user in an early stage of the innovation process, when the practitioner has an idea and seeks reinforcement for it. In this case it can be used for determining who the customer is, detecting flaws in the fit between the problems and the offering, and detecting barriers for adoption and developing facilitating conditions for increasing the ability for adoption. Some practitioners mentioned that it could be rewarding to use the model multiple times during the innovation process as different aspects such as customer identity or barriers for adoption might change as the offering evolves.

4.2.4 Connection Between Entry Blocks

To gain an overview of the adoption possibilities and risks, the different entry blocks can be mapped to each other in the adoption. In Figure 4.3 it can be seen how the different entry blocks are connected to each other. From the Value Proposition Canvas described in section 3.1.7 the product market fit can be obtained through the connection between

the entry blocks customer problem and our offering. The problems of the target customer should be resolved by the offering in our offering and the customer pains should be relieved as well.

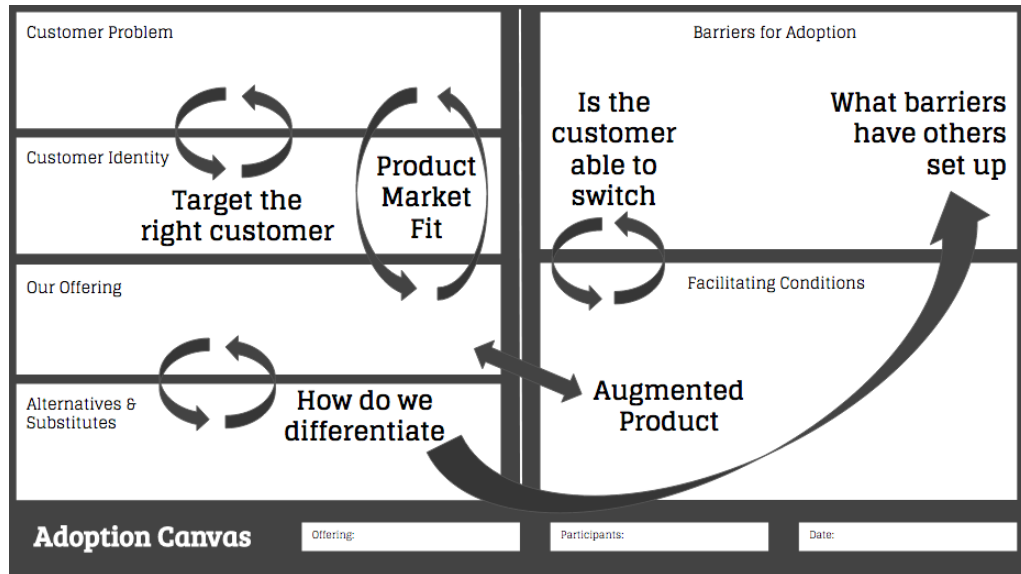


Figure 4.3: How the different entry blocks are connected to each other.

The two boxes customer problem and customer identity together describes in detail the target customers. The combination of these two entry blocks provides the practitioner with a detailed customer profile. These entry blocks together help the practitioner target the right customer by both targeting the customers needs and the customers identity.

Our offering and alternatives & substitutes entry blocks combined focus on how the own offering differentiates from other existing solutions. The block alternatives & solutions describes how potential customers are solving their problems today and what competing solutions others offer. The chances for the solution offering to gain traction increase the more the offering differentiates from other solutions. The practitioner can also think about whether or not the customer actually needs the new offering or if they are satisfied with using the existing solutions.

The alternatives & substitutes entry block is also connected to the barriers for adoption entry block. This connection addresses how competitors have created barriers for switching that might have to be overcome for adoption to happen. Therefore, the alternatives & substitutes entry block is helpful for the practitioner to identify barriers for adoption regarding switching costs for the customer.

Identifying the barriers that the customers are facing in order to switch solution is crucial to be able to develop appropriate facilitating conditions. The barriers that are perceived as the toughest should be mapped to facilitating conditions in order to overcome the barriers.

This connection between the two entry blocks barriers for adoption and facilitating conditions is one of the most important connections between entry blocks. Facilitating conditions can be supportive services for the main offering and infrastructure, and together with the entry block our offering these two entry blocks create the augmented product.

Chapter 5

Analysis

This chapter discusses the final outcome of the MT project, the Adoption Canvas. It also analyzes the master thesis procedure.

5.1 The Adoption Canvas

Comparing the two models from the end of phase 1 and the end of phase 2, they do have many similarities but all the small changes have led to improvements. This marks how important it is to test the model for many different products with different people and to be responsive to their feedback and observe their behavior.

A model is a simplification of the reality and the difficulties with creating models are to make them easy to use and understand but at the same time preserve the complexity of the reality. Therefore, reducing the number of entry blocks from eight to six might not seem as a major improvement but it could ease the use of the model dramatically. To reorganize and refine the questions in each entry block was also of importance to facilitate the use for the practitioner. The questions are based on academic research which means that they can be rather difficult to understand and answer properly, unless one has read the articles or books they are based on. To formulate the questions so that the target groups understand them is therefore also of great importance to ease the use.

The Adoption Canvas is based on academic research and six observation sessions with representatives from Sony, Höganäs and Haldex. It has been successfully tested on a total of ten product innovations and the observation sessions have provided the authors with

valuable feedback to change the model. Although the authors have received feedback there has been no major drawbacks with the model and it has given new insights for all participants. From the feedback provided in the observation sessions the model's questions and design has changed.

When using the Adoption Canvas the practitioner is likely to obtain a few outcomes. In the observation sessions there were three important outcomes that stood out. The first outcome that can be expected is to identify new customers or further clarify the customers one already has. The second outcome that can be expected is to identify what barriers for adoption exist that have to be overcome to enable the switch to and use of the offering for customers. The third and final expected outcome is to realize how one can develop supporting services to create the augmented product and thereby ease the adoption for the customers.

There are many working models to choose from as a company in the industry. Many companies develop their own models and procedures of work to better fit their needs. The impression from the authors is that many of the working model today are not used by anyone. The reason might be that they are often too difficult to understand and need facilitation by experts to fully utilize.

The combination of working models for innovation development being difficult to understand and use, combined with the assumption that many companies develop their own procedures and ways of developing innovations make it difficult to gain traction and use of models. The authors have recognized these difficulties and tried to shorten the learning curve as much as possible for the Adoption Canvas by reducing the number of entry blocks and making the questions as self explanatory as possible. The order of filling out the Adoption Canvas entry blocks, as seen in section 4.2.3, has also been carefully thought out in order to facilitate the use further. The authors are convinced that the employees at SMC and other companies will find the Adoption Canvas easy to understand and use in order for it to be useful and helpful in their daily work.

A general procedure when developing new products and services used by many companies in the industry is to divide the process into different parts of development, each including a "gate" that the product or service needs to proceed through in order to continue with development. Gates in early stages of the development process are used for selecting which ideas are worth further investigation and development of a simple prototype. For such decisions a simple model or a senior manager's opinion is used to select which ideas or products that may pass through. Gates can be used for allocating budget, and for major budget decisions models that are used are often more complex. When the development process of new products or services is mature and approaching market release different models can be used for determining how to launch the product or service up to the market. This is often seen as the most complex phase of the development process since many parameters play a role for the success of market release and it deals with high cost decisions.

The Adoption Canvas is believed to deliver maximum output if used in early stages of the development process depending on the product/ service and its conditions. The authors are certain that the Adoption Canvas could help companies understand who their main customers are and thereafter develop a complete product or service that is ready for the market. It is also helpful for companies that do not have a clear strategic procedure of how to decide which products or services to develop. The Adoption Canvas helps to structure the innovation process and focus on the most important factors for the development of the new product or service.

5.2 The Master Thesis Procedure

The MT project had very broad scope from the start of the project. The scope were then iteratively developed by investigating what needs the employees at S&E at SMC had. Even though the MT project was delimited it did not have a clear goal in the beginning, the outcome of the MT project was not clear and that was one of the main challenges for the authors, not knowing where the project was heading. The first month was challenging when trying to delimit the MT project. However, it turned out very well since the authors and supervisors were persistent. SMC being a large company with multiple departments that work with innovation development in different ways made the challenge even greater. The authors needed to explore what issues the employees had at SMC in order to develop objectives suitable for the companies problems.

The main research topic, adoption, was chosen after having performed interviews with six employees with different positions and responsibilities at the department. People with different roles and responsibilities were chosen for the interviews to increase the validity of the outcome. The decision to focus on adoption was made after about a month of thesis work. The persons interviewed had long experience from developing new products and came from different backgrounds. All interviewees answered that adoption was the most important factor of the three factors adoption, pricing and timing, and therefore focus was put on adoption.

A new research phase started with focus solely on adoption, academic research articles were read and a gap between theoretical models and working models was identified. When the gap was identified the idea to create a working model arose, in order to answer the second research question. The working model was then iteratively developed from the information gathered from academic articles and observation sessions. The working model was soon developed to become a canvas and the first draft of the model can be seen in Figure D.1 in Appendix. From there the design of the model was changed and the questions were iteratively developed by observation sessions. The outcome of the MT project is the Adoption Canvas which aims to help SMC to improve their innovations process.

Chapter 6

Conclusions

This chapter discusses how the objectives of the MT project were fulfilled. Furthermore, it discusses the credibility of the MT project, contributions to the industry and academia and suggestions for further research.

6.1 Project Objectives

The research questions of the MT project defined in section 1.3 are:

- What factor(s) are important to consider in early phases of developing and taking new products/ services/ features to the market?
- How can one improve evaluation in comparison to special aspects in their innovation process considering the chosen factor(s)?

The first research question which aimed to answer which factors are important in early phases of developing new products/ services/ concepts/ features for the market was partly answered early on in the MT project. The three focus factors pricing, timing and adoption were found in an exploratory literature research in the beginning of the MT process and the MT project was delimited to focus on these factors as described in section 1.4.

The objective was later to show which factor of timing, pricing and adoption that had the highest importance for the department of S&E at SMC when developing new products/ services for the market. This was answered early in phase 1 of the MT project through interviews with the employees at the department of S&E at SMC. The most important

factor was believed to be adoption. The reason that this was believed to be most important was mainly that the employees at SMC felt that without this factor an innovation can hardly be sold to the market. Furthermore, they recognized that they could use more information about how they could work with adoption differently in their innovation process.

The second research question, which aimed to improve evaluation in comparison to special aspects in the innovation process at SMC considering the chosen factor adoption, led to the development of the Adoption Canvas. The Adoption Canvas is a tool for gaining insights about possibilities and risks regarding adoption of a product/ service/ concept idea. It has been successfully tested on products at SMC as well as products from Haldex and Höganäs. Every time it has been tested the practitioners have gained new insights about their product and what needs to be developed to ease the adoption and use the product at the market. The Adoption Canvas is developed to target adoption of an innovation, and it has proven to provide the practitioner with insights that are different from what they have gained from other existing models. Further, the Adoption Canvas is proven to be successful to apply to products in an early phase in the development process to get fast feedback of how the augmented product can be further developed to ease the adoption.

The Adoption Canvas can easily be incorporated as a complement to other tools and procedures in the innovation development process at SMC, and the learning curve is believed to be short. It is especially gainful to incorporate as a complement to the Business Model Canvas and more specifically the Value Proposition Canvas since it can easily reuse parts of the information gained from using these. Since the answer of the first research question was that adoption is the most important factor in the development phase for S&E at SMC, and there is no working model concerning adoption, the Adoption Canvas is believed to fill the need for SMC to focus on adoption and thereby improve the chances of innovations being adopted by the market and targeting the right customers.

6.2 Credibility

During phase 1 of the MT project interviews were held with seven persons in order to gain a better understanding of the problem context at the department of S&E at SMC. In phase 2 the authors held six observation sessions with different people regarding different products to increase the validity of the outcome. However, the interviews were semi-structured leaving a gap for misunderstandings and space for some free interpretation from the authors. During the observation sessions one author facilitated the observation practitioner(s) and the other took feedback notes. This might have left space for open interpretations from the authors of the feedback. This way of gathering data involved the authors as measuring instruments. This could potentially have led to the outcome being biased by the authors' own opinions and beliefs.

In order to increase the reliability of the outcome, the parallel test method was used, in which multiple people from different backgrounds were interviewed. Another example of

the parallel test method that was used was that people from different companies participated in observation sessions. However, the data that was gathered was purely qualitative. To increase the reliability of the outcome the authors might need to test the Adoption Canvas more extensively. This could be done by performing more observation sessions to be able to produce statistical feedback on the model and show that the positive outcome of the observation sessions was not haphazard.

6.3 Contributions

The authors have contributed to the innovation process at SMC by providing them with a tool for gaining an understanding of their product/ service/ concept offering and the possibilities for adoption of it. Being as the Adoption Canvas focuses on adoption it is not believed to be a standalone tool, but rather a complement to other tools and procedures in the innovation process. The authors are convinced that the employees at SMC will find the Adoption Canvas useful in effectively developing their new products/ services/ concepts and bringing them to their market in the future.

Moreover, the authors have contributed to innovators and business development in general with a model that is believed to fill a gap between the theoretical framework of adoption and working models that are used for innovation development. The authors are convinced that innovators in general can benefit from using the Adoption Canvas to gain insights about the possibilities for adoption of their idea.

The authors have contributed to academia with an adoption model that is developed from a combination of existing theoretical models and factors regarding adoption. The model developed fills a gap between theoretical frameworks and working models for adoption.

6.4 Further Research

Adoption of innovations is complex and difficult to generalize. Many people have contributed to the research by investigating factors that may affect people's likelihood to adopt innovations. However, there are not many concrete tools that can be easily understood and used by the industry. The Adoption Canvas developed in this MT project is one means of concreting the theoretical framework and making it useful for the industry, but there might be other ways of doing this. Moreover, the theoretical research of adoption has concluded that certain factors are important for increasing the likelihood of adoption (see chapter 3). However this research can be extended to look at different situations, e.g. regarding different customer tribes, and comparing what factors have the most importance in different contexts. Lastly, the factors that affect adoption can be further tested for validity.

The authors and creators of the Adoption Canvas can be contacted through the Adoption Canvas web page, www.adoptioncanvas.com. There, the whole Adoption Canvas can also be downloaded. To end this master thesis report the authors would like to quote their supervisor Vadim Feldman who once said: *"All models are wrong, but some are useful."*

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Appendices

Appendix A

Interview 1 Questions

The first interviews aimed to be exploratory with the purpose to get a better understanding of SMC as an organisation and what processes at different departments that develop (B2B) innovations look like. The purpose was to map how SMC's existing methods look to later be able to compare this with the frame of reference. The interviews took base from the questions below.

Exploring the department and decision process

1. Tell us a little bit about your background and your time at Sony. What is your current position and what are your responsibilities?
2. Can you tell us more about your department area, what kind of products are you developing today, and what kind of products have been produced earlier?
3. Can you describe what the process looks like from idea to product and product prototype to market launch today?
4. Where in this process is the decision making made?
5. Who takes decisions in the process?
6. What type of data/ information is gathered in order to take decisions?
7. Where in the process is your actual product/ goods and/or service today?
8. Who is the end customer, business or private customer?
9. In your opinion which are the most important factors, considering the process of taking innovative prototypes to the market?

10. Do you use a business model? If yes, does this business model change depending on the product/ service?
11. How do you decide on the type of business model to use for innovative products?

Timing

1. What is your definition of timing?
2. The approach for timing market release can typically be divided into early and late to market. Do you typically aim for being the first to market with new breakthrough products or do you take the follower role?
3. Do you consider timing as an important factor when developing products?

Adoption

1. How do you investigate whether or not potential clients are likely to adopt the new product?
2. Do you examine the behaviour of customers to predict future decisions? If yes, what factors are these predictions built upon?
3. Do you have a technique/ methods for estimating the quantity of the products a potential customer is likely to purchase?

Pricing

1. How do you determine the price for innovative products?

Overall

1. Which of the three focus areas pricing, timing and adoption do you lay most emphasis on in the development process of innovative products?
2. Is there anything you would like to add, that we haven't asked about?

Appendix B

Observation and Interview Model 1

The sessions started with a small presentation of the MT project work and an introduction to the model for the observation practitioner. The model's questions were displayed on a screen and an A3 sheet with the corresponding boxes drawn on it was provided together with small sticky notes and a pen.

The practitioner was then guided through the model's questions by one of the authors and the entry blocks were filled out for one of their products or services using the sticky notes. The author that was not guiding the practitioner through the questions was taking notes on what the practitioner was finding simple and what he or she struggled with.

To get a deeper understanding of whether or not the model was helpful for the practitioners a few questions were asked at the end of the session. These questions are listed below.

1. What questions were easy to understand and why?
2. What questions were difficult to understand and why?
3. If you could add something to the Model, what would it be?
4. When would you use this model?
5. Did you find the layout of the model easy to understand and use?
6. Did the model give you any new insights to the product/ service?

Appendix C

Example use of the Adoption Canvas

To demonstrate how the Adoption Canvas can be used an example of it has been applied to Tesla Model S. Tesla Model S is a fully electric driven and high performance car. (T. Inc n.d.) It is well equipped with the hardware needed for drivers assistance with a high safety level and possibility for four wheel drive with two motors, one in the front and one in the back. (T. Inc n.d.) The example is described below with corresponding figures that display how it might look after a practitioner has attached sticky notes to the actual entry blocks.

The example follows the order of filling out the entry blocks as recommended in section 4.2.3. It starts with the customer problem entry block and identifies the customer problems to be solved. The problems are identified as the need of transportation, disliking combustion engines that release environmentally harmful emissions, having to pay too high gas prices and that the transportation vehicle needs to fit the whole family. The customer is identified as an upmarket customer who is concerned of the environment. The customers care about their image and is an early tech adopter. The customer problem and customer identity entry blocks are displayed in Figure C.1.

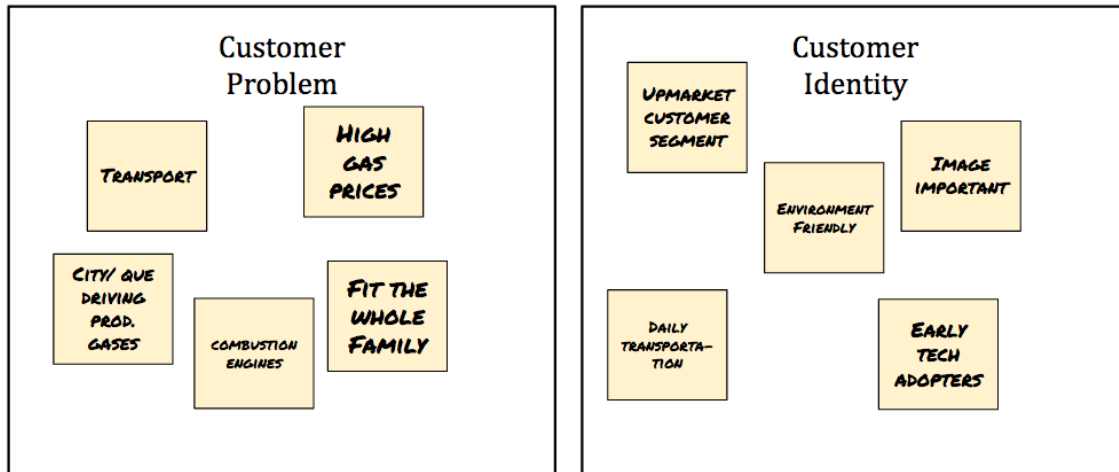


Figure C.1: Customer Identity and Customer Problem entry blocks for the Tesla example.

The example continues with describing the offering and the Alternatives & Substitutes. The offering includes an electric car with high performance, possibilities for autonomous driving, a cool design and a modern infotainment system. It releases no emissions and has a relatively long battery range. As can be seen the offering matches the customer problem by eliminating the pain of emissions and providing a cool design for image importance. This match can give the practitioner indications of a product-market fit which is essential for adoption of the new offering. The Alternatives & Substitutes include alternatives as hybrid cars and diesel cars which are also slightly more environmentally friendly than regular petrol cars. Substitutes are listed as public transport, scooters, petrol cars and bicycles. The offering and Alternatives & Substitutes entry blocks are displayed in Figure C.2.

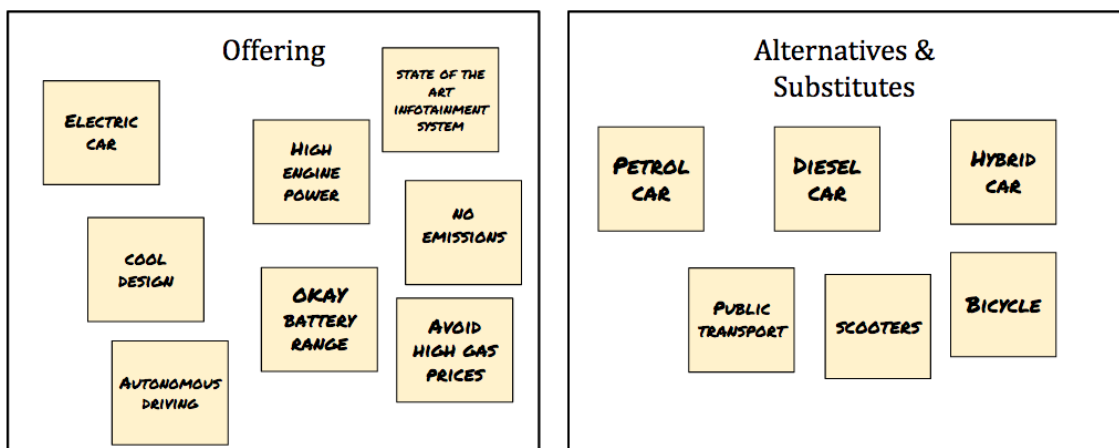


Figure C.2: Our Offering and Alternatives & Substitutes entry blocks for the Tesla example.

Lastly the Barriers for Adoption and Facilitating Conditions entry blocks are filled out and visualized in Figure C.3. The Barriers for Adoption that might hinder the customer from adopting the offering are among others the long charging time of the battery and the

short driving range compared to its alternatives. Another consideration is the infrastructure built for diesel- and petrol-cars with gas stations in every corner. The lack of charging stations demands the customer to carefully plan their route when driving longer distances. Another barrier for adoption is the price of the Tesla Model S. One concern is that it is too expensive to buy.

The Facilitating Conditions entry block include supportive services to overcome the barriers and ease the use of the offering. Supportive services in this example are super chargers for faster charging, more charging stations in different places for easy access to charging and a personal route planner for the customer to simplify the charging plan when driving long distances. Conditions that have been developed for bridging the high cost barrier are tax reductions and government subventions.

A number of facilitating conditions have been developed to increase the attractiveness of the offering. These are special parking lots for electrical vehicles that are usually conveniently located for more comfort, and easy access dealerships and the possibility for online purchase which increases the ability for the customer to buy the offering. The facilitating conditions together with the offering entry block constitutes the final augmented product.

As can be seen in Figure C.3 there are a few barriers for adoption that cannot be connected to entries in the Facilitating Conditions entry block. These are that Tesla cannot assure that the electricity that the customer charges the Tesla Model S with is clean. Furthermore it is too soon to know what the life cycle of the offering will look like and the climate could affect the performance of the car negatively. These barriers are examples of hinders found that there is no clear facilitating condition to handle at the moment, and that might need further investigation.

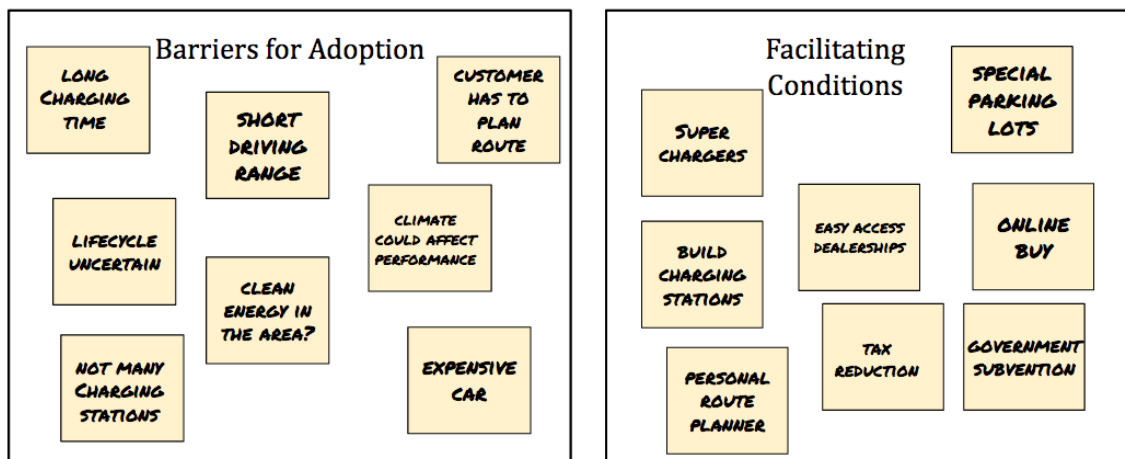


Figure C.3: Barriers for Adoption and Barriers for Adoption entry blocks for the Tesla example.

Appendix D

Different Design Steps of the Adoption Canvas

This appendix section displays some of the designs of the Adoption Canvas that were made before arriving at the final version presented in section 4.2.3. The first outline of the model, to be honest not the most "canvas" looking design is displayed in Figure D.1. It included the seven entry blocks structured from the top left corner. The entry blocks were color coded in three categories and the questions were still quite robust.

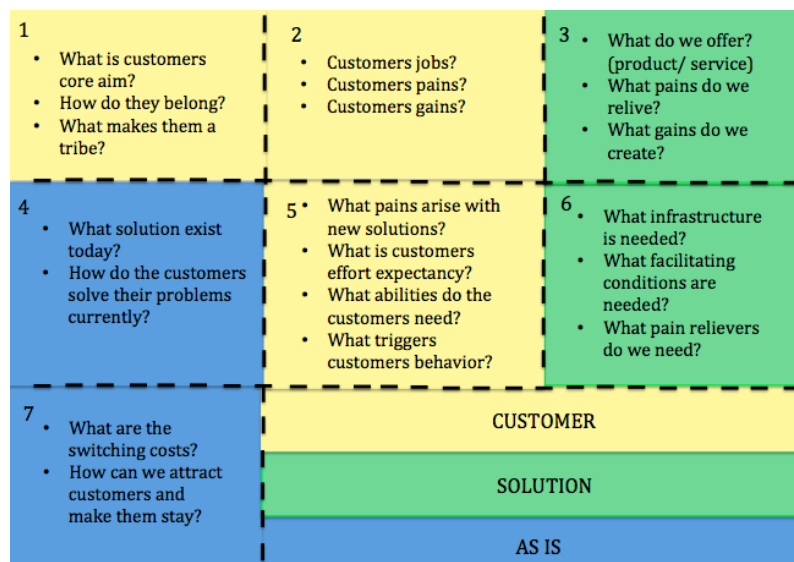


Figure D.1: The first outline of the Adoption Canvas.

The second design is shown in Figure D.2. The entry blocks were now divided to create a customer side and a solution side with Alternative & Substitutes and Barriers for Adoption in between.

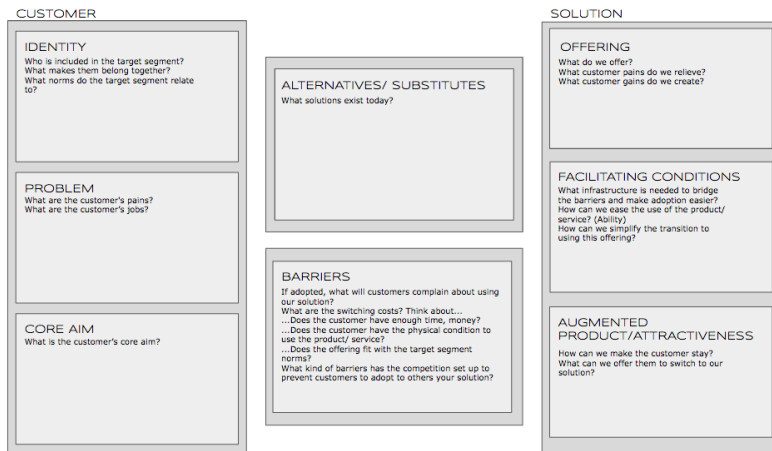


Figure D.2: The second outline of the Adoption Canvas.

One example design was made to clearly show the compatibility with Value Proposition Canvas, where the two entry blocks Customer Problem and Our Offering were situated in the top right corner. This is displayed in Figure D.3.

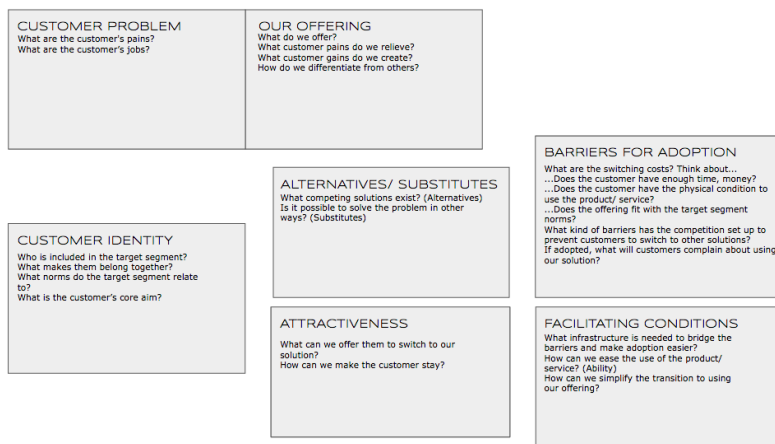


Figure D.3: The third outline of the Adoption Canvas.

Another design from a later stage is shown in Figure D.4. The number of entry blocks was reduced to six and the design reminds of the second one, with a customer side and offering side with Alternatives & Substitutes and Barriers for Adoption in between.

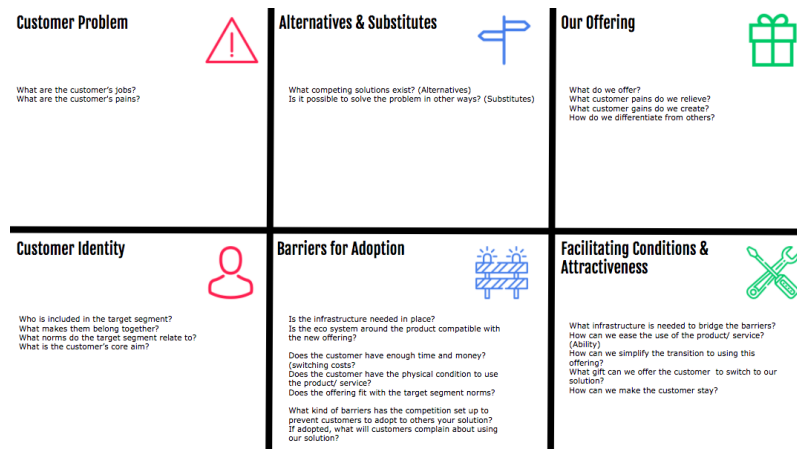


Figure D.4: The 4th outline of the Adoption Canvas.

Later the entry block Attractiveness was added again and the design, which is displayed in Figure D.5, started reminding a lot of the Business Model Canvas (see section 3.1.6). The main outcome from the model was believed to come from the barriers for adoption and facilitating conditions entry blocks, and therefore those two boxes became larger than the others.



Figure D.5: The 5th outline of the Adoption Canvas.

The last model design before finally arriving to the final design is displayed in Figure D.6. It looks a lot like the final version, however the entry block attractiveness was not included in the final version.

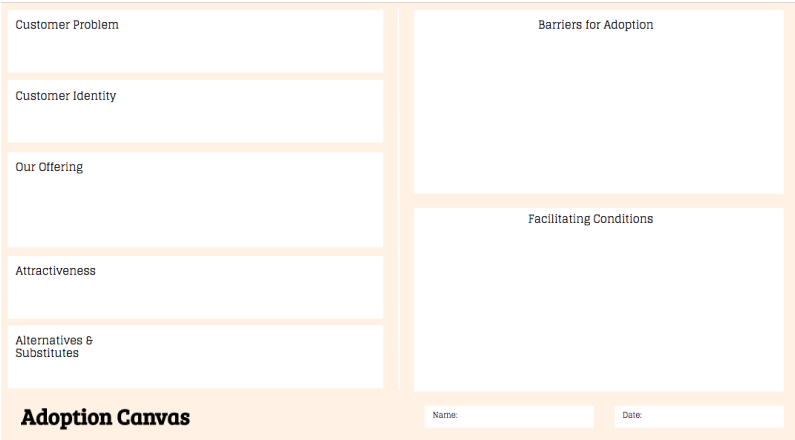


Figure D.6: The 6th outline of the Adoption Canvas.