A self-serviced price calculator for modern IT services

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Abstract

As online shopping continues to increase in popularity, more and more pressure is put on businesses to reevaluate which of their services that can be sold from a website. While the telecom market for businesses still only use expert salespersons to describe and put a price on their services, innovative companies such as Telavox are looking into new ways of exposing more of their information online. By enabling the customer to become more self-serviced, the process from customer interest to purchase completion would be simplified. The cost for Telavox would decrease and the customer would gain more power to do their own research in their own time. Would potential customers be ready for this new development, or do they prefer the traditional way of having a salesperson guide them through the process?

The challenge was to design a website for Telavox that could mediate complex information and guide the users in their choices. High usability was the focus of this master thesis. An iterative design process was applied and separated the project into five different sprints. After the first sprint, when background information was gathered and goals were set for the project, each sprint included a new prototype followed by an evaluation of the design. The final hi-fi prototype was a website with high functionality which was evaluated by a large usability test with 70 participants.

In the end of the report the final result is discussed and conclusions are drawn about the design choices and how optimized the methods were.

Keywords: Usability, user experience, UX, prototype, communication system, private branch exchange, PBX, user license, quotation.

Sammanfattning

Då e-handel fortsätter att öka i popularitet sätts allt mer press på företagen att omvärdera vilka av deras tjänster som kan säljas från en webbplats. Medan telekommarknaden för företag fortfarande endast använder expertförsäljare för att beskriva och prissätta sina tjänster, letar innovativa företag som Telavox efter nya sätt att exponera mer av sin information online. Genom att låta kunden bli mer självbetjänande skulle processen från intresse till slutförandet av ett köp förenklas. Kostnaden för Telavox skulle minska och kunden skulle få mer makt att göra efterforskningar i sin egen tid. Skulle potentiella kunder vara redo för denna nya utveckling, eller föredrar de det mer traditionella sättet av att ha en säljare som styr dem genom processen?

Utmaningen var att designa en webbplats som skulle kunna förmedla komplex information och styra användarna i sina val. Hög användbarhet låg i fokus för detta examensarbete. En iterativ designprocess tillämpades och delade in projektet i fem olika faser. Efter den första fasen, där bakgrundsinformation samlades in och mål fastställdes för projektet, inkluderade varje fas en ny prototyp följt av en utvärdering av designen.

I slutet av rapporten diskuteras det slutliga resultatet och slutsatser dras om designalternativen och hur optimerade metoderna var.

Nyckelord: Användbarhet, användarupplevelse, UX, prototyp, kommunikationssystem, växeltjänster, användarlicenser, offert.

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Lund, November, 2017.

Elin Nilsson - Sandra Olsson

Contents

1

Introduction

This chapter addresses the background of the problem, together with goals and delimitations of the master thesis. A short introduction to the company Telavox will also be presented.

1.1 Background

Online shopping has become increasingly popular over the last decade. More and more people are choosing to make their orders online because of the convenience. People can buy everything from shoes to food in the comfort of their own house or behind their office desk. There are however some services which are more difficult to supply and sell online, because of their complexity.

An example of this kind of service is communication systems for businesses. This kind of system often includes several different types of products and services and when ordering a complete communication solution the buyer is often unsure of what their company will need. Therefore communication systems today are sold by specialized sellers who can guide the customer through the process and help them design their own communication system based on their company's needs. The seller will create a quotation for the discussed services and this quotation will most likely be sent back and forth a number of times until the customer feels completely satisfied with the offer and is ready to commit.

In order to sell a communication system to an enterprise, a large amount of time is required from the seller. The seller's time will cost money and this will be a risk for the manufacturer, since the customer might not want to commit to the buy in the end.

If there was a way to display complex information online and explain to different sorts of customers what their needs are, this would save a lot of money and time for the manufacturer and might also attract new types of customers who prefer reading online instead of talking to a seller.

By creating an interactive self-serviced price-calculator, adapted to complex services and products, customers will be able to create their own quotation and consider the cost by themselves within the company, before contacting a seller. The price-calculator must be intuitive, user friendly and should not take too much time to use. This model would enable customers to find out for themselves how parameters like setting time and number of services bought would affect their total price. In this master thesis project a design proposal for a self-serviced price calculator will be developed for the company Telavox. The master thesis will include both prototyping and testing of the design to evaluate if Telavox's types of products can be sold online.

1.2 Telavox AB

Telavox AB is a Swedish company that provides full communication solutions for all types of businesses, both small and big enterprises [Telavox, 2017]. The communication solutions consist of private branch exchange (PBX), mobile licenses and hardware like cellphones, landlines phones, headsets and so on. Telavox began as a start-up company in 2002 and has grown a lot since then. They now consist of 23 offices in Sweden, Norway, Denmark and Finland. They have over 250 000 users daily.

Telavox's main product is called *Flow* and includes both user licenses and PBX services [Telavox, 2017]. The user licenses come in three variants: *Free, Fixed* and *Mobile*. A table of what is included in the different licenses can be found in Figure 1.1. The three different licenses include different features where *Mobile* includes all of the features. The licenses have different add-ons. The number of optional add-ons varies with each license, for example Surf is only available for *Mobile*.

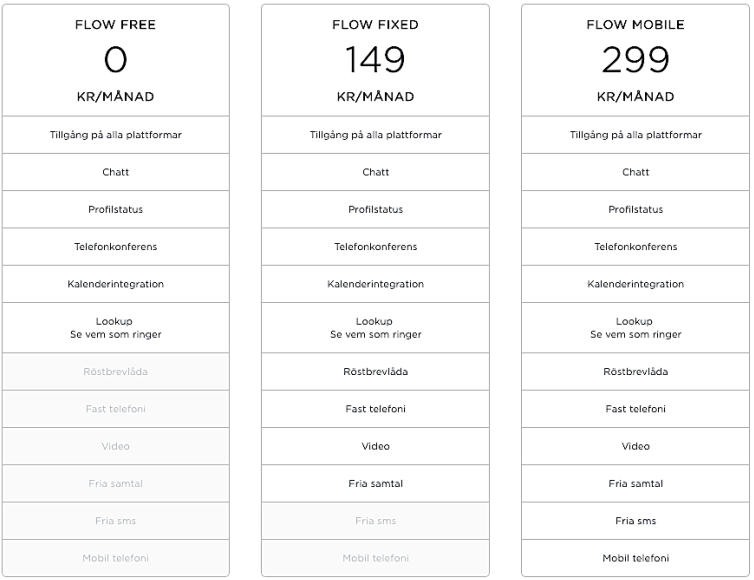

Figure 1.1 The three types of user licenses that Telavox offers

The PBX services are purchased in packages of 1, 3, 8 or Unlimited number of services. Figure 1.2 shows how the packages are represented on their website. The slider is interactive and the price changes with the number of PBX services. Within a package customers can choose freely between *Talsvar (IVR), Kösystem (Queuing), Virtuell Röstbrevlåda (Virtual voice mail), Faxbrevlåda (Fax mailbox)* and *Anslutning (Connection)* see figure 1.3.

Figure 1.2 A slider from Telavox website that shows the price for the different PBX packages

Figure 1.3 The PBX services that Telavox offers

Figure 1.4 shows how the added products are displayed on a quotation from Telavox. They also provide hardware and other services such as super user education for companies.

		Engångsavgift		Månadsavgift	
	Antal	á pris	Summa	kr/mån	Tot/mån
Licens					
Flow Mobile 36 mån	20 st	0	0	299	5980
Flow Fixed 36 mån	5 st	0	0	149	745
Flow Mobile 36 mån	1 st	0	0	299	299
Flow Business	1 st	0	0	199	199
Tillägg					
Desktop CC	20 st	0	0	99	1980
Surfpaket 1GB*	20 st	0	0	79	1580
Inspelade samtal	20 st	0	0	79	1580
Operator	5 st	0	0	399	1995
Utländska nummer	5 st	499	2495	199	995
Terminal					
Gigaset N720-DM-PRO	5 st	4295	21475	0	0
Mobil terminal					
Apple iPhone 7 128GB Svart	20 st	7225	144500	0	0
Övriga					
Jabra Pro 930 Mono	40 st	1495	59800	0	0
Superuserutbildning	1 st	1400	1400	0	0
Summering			229670 kr		15353 kr

Figure 1.4 A quotation from Telavox

1.3 Purpose and goals

The purpose of this master thesis is to visualize complex data to users in an accessible way. A person who doesn't have any preknowledge of Telavox and their products should be able to create their own quotation and prefer this before contacting a salesperson. The system which the salesmen are using to create a quotation today is complicated to understand and requires great preknowledge about the products and their dependencies. The salesmen can accept a certain learning curve in the beginning but the customer will not have the same tolerance. They must be successful at the first try. This means that the focus of this project will be aimed at the user experience and at creating an interface with high usability. The following are the goals which are set for this project:

- The customer should understand the products enough to be able to create a quotation.
- The customer should understand the price model.
- The customer should want to be contacted by a seller to go through with the purchase after using the "price calculator" developed in this project.

1.4 Research questions

- How can a website be designed to mediate complicated information and dependencies in an easy and understandable way?
- How can it be measured if the customer understands what she added to the quotation and if the quotation met the customer's needs and expectations?
- Which parameters make a customer hesitate to complete a quotation at Telavox?
- How much information is needed in the price-calculator to understand the products?

1.5 Thesis delimitations

Delimitations were set to reduce the scope and workload and to make sure that the master thesis project was finished on time. The delimitations are listed below:

- The project will not be implemented into Telavox's backend.
- The website will be in Swedish and only consider the Swedish pricing.
- The website is only for new customers.

- Quantity discount or price reductions will not be considered.
- A mobile version will not be implemented.

2

Theory and Method

When designing a website with advanced information, usability is a very important part of the process. The user experience should be considered at all times when making design choices. The following theory has been used when the prototypes were developed.

2.1 Usability

Usability means that interactive products are easy to learn, effective to use and give a good experience for the user [Preece et al., 2011]. According to ISO 9241 the definition of usability is based on three main parts: effectiveness, efficiency and satisfaction [ISO:9241-210, 2010]. Effectiveness is how accurately a specified user can achieve a set goal in a particular environment. Efficiency is how much recourses are needed in relation to the accuracy and success of a certain goal. Satisfaction is how pleasant the product is to use and how comfortable and acceptable the system is to its users and other people affected by the system [Nielsen, 2012]. Usability focuses on the objective qualities and how effective and productive a user is when using the product. The more subjective qualities like how a system feels to a user is called user experience [Preece et al., 2011].

2.2 User experience

When designing with the user in mind, to create a good user experience, good knowledge of the end user and user environment is key. User experience, or UX, focuses both on what the user needs and what she values [usability.gov, 2017b]. A fundamental principle for UX is that the whole project understands the user, the user environment and where the product will be used. Another important thing is to understand the user's actual needs and not only what they think that they want [Earthy, 2017].

2.2.1 Norman's design principles

Norman has developed several design principles for designing everyday things. They have become a well known standard within all areas of design, including web design, and are considered throughout this project [Norman, 2013].

Visibility Good visibility is important to help the user discover all possible options when looking at an interface. All possible interactions with a product should be visible for the user from the beginning. If a task is performed in several steps all steps should be visible for the user before she starts.

Feedback A user shall receive feedback when an action has been performed, regardless of whether the action was successful or not, e.g. if a button was pressed or not. The feedback should give the user information about which action that has been performed. There are different types of feedback like visual, tactile and auditory feedback.

Conceptual model A conceptual model is used to give the user an idea of how the product could work. The user can then predict possible actions and problems, which saves time and money.

Affordances Good affordance means that the user can understand how the object is used or controlled. Affordances help the user understand how to operate things. If the affordance is sufficient no instructions, pictures or labels are needed.

Mapping Mapping is the relationship between two things i.e. the relationship between a control and its action. Natural mapping leads to direct understanding for the user and makes the experience intuitive.

Constrains Constrains help the user make correct decisions. With limitations and restrictions in how the user can interact with a product the user can be guided through the system and forced to make the right choices.

2.2.2 Gestalt principles

The gestalt principles are widely used and defines several principles for perception when designing an interface [Graham, 2008]. Many of the principles apply directly to visual forms [Johnson, 2010]. Some of the most relevant ones for this project are described below.

Proximity The law of proximity says that objects close together appear as if they were a group, while if the same objects are not close together they do not seem to belong together. Proximity means that the relative distance between objects changes our perception of the relationship between the objects. By just decreasing

the distance between two objects they can appear grouped.

Similarity Similarity means that objects that look similar are perceived as a group. The objects can be similar in shape, color, size, proximity and direction. This is helpful when designing an interface and an easy way to group objects.

Continuity When two shapes are crossing, like in figure 2.1, the human eye seeks continuity and relationships between the objects.

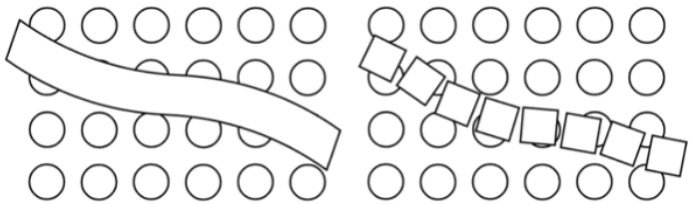

Figure 2.1 Continuity

Closure Closure is based on the minds way of filling in the blanks. When looking at figure 2.2 we see a square and not independent lines. This is because we seek relationships between different objects. Closure works even better with commonly known figures.

Figure 2.2 Closure

Symmetry When looking at overlapping objects the brain tries to find symmetry and recognizable shapes. This means that some interpretations are more likely than others, as shown in figure 2.3.

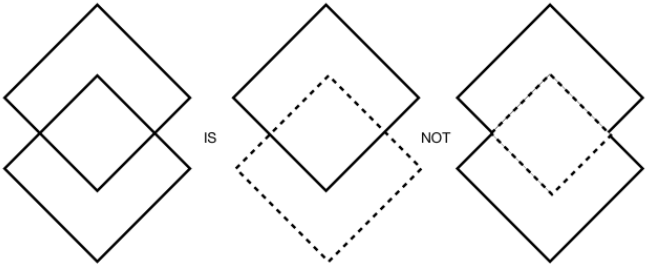

Figure 2.3 When we look at the figure to the left, it will be perceived as the middle one in our minds and not as the right one.

Figure/ground A human mind is able to identify figures from the background. This is often used when designing websites where i.e. the background can tell the user its current position. A pop-up window is another example of when figure/ground can be useful. By making the rest of the window look like a background it becomes easier to focus only on the figure.

2.3 Prototyping

Before the software industry began using prototypes to explain a design, everything was instead written down in documents of hundreds of pages. With every change of the product there was a new document released containing this new detail. The large documents made it difficult for the customer to fully understand what the product would look like in its finished state and it was easy to miss the small details [Adiseshiah, 2016].

With the help of a prototype, stakeholders could much easier get an understanding of how the design of the product was developing, and follow the changes through each iteration of the prototype. In addition to being a useful tool when discussing ideas with a stakeholder, a prototype can act as a communication device among the members of a developer team, and is a great way for designers to explore new ideas [Preece et al., 2011].

A prototype can be divided into three different levels: low-fidelity (lo-fi), mid-fidelity (mid-fi) and high-fidelity (hi-fi). Fidelity refers to the level of detail and functionality of the prototype and each fidelity has their own area of use. This report focuses on the lo-fi and hi-fi prototypes, since they are the ones which have been chosen to represent the iterations of the price-calculator.

2.3.1 Lo-fi

The lo-fi prototype is a primitive first version of the product. It doesn't look much like the final product and is most often built in a completely different material, such

as drawings on paper or cardboard which can be used for prototyping a web design.

The simplicity of the prototype gives the test subjects an indication of what the finished product will look like, but does not make it possible for them to test the functionality of the product. Since the test subjects will feel that it's easy to modify the lo-fi prototype, they will be encouraged to give more drastic feedback than they would if they felt like they were testing a finished product.

In the lo-fi stage of the design process it's still easy to remodel the whole prototype after discovering mistakes or better ideas, without any large costs. The main focus of the lo-fi prototype is to convey a conceptual design to the user and not to focus on details such as font size, colors or images [Preece et al., 2011].

2.3.2 Hi-fi

This prototype is the last step before creating the real product. It gives an exact image of what the product will look like, focusing on details such as margins, fonts and images. For people not working with design, a hi-fi prototype makes it easy for them to understand precisely what the product will look like and give feedback on the different details of the design.

When the hi-fi prototype is finished and approved it can be used as a specification to the developers who are creating the resulting product. The disadvantages of a hi-fi is that it takes longer time to make it, compared to other simpler prototypes, which means it has a higher cost [Preece et al., 2011].

2.4 Data gathering

Data gathering can be done with several different methods. It can be used for both establishing requirements and for evaluation. Most data gathering techniques are flexible and should be used as complement to each other to avoid getting biased information. Data gathering can be done with and without the user [Preece et al., 2011]. A few methods of data gathering will be explained in this section.

2.4.1 Surveys

Surveys are a good way to start examine an existing or a potential product [Rubin and Chisnell, 2008]. Preferences from a broad user group can be collected. Surveys can be used at any stage of the project but are usually utilized in the beginning of a project to get a better understanding of the potential user. It's important to keep in mind that the language must suit all users, so that every user answers in the same way and to the same question.

2.4.2 Interviews

An interview is a conversation with a purpose. There are four different types of interviews which are all preferable in different situations: open-ended/unstructured, structured, semi-structured and group interviews [Preece et al., 2011]. The first

three types differ between how much the conversation is controlled and the forth is held by a facilitator with a small group of people.

An open-ended interview is used when exploring ideas or subjects, and contain broad open questions from the interviewer, which lets the test person answer however fully or briefly she wishes. The discussion could go in different directions depending on the test person and what they find most interesting to talk about. The interviewer can steer the conversation in different directions to make sure that all of the topics she wished to bring up will be covered. The benefit of an open-ended interview is that the data collected often gives a deep understanding of the subject, and that new things which the interviewer hadn't thought about before may come up. Each interview will be very dissimilar from the other, which makes it hard to draw conclusions by comparing them and which makes them time consuming to analyze.

A structured interview looks exactly the same for each candidate and often consists of short, closed questions. This makes the study standardized and easily comparable. This sort of interview is beneficial when specific questions can be identified and there is a clear goal.

A semi-structured interview contains elements from both a structured and unstructured interview. The same subjects will be covered with each participant, but there will also be room for further discussions.

2.4.3 Triangulation

Triangulation is a method to validate facts with at least two different sources. This method have four main areas of use [Miller, 2014] [Patton, 1999].

- **Method triangulation** - To have more than one method to gather data. Different methods provides you with several sets of data that complement each other. The data becomes more valid and supports the theory better [Miller, 2014].
- **Triangulation of sources** - Is when different data sources within the same method are examined and compared to check the consistency [Patton, 1999].
- **Analyst triangulation** - Using several people to analyze retrieved findings reduces the risk of individual judgment affecting the result [Patton, 1999].
- **Theory/Perspective triangulation** - Having several sources for the facts will help with the understanding and credibility of the report [Miller, 2014].

Triangulation methods are often used to compare both quantity and quality data. An example of this is conducting two types of interviews, one more structured with

several questions asked and one more relaxed interview, almost as a conversation [Patton, 1999]. A big advantage of triangulation is a more broad information spread on the topic, but the downside is that it's time consuming and takes a lot of resources. When performing usability studies one method is seldom enough [Sauro, 2012]. More methods often discover more flaws and make a better design.

2.5 Usability testing

Usability testing can be used to improve the profitability of products. A usability test can be performed in many different ways. Everything from small unorganized walk-throughs to more extensive heuristic evaluations and usability testing. Usability testing means that a group of people that represents the target end user tests the product and evaluates to which degree it meets predefined criteria [Rubin and Chisnell, 2008]. A big advantage of usability testing is removing design problems which leads to eliminating frustration for the end user. If the end user, a company's customer, does not experience any frustrations when using a web page she is more likely to complete the purchase and it establishes a positive relationship between user and company. The key to successful usability testing is to resemble the real user environment, the user tasks and the true end user.

2.5.1 Test plan

A test plan is a document that verifies a product by defining a strategy [Eriksson, 2016]. It ensures that the right tasks are being tested and not any out of scope functionalities. A test plan describes the scope of the test, which techniques will be used for performing the test and what the goal of the test is. It helps controlling the risks [Bartlett, 2016].

A test plan should consist of the following sections [Rubin and Chisnell, 2008]:

- **Purpose, goals and objectives of the test** - The test purpose can remain at a high level since the research questions will reduce the goals to measurable statements. A good reason to test is to evaluate if two separate user groups can use the product equally well.

- **Research questions** - The research questions are the most important section of the test plan. It describes the questions that the test should answer. It's important that the research questions are clear and measurable.

- **Participants' characteristics** - The test participants should represent all end users of the product. For example, how many test participants should be in each age group? You cannot have too many test participants.

- **Method (design of the test)** - The method is a detailed description of how the test session will carry out. It's important to describe the whole test session,

from the test person enters the room until they leave. This facilitates preparing all material needed and ensures consistency if more than one test moderator is used.

- **Task list** - This is a list of tasks which the test person will perform during the test session. When creating this document the tasks can start off as very simple with a short description of the task, to later evolve into a full task scenario, which will be used by the test persons during the test session.
- **Test environment, equipment and logistics** - This section describes the environment that will be simulated during the test session. This environment should mirror the real situation in which a user might use the product.
- **Test moderator role** - This section explains what the moderator's role will be during the test and what responsibilities the moderator has. Responsibilities could include observing the user or to note when the user makes an error or completes a task.
- **Data to be collected and evaluating measures** - What type of data to be collected during the test and how it will be measured. This includes both performance and preference data. Performance data includes participant behaviors and error rate, and preference date is the participant's opinions and thought process. All collected data should be based on the research questions.

2.5.1.1 Test surveys

A pre-test survey should gather information about the user's background and how familiar the user is with similar products or the area in general. An example of a pre-test survey question is "How often do you use this type of website?" [Shawn, 2003]. Post-test surveys should focus on how the user felt during the experience. Questions could be asked about how much mental demand was used or how much effort the user put into the test [Nasa, 1999]. The post-questionnaire could also focus on if the user found the website attractive and if the website was fun to explore [Shawn, 2003].

2.5.1.2 Pilot studies

A pilot study is trial run to evaluate the test. It tests that all material and tasks work as expected and that no unforeseen errors occur. It's used to prevent the failure of a whole study because of a simple mistake which could have been caught by a test run [Preece et al., 2011]. This also reveals how the user actually uses the product.

2.5.2 Focus groups

Focus groups are also suitable for the beginning of a project and are used to evaluate an early concept with representative users [Rubin and Chisnell, 2008]. The concept which the test persons are suppose to evaluate can be presented in lo-fi form with paper drawings. Some visual aid is suitable to help the test persons understand the concept which results in better feedback. A focus group, unlike a survey, examines

a few persons thoughts and feelings about a concept or a product at great depth. It's however important to keep in mind that the test persons often says what they feel and not what they actually do. It's very suitable for qualitative information but does not take into account performance issues.

2.5.3 Walk-throughs

Walk-throughs are best used further along in the project, when the target user and task goals are clear and the whole concept is set. Someone usually explains the prototype and guides the test persons through a task and the test persons lift their concerns with the prototype and possible difficulties a potential user may experience [Rubin and Chisnell, 2008]. To keep the effectiveness, a walk-through should not be longer than two hours.

2.5.4 Usability tests

Usability testing should be done in a controlled environment with no distractions or influences that could affect the users performance. The goal for usability testing is to evaluate if the product is usable and can be used by the intended user population for the tasks the product was designed for. The users performance is often studied and the user can be asked to think aloud. This to understand how the user thinks when performing a certain task. It's also important to register the user's satisfaction when using the product. This can be done with post-surveys that the user fills out after finishing the test tasks. Often the users rate their feelings about the product on different scales. The test subjects are often observed and errors made can be counted along with the total time to complete a task [Preece et al., 2011].

2.5.4.1 Discoverability The number of participants needed for a usability test varies depending on what will happen after the test. Most of the important problems can be found using only five test persons, but this approach is founded on the agile way of working. If the test is followed by several iterations, where the product will be redesign according to the results and then retested, this could be a good approach. However not all critical problems can be discovered by a small amount of people, and the test result won't be able to statistically assert whether to design has high enough usability [Francik, 2015].

p	P(x ≥ 1) = 0.5	P(x ≥ 1) = 0.75	P(x ≥ 1) = 0.85	P(x ≥ 1) = 0.9	P(x ≥ 1) = 0.95	P(x ≥ 1) = 0.99
0.01	69 (168)	138 (269)	189 (337)	230 (388)	299 (473)	459 (662)
0.05	14 (34)	28 (53)	37 (67)	45 (77)	59 (93)	90 (130)
0.1	7 (17)	14 (27)	19 (33)	22 (38)	29 (46)	44 (64)
0.15	5 (11)	9 (18)	12 (22)	15 (25)	19 (30)	29 (42)
0.25	3 (7)	5 (10)	7 (13)	9 (15)	11 (18)	17 (24)
0.5	1 (3)	2 (5)	3 (6)	4 (7)	5 (8)	7 (11)
0.9	1 (2)	1 (2)	1 (3)	1 (3)	2 (3)	2 (4)

Note: The first number in each cell is the sample size required to detect the event of interest at least once; numbers in parentheses are the sample sizes required to observe the event of interest at least twice.

Figure 2.4 Sample size requirements for formative user research

Figure 2.4 can be used to understand how the number of test participants will effect the discoverability [Sauro and Lewis, 2012]. The sample size requirements is a function of problem occurrence probability, p, and the likelihood of detecting the problem at least once, $P(x \geq 1)$. This means that is you have a slightly-harder-to-find problem $(p = 0.15)$ you need 12 participants to be 85 % sure of finding them.

3

Design process

This chapter explains the design process of the project, and how the iterations were divided into different sprints.

The design process for interaction design consists of four main steps [Preece et al., 2011]. These four steps are: gathering data to establish requirements, designing alternatives, creating a prototype and evaluating it. The four steps are thought to have several iterations in a circular manner, as in figure 3.1

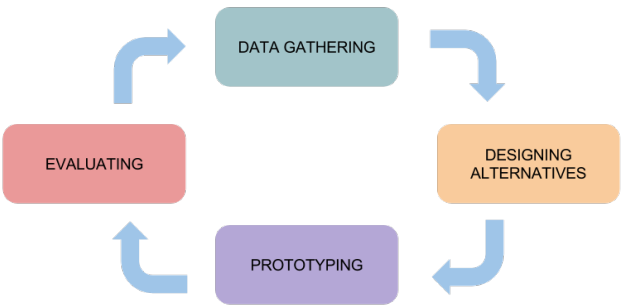

Figure 3.1 The iterative design process

This project was divided into five sprints. The five sprints was grouped into three phases, which can be viewed in table 3.1.

Table 3.1 The three phases in the design process

Initial phase		Identifying the end user
		Data gathering
		Defining requirements
Lo-fi phase	*Lo-fi 1:*	Designing several alternatives
		Creating prototypes
		Evaluating with ***focus groups***
	Lo-fi 2:	Designing two alternatives
		Creating two separate prototypes
		Evaluating with ***walk-throughs***
		Statistical analysis
Hi-fi phase		Pre study
	Hi-fi 1:	Designing a single alternative
		Creating a single prototype
		Evaluating with ***usability testing***
	Hi-fi 2:	Designing a single alternative
		Creating a single prototype
		Evaluating with a large ***usability test***

3.1 Initial phase

The first of the five sprints was the initial phase where a lot of research was performed. A literature study was conducted where user experience and usability books and articles were studied. Then similar systems and products which are on the market today were examined and compared. Their advantages and disadvantages were summarized. A deep study of Telavox's products and their dependencies was made and summarized in a list of what features the website should contain. Experts from Telavox were consulted.

A survey and an interview were conducted with a seller from Telavox. This in order to get a deeper understanding of the customer and future user, such as what problems often appear and what the customer finds most difficult to understand.

Lastly different usability and user experience research was conducted to complement and motivate the design choices for the lo-fi prototype. The design choices made in this project were based on proven usability principles and existing research.

3.2 Lo-fi prototype phase

The second and third sprint were both lo-fi prototype phases. The iterations made it possible to improve the design and prototype. The first lo-fi prototype was tested in focus groups both on people with knowledge of Telavox products and those with no previous knowledge. The first test focused on functionality and usability and not the design. The tests from each phase were evaluated and iterated until a good design and prototype emerged.

The second lo-fi prototype was based on the feedback from the focus groups together with the original ideas. The test on the second lo-fi consisted of a walk-though of the prototype, to give the users a picture of the whole concept of the website.

3.3 Hi-fi prototype phase

In the last phase of the project a hi-fi prototype was created in web format. The prototype was created according to the results of the previous lo-fi prototype. The UX team of Telavox was contacted in order to utilize their knowledge and to make the price calculator similar to Telavox's previous websites. This was the first prototype which included functionality, such as when the user clicked a button on the screen, an action occurred. Because of this the hi-fi prototype was used to test the usability of the price calculator. The test subjects, who should have no prior knowledge of the product, were given tasks to perform and their results were measured. The design focused mostly on making the product accessible and easy to use, but was also tested for aesthetic purposes. The hi-fi prototype was iterated twice to remodel it based on the results of the first user test. This new iteration was also tested and evaluated.

4

Initial phase

In the initial phase the end user was defined and information was gathered about Telavox's business model and selling strategies. A list of all desirable features and products to display was compiled and put together, which lead to a summation of requirements for the website. A comparison with existing websites was conducted for design inspiration.

4.1 Identifying and defining the end user

The initial phase began with a study to identify the end user. After consultation with experts from Telavox a requirement was set that the price-calculator should satisfy 80% of the customers and contain the most common products. All special features and products will not be taken into account when designing the website. The quotation system will mainly be used on a computer, but since Telavox has a mobile first approach in their designs, some mobile adaption will be considered but not prioritized. The focus of this project will be to design a quotation website adapted to computer screens.

The end user in this case can be anyone with or within a company. The size of the company does not affect our view of the end user or her ability to use the website. Any previous knowledge of the product *Flow* or about Telavox shall not be required, but most likely the user of this website has some knowledge of their company's communications needs and normal PBX services.

4.2 Data gathering

4.2.1 Expert presentations

In the initial phase two expert presentations were held by our supervisor at Telavox. The presentations gave a broad overview of the company Telavox, their products and their business model. The main points discussed were:

- What kind of business communication tools Telavox is selling and how they work.
- The largest cost for the company, which is the distribution cost. They are always working towards making their customers more self-sufficient.
- How the system for selling products to customers works today. Telavox has a complex internal system for salesmen to use where they collect information of new company leads, create quotations and enter company details to add a new customer. This system is then used for all customer actions in the future, such as changing their order and administrating their bills.
- How profit is made at Telavox and what their business model looks like.

4.2.2 Interview

An open-ended interview was conducted with a seller working at Telavox. The goal with the interview was to gather information about how a salesperson would present the different products and which areas the customer often had difficulties understanding. The salesperson held a sales presentation which he had customized for a specific company, where he had chosen which products to focus on in order to fulfill their needs. The interview focused on three different topics:

4.2.2.1 Unique selling points There are some features which are worth pointing out, in order to attract the customer. If the customer was only to look at the price, it might be perceived as too expensive compared to other companies with similar products. But what makes Telavox's products worth their price are their unique features and great usability and design. This needs to be shown in the sales presentation with photos and examples of unique details.

4.2.2.2 Difficulties of understanding There are quite a few products which often need thorough explanation before the customer truly understands what they are, and how they relate to their company's needs. The naming and grouping of products are decided by Telavox and will be reflected in the final quotation, which means that they need to be the same in the price-calculator. Hence these specific products must be carefully explained to the user.

4.2.2.3 Most usual products The salesperson gave an overview of what kind of products and combination of products the customers usually buy. This helps with prioritizing which products to include in the price calculator and which connections between products to illustrate.

4.2.3 Selecting products

With the previously gathered information in mind, a large document was compiled containing all different products which should be included in the price calculator. Information about the products contained name, price and description. Each product

was evaluated by the supervisors at Telavox to classify them as important, optional or unnecessary to include in the price-calculator.

The selected products can be viewed in table 4.1 below.

Table 4.1 The products selected for the price-calculator

Typ	Namn
Licenser	Free
	Fixed
	Mobile
Tilläggstjänster	Surfpaket 1 GB
	Surfpaket 5 GB
	Surfpaket 10 GB
	Surfpaket 50 GB
	Tvillingkort
	Desktop CC
	Operator
	Inspelade samtal
	Utländska nummer
Växelpaket	Free (1 tjänst)
	Business (3 tjänster)
	Enterprise (8 tjänster)
	Unlimited (obegränsat)
Växeltjänster	Talsvar
	Kösystem
	Virtuell Röstbrevlåda
	Faxbrevlåda
	Anslutning
	Callback
Hårdvara	Gigaset C530 IP
	Cisco SPA525-G2
	Snom MeetingPoinnt
	Apple iPhone 7 128GB Svart
	Apple iPhone 7 256GB Svart
	Samsung SM-G930 Galaxy S7 32GB Svart

4.2.3.1 Unselected products A decision was made to not include the following products in the price calculator:

- Different versions of ***setting time*** for the licenses. The price calculator will only include a setting time of either 0 or 36 months. This is because Telavox is phasing out the other setting times.

- The ability of choosing your ***own numbers*** will not be implemented in this first version of the price calculator, neither will ***porting*** of old numbers. These options can be discussed and added to the quotation at a later stage with a salesperson. The reason is to minimize the number of choices that have to be made in the price calculator.
- Only the most popular ***hardwares*** will be available in the price calculator.
- The ***super user training*** will not be included in the price calculator, since it's not very common.

4.2.4 Survey

A survey was emailed to all salesmen of the Malmö office. They had a week and a half to answer the survey online and 9 out of 20 people responded. There were five questions in the survey and one "other opinions" option. The questions were open-ended and the purpose of the survey was to gather similar information as from the interview with the salesperson, to see if the other salesmen had any different ideas. The questions were about what customers often had difficulties understanding, if the salesmen had any special tips on how to sell the products and if there was anything the customers often didn't know that they needed. The full survey and results can be found in Appendix A and B. The most relevant questions and answers are summarized below.

1. *What problems usually occur when you create a quotation?*

   The selected PBX services should be listed on the quotation. Some forget what the name corresponded to. Another problem is that the customer does not always know what they need.

2. *Is there something that feels unnecessarily complicated?*

   One answer said that it was difficult to add different user licenses with different add-ons. They wanted more explanation of each product, e.g. by a hover functionality.

3. *What does the customer have most trouble understanding when selecting products?*

   Hard to understand the user licenses, flow free, fixed and mobile. Which products that have setting times and which that have not. What the PBX services entail. The hardware products, difficult with only names. Pictures of the product would help.

4. *What are your best sales tricks to sell Telavox's products?*

   The simplicity and wow-feeling. That the customer can gather everything in one place. How easy the products are to use. That everything from support to education is included in the price.

4.2.5 Existing websites

A study of similar existing websites was conducted, where their advantages and disadvantages were discussed. Inspiration was collected from different pieces of several websites, but mostly from webshops containing less complex products than Telavox's. Websites containing the same kind of products as Telavox's are configured as Telavox's website is today, where you can read generally about the products and then request to be contacted by a seller.

4.2.5.1 Examples of existing websites For inspiration of displaying information, a Microsoft page was studied. The page is quite simple with large pictures and text alongside it, see figure 4.1. It's a modern and well known way to represent a lot of information and making it easier to understand with describing pictures, [Microsoft, 2017].

Figure 4.1 An example from Microsoft of how to display information

One interesting idea on how to hide and display information is to hide it like Telenor does, see figure 4.2. The example displays different data surf packages. At first the user only sees the amount of data, but not the price or more details about what's included. This relies on the users' knowledge of what surf is, [TelenorSverigeAB, 2017].

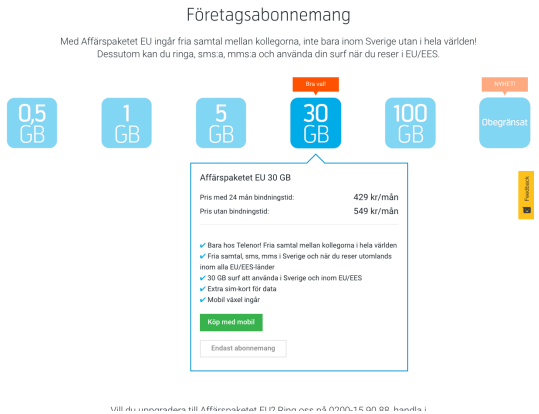

Figure 4.2 An example from Telenor on how to hide and show more information about a specific product

Another example from Telenor is how they represent mobile subscriptions for businesses, see figure 4.3. Each package is represented as a card, with a short summary of the most important features and the price at the bottom. More information can be found if wanted. When a package is marked (clicked on) the frame and the top turns blue, [TelenorSverigeAB, 2017].

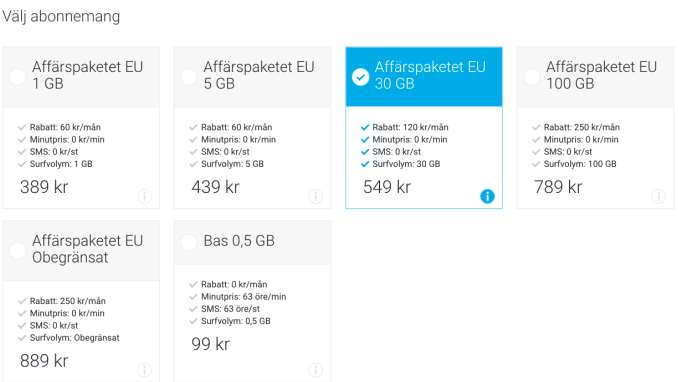

Figure 4.3 Another example from Telenor on how to display similar information

Volvo has a good solution for the shopping-cart, see figure 4.4. The shopping-cart is located at the upper right corner and can be clicked on at any time. The shopping-cart itself has a nice summary over all added products which are organized

in categories to get a better overview. More information can be found by clicking on the "i" button by every product. The price is showed at the top followed by a "next" button [Volvo, 2017].

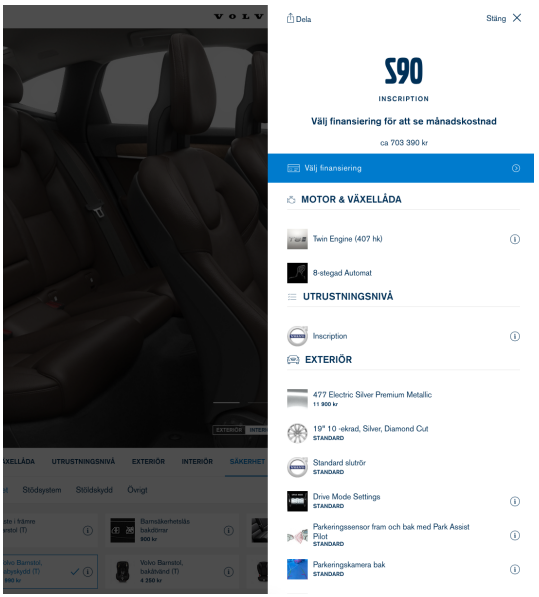

Figure 4.4 A summary of added products to a shopping-cart from Volvo

The sign-up page at Microsoft stood out since it was more personal. It begins with this text: "Welcome, we are now going to get to know you" and thereafter the user enters her contact information, see figure 4.5. It's a youthful and modern way of retrieving contact information. This might work better on some end users than others, [Microsoft, 2017].

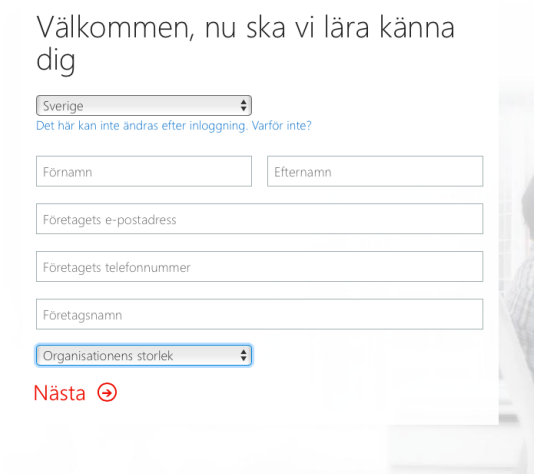

Figure 4.5 Microsoft gathering information about the user

4.2.5.2 Telavox's existing website Test quotations were created in the existing system, which is only used by the salesmen of Telavox. The existing system is very complicated and unintuitive which makes it a requirement that the salesmen who use it are very familiar with all the different products. The final quotation that is produced will be the same as the final result of the price-calculator. The names of the products will be the same, which is why they need to be kept even when they aren't very explanatory.

4.3 Discussion

One thing to consider was that many of the salespersons at Telavox worked very personally and made individual presentations for each customer. This will not be possible on a website, which entails some problems when making the first design choices for this website. A decision was made that all quotations created at the website will then go through a seller from Telavox to ensure that all customers get the right products and to offer better service quality. But still a lot of focus will put into presenting all of the information in a good and understandable way. Another important aspect is that the user does not have to purchase products from every category. This is important to display in a clear way to ensure that each customer gets the solution they need.

Mentioned by several salesmen, both from the interview and in the survey, was the fact that the customers have difficulties understanding the products' features and the products' names. This is a very important aspect to consider when designing the interface. Narrowing down the list of possible products to the most common ones,

was also a result of the interview. This prioritization of products was additionally based on the fact that the website only needs to satisfy 80% of all customers needs. Some products or services, such as choosing numbers and porting old numbers, were down prioritized because of this.

4.3.1 Requirements

The initial phase resulted in requirements for the price-calculator to comply with. These are listed below:

- The price-calculator shall contain three different categories of products with the following demands:
    1. **User licenses** - Flow's different user licenses must be correctly displayed and easy to understand.
    2. **PBX services** - The PBX services must be easy to understand and the packages they are sold in clearly marked.
    3. **Hardware** - Hardware like cellphones, landlines-phones and headsets shall be possible to add to the quotation.
- The customer is not required to choose products from each category, but will be guided through all Telavox's products and shall understand all three categories when a quotations is created.
- The quotation shall be sent to a salesperson at Telavox after it's completed.
- The price-calculator shall satisfy 80% of Telavox's customers, meaning that 80% of Telavox's customers shall be able to create a quotation at the website.

5

Lo-fi prototype phase

The lo-fi prototypes were based on the requirements from the initial phase. There were two lo-fi iterations. The first was tested by focus groups and the second one with walk-throughs. At the end of the lo-fi phase a statistical analysis was conducted and consultation with the supervisors took place.

5.1 Lo-fi 1

The first lo-fi prototype consisted of simple sketches made by hand, representing the conceptual model. This method was chosen because it's a quick and easy way to start a project. The prototype will look flexible and changeable which welcomes new ideas from the test persons.

The lo-fi design was based on the requirements that were developed in the initial phase with inspiration from the comparison with existing websites.

5.1.1 Prototyping

The prototype consisted of several parallel designs for the three main parts of the website: user licenses, PBX services and hardware, and also two different designs of the quotation's overview and "check-out" part. Parallel design were used to generate several diverse ideas for the website, with the intention to later integrate the best of them into one complete prototype [usability.gov, 2017a]. The most significant parts of the prototype are explained here. The whole prototype can be found in appendix C. All prototypes were made in Swedish.

5.1.1.1 User licenses This version of the user-licenses, figure 5.1, was later used for the next iteration. The other two versions can be found in appendix C. The idea is that you build your own license in the form of a card. The card is used both when creating the package and to later display what has been selected. This increases the mapping and the understanding of which products and services that have been selected. If the user can see how the card is built it's easier to understand the final cards and what actually ends up in the quotation.

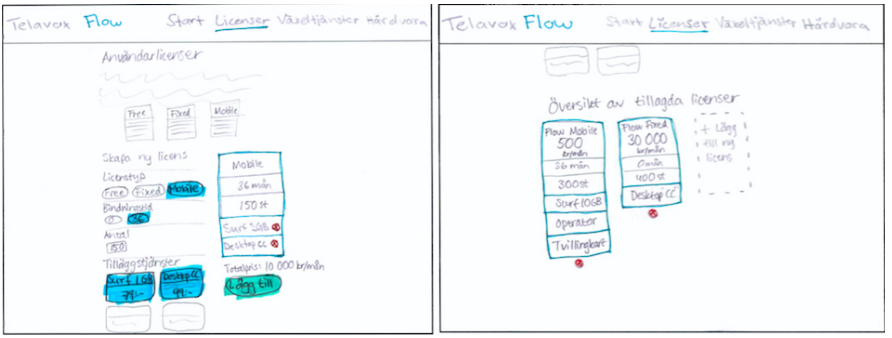

Figure 5.1 Lo-fi 1, version 3: User license

The user license card is displayed to the right in the first of the two pictures. The card represents the chosen services together with the quantity. A total price is shown below the card along with an add-button, which adds the license and the add-ons to the quotation. The add-ons are represented by small boxes which are clickable. In the second picture an overview is shown together with a "lägg till" button.

The header in this version works as a navigation, with the current page "Licenser" marked with a blue underline.

5.1.1.2 PBX services The PBX services also had three variants in the first lo-fi prototype. The first one, seen in figure 5.2, is based on the current information about PBX services on Telavox's website. This in order to create similarity throughout Telavox's whole website. The user selects which services they require and their quantity. The slider below changes when the total quantity of the PBX services changes which gives direct visual feedback of the user's action. This in order to increase the mapping between an added PBX service and what package appears in the quotation. The PBX services are sold in four different packages, so the slider has four "steps", 0, 3, 8 and unlimited. A help text appears to inform the user that she only has chosen two PBX services but her package includes three. This might not be the best solution since if the page has good affordance, a help text would not be needed.

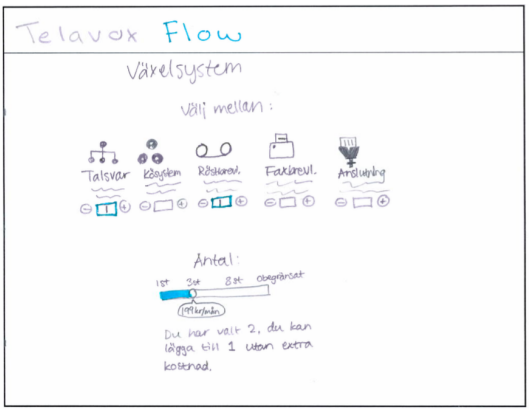

Figure 5.2 Lo-fi 1, version 1: PBX services

The other two versions of the PBX services can be found in appendix C, together with prototypes of the hardware section and a shopping cart.

5.1.2 Test and evaluation

The first lo-fi prototype was tested by ***focus groups***. This was in order to get a lot of new ideas and to discuss the lo-fi prototype in depth.

Two focus groups were used for the first lo-fi. One consisting of 8 people with computer science and UX background and no previous knowledge of Telavox products. The other group was people from Telavox with less knowledge of UX but more knowledge of Telavox and the products they sell. It was a considered choice to choose two different focus groups to get as much feedback as possible early in the project.

Since one of the focus groups did not have any previous knowledge of the products, the focus group session started with a short introduction of Telavox and the product *Flow* and a brief summary of the master thesis project. All focus group sessions were recorded and about two hours long. During the test there were two different moderator roles, one who introduced the tasks and one who took notes. Some questions were prepared in advance to make sure that the discussion covered all parts.

After the session the notes were summarized and compiled into a document, which was later used in the making of lo-fi 2.

5.1.2.1 Result The focus groups led to new ideas of ways to design the price calculator. All of the feedback was written down and discussed. The feedback contained some conflicting opinions and a few ideas which lacked a way to realize them. Every idea was considered and prioritized and also sorted by what could work together on the website. The following is a collection of some of the most valuable

points which the focus groups concluded:

General feedback of user licenses - both versions

- "If there are several different pages to click through, the customer will be afraid to go back since they won't know if their settings have been saved." The test persons would rather have everything on one single page.
- "There could be a fixed navigation at the side of the page which follows the page down when you scroll. This could perhaps also be a checklist."
- "The customer must have already chosen a license before they are able to choose add-ons."
- They like that the surf is divided from the rest of the add-ons.
- They like that the headers are phrased as questions, that's the kind of style Telavox is already using at it's web sites.
- "More feedback on how the price changes as the amount of products changes."
- "You should be able to click on a button to read more information about the different products, which could appear in a pop up. There should be much information available, but most of it should be hidden behind buttons so the user isn't forced to read it."
- "It should be made more clear that you can choose many different licenses with different add-ons."

User licenses - one-page version

- They like this one the best, especially the second part, with the created "cards". They want to have the second part at the top of the page as an overview of what you have chosen.
- "By each overview card there should be an edit and a remove button. When you click edit, the view should be the same as when you create a new card."
- "There should also be a duplicate button, if you only want to do small changes."
- "You will think that the add-ons are strictly attached to the licenses, which they are not. They can all be changed and removed at any time by the user."
- "You should be able to name the cards if you want to."

- "Total sum for all the cards."
- "If there are many cards it might be difficult to compare them."
- Bonus with the cards: "After a while Telavox would be able to see what the most popular variants are and propose them to their customers."

General feedback of PBX services - both versions

- The test persons do not wish to choose how many PBX services they want, before they have chosen which ones.
- "It's important to clearly show that you can add a free PBX service if your package isn't yet full."
- "You should be able to view all prices at once, not only the price for the package you are currently at."
- They would prefer to have a non changeable slider which only shows how many services you have chosen, not the different options you have to choose from.
- "You could add the services just like the cards you make in Figure 5.1. In the empty card there could be a text describing if the next PBX service is included for free, or if it would take you to a new price package."

Shopping cart/Overview

- "If the products are added as cards and are always shown on the main page, then you should not be able to change anything in the overview. That should be done directly in the cards."
- "It should not be called "shopping cart" or have a symbol representing it, since you can't buy the things you have added right away. Better to call it overview."

In addition to these comments there was a lot of discussion regarding if the price-calculator should be contained in one single page, where you could scroll your way down, or if it should be split into a few different pages so that you could go to the next page for the next section. Many people had strong opinions about this issue and they were split into two different camps. Since there were quite many conflicting opinions such as this one, a decision was made that the next lo-fi would contain two different complete versions of the website, one where you go step by step through different pages, and one on which you scroll your way down at a single page. According to Norman's design principles both ideas are good as long as there is a visual indication on how many pages the website consists of. All tasks should be revealed for the user from the start to get good visibility.

5.1.3 Discussion

All of the feedback which we decided to continue with in the price-calculator was separated into two different full versions, to prototype several different parts of the price-calculator. They would both have the same functionality but differ in the design. By creating two separate versions, less of the feedback had to be disregarded at this early step. It was important not to make too many definite decisions at this point, since only two focus groups had told their opinions, and we wanted to get more new approaches in the next iteration.

5.2 Lo-fi 2

The second lo-fi was also sketches made on paper and was based on the comments from the first focus groups. The reason to why this sort of prototype was chosen once again, was because it's quick to produce and it was still desirable for the test persons to feel like the prototype was not in a finished state, which makes them more prone to give much feedback. A big difference from the first prototype was that the second lo-fi consisted of two versions of a full website, unlike the first one which contained many different ideas for the separate parts of the website. This difference was also a reason as to why the second prototype was also made as a lo-fi. This was the first time it was possible to test the conceptual model and how the website worked as a whole.

5.2.1 Prototyping

Two versions of the website were produced. The first one was a one-page website, where the quotation was continuously built up on that page. The second one was a four-pages website, where the user completed each part before moving on to the next page. This time the prototypes were drawn so that they would be as long as possible on one piece of paper and imitate the whole page on which you would have to scroll down to see all of it on a computer. Lo-fi 1 was made in a different format which represented the size of a screen. If a page was longer than a computer screen it was shown as two screens, one under the other, each with a header. Since the parts were further apart this created proximity problems. The problem was explained to the test persons when it occurred in the lo-fi, but it was clear that they had difficulties understanding what the page would look like as a whole version. They said that they wanted some parts to be closer to each other, when they were actually supposed to be right under each other. The law of proximity says that with this new long format it will make it easier to see how the whole page is put together and what parts will be close to each other.

5.2.1.1 One-page version The first lo-fi prototype consisted of a single page. The picture seen in figure 5.3 is how the price-calculator would look at the start, when the quotation is empty. The web-page has three parts: PBX services, user li-

censes and hardware. In this version PBX services come before user licenses, this in order to bring user licenses and hardware closer together and increase the mapping between the different parts. Price and quantity are summarized at the top of each part. At the top right corner the navigation is shown. The blue underscore indicates which part the user is currently on and gives visual feedback when the user scrolls down on the page. The navigation also helps with the visibility for the whole page.

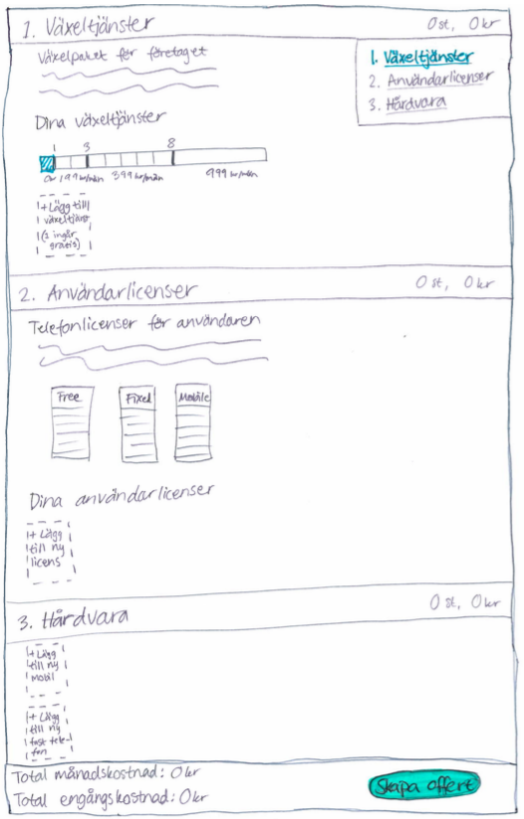

Figure 5.3 Lo-fi 2, first prototype: An overview of the website

The PBX part starts with information of PBX and what services Telavox offers. Underneath the information a slider is shown to indicate how many services the user has chosen and the price for the different packages. The last part of the PBX is an "add card". The user clicks there to add a PBX service. All "add cards" look the same to increase the similarity on the website.

Part two is the user licenses. It starts with some information and the tables from previous prototypes, see figure 1.1. Below the information the user's own user li-

censes are presented. In the first stage this is only an "add card".

The last and third part is the hardware with separate "add cards" for mobiles, land-line phones and headsets. At the very bottom a footer is shown. The footer contains the total monthly cost and the total one-time cost. To the right is a create quotation button.

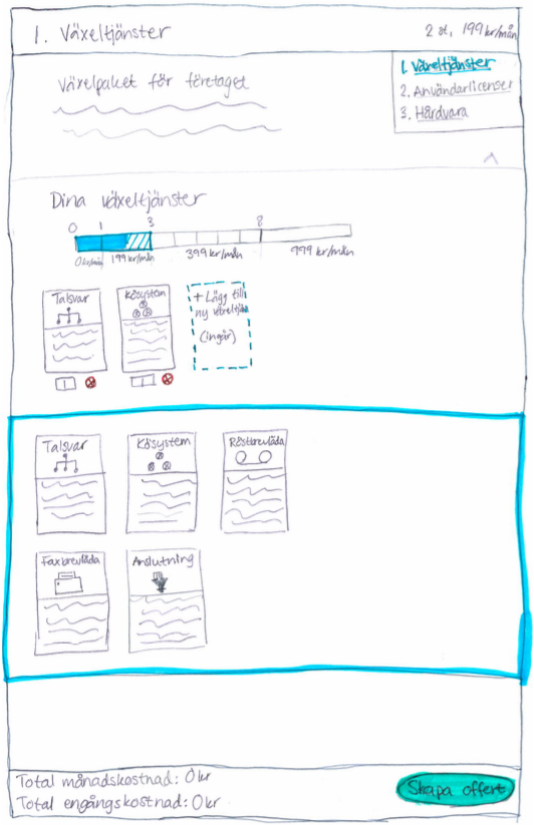

Figure 5.4 Lo-fi 2, first prototype: PBX services

Figure 5.4 shows the web-page when the edit PBX services is open and two PBX services have been selected. The slider has increased, the user has selected two PBX services but is paying for three. This is indicated by the dashed part of the slider up to the "3" package. The cards underneath the slider show which PBX services the user has selected. The user can change the quantity and remove a service by pressing the red X. The cards that the user can choose from are shown in the blue pop-up window below, a figure/ground concept. The window can be hidden with the X at the top right corner.

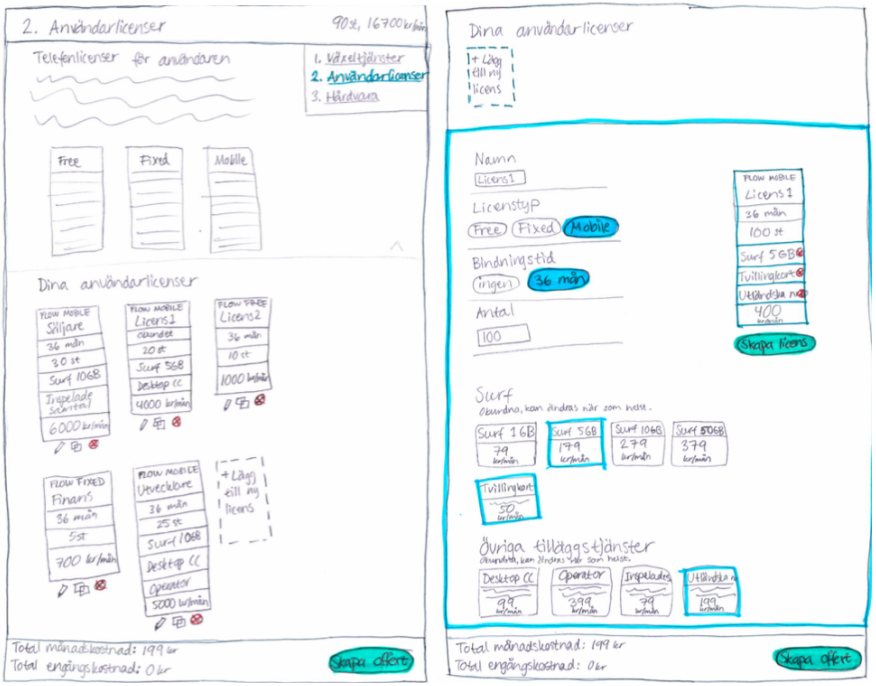

Figure 5.5 Lo-fi 2, first prototype: User licenses

The user licenses part is shown in figure 5.5. In the left picture the user's user licenses are displayed. The user has five types of user license cards. At the bottom of each card an edit, duplicate and remove symbol are shown. If the user presses *add a new user license* a pop-up window appears as in the PBX case. The edit mode can be seen in the right picture in figure 5.5. The user selects the type of license she desires followed by the add-ons. The card to the right updates with every choice and expands when an add-on is added, this enhances the visual feedback. When the user is done she clicks on the *create license* button and the card is added to the other license cards.

Figure 5.6 Lo-fi 2, first prototype: A full quotation

After the user has filled in what types of product she requires the idea is that the web-page is the quotation. As seen in figure 5.6 all the information can be minimized so that the quotation is more compact and easier to get an overview of, and to enhance the proximity. All products and services are represented as cards to create a uniform feeling throughout the website and to increase the similarity. The law of proximity is used to group the different objects. The user license cards have different lengths since there can be different amounts of add-ons in each user license and they would be unnecessarily long if all would be the same length.

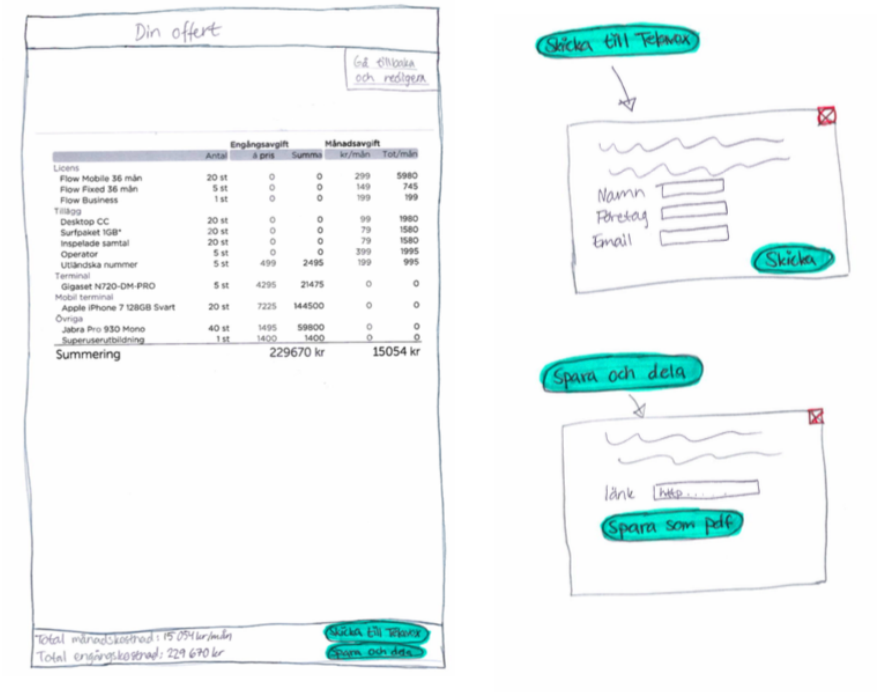

Figure 5.7 Lo-fi 2, first prototype: An summary of the created quotation

When the user has clicked on the button "Create quotation" in the footer of the website, the user ends up at a new page, see figure 5.7. The "Your quotation" site is a preview of the real quotation. The left picture in figure 5.7 is an image of a real quotation and how all the products and services are represented and summarized. In the top right corner there is a button to go back if the user wants to change something. At the bottom a new footer has appeared. It has two buttons, one to send the quotation to Telavox and one to send it to the customer/user. The right picture shows the two pop-ups with user information that the user have to fill in to send the quotation.

A prototype of the hardware part where also made. It can be found in appendix D.

5.2.1.2 Four-pages version The second version of lo-fi 2 consisted of four different pages: user licenses, PBX services, hardware and a summary page. To obtain good visibility all steps are always visible to the user in the header. This version was not chosen to be further developed, which is explained in the Discussion, but can be found in appendix E.

5.2.2 Test and evaluation

The second set of lo-fis were tested with two separate ***walk-throughs***. A walk-through was chosen to get a group of expert's opinions on the prototype.

In this walk-through one moderator explained the prototype and guided the test persons through the process of creating a quotation. The second person took notes. Both walk-throughs were recorded. Both test groups consisted of people with a background in computer science and UX at a masters level, so they are considered experts in websites and usability. The first group consisted of four people and the second one of three. The walk-throughs were just under two hours, to maintain the effectiveness. Questions had been prepared beforehand to make sure that each walk-through kept on track and answered the questions posed when making the two lo-fis. The same background information as in the focus groups for lo-fi 1 was used here as well, since none of the participants in the walk-throughs had any previous knowledge of Telavox or their products.

After each walk-through the test person's comments were summarized and discussed.

5.2.2.1 Result The walk-through groups were more focused on pros and cons in the two lo-fi versions this time, as the previous tests focused more on finding completely new ideas. The shift of focus was due to the two different versions of lo-fi 2, which felt more complete, and also because of the questions we asked them, which made them focus on the prototypes in front of them.

It was noticeable that the prototype had come one step further in the process, which was the goal for moving forward in the project. The following are some examples of the collected feedback from both walk-throughs:

One-page version

PBX Services

- One group like this web page in general, some of the persons in the other group don't like that it's a single page.
- "When a PBX service is chosen, it should be made visible in the menu when choosing for the second time."
- They would like to be able to click and choose everything at once, without the alternatives disappearing in between.
- They like the idea of the slider, but it should be made more clear what price is the connected to the current package.
- They want the names of the packages to be written together with the price at the top, so that you don't need to write it at the slider.

- They want to be able to close down the edit-box.
- They like the way the quantity of each service is displayed.

User licenses

- "It's very clear what licenses you have chosen, also while creating a new one."
- "The 'create license' button should be at the bottom, so that you don't accidentally click on 'create quotation'."
- "The twin card-option should stand out more since it's different from the others."
- "The created cards can differ in height, but the buttons should be at the same level."
- Some like the duplicate-button and some think it's unnecessary.
- "The quantity could be above or below the cards."
- They had different opinions on whether you should be able to change the quantity directly in the cards or not. Maybe you should only be able to choose the quantity after the card is created.
- "You can already see the amount of licenses you have, there doesn't need to be a total sum of the licenses as well."

Your quotation

- They want to be able to both save the created quotation, and also get a copy of the created cards, to get a good overview of what they have chosen.
- "Instead of a button for saving the pdf, you should only be able to receive it as an email together with a link to the price-calculator where all of your options are saved."
- "You should get a confirmation email if you send the quotation to a salesperson."
- They like the two separate buttons for saving and sending the quotation.

Four-pages version

User licenses

- "You could name the licenses so that it's easier to keep track of them all."
- They want to be able to see how much one license costs, not only the total amount, if you have chosen more than one.

PBX Services

- "The packages should not change automatically, there should be a red warning text when the package you have chosen is full, so that you can change to a bigger one yourself."

Your quotation

- Some think that you should be able to change as much as possible in the preview, some think that you should only be able to remove products.
- "The summarized category prices should be at the bottom of the category, not at the top."
- "The icons are unnecessary, it's better to work with indentation to indicate what belongs together."

Comparison

- Different people liked the different versions, but more people liked the scroll version either to be used as a whole or to use the parts from it and put at several pages.
- They like how the products are chosen in the one-page version, the slider, the card concept and being able to name the cards.
- "It's easier to understand that you can create several licenses in the one-page version."

5.2.3 Statistical analysis

At this stage the design of choosing the products was coming together, but there were still a few unanswered questions about how the system would be used by the real users in the end. Depending on i.e. how many PBX services a user normally chooses, the design could be altered in different ways to fit the normal use case better. This was something the walk-throughs couldn't answer, since they didn't consist of real end-users.

By extracting information from the database about all orders made from Telavox in 2016, conclusions could be drawn regarding which products were more or less popular. The statistical analysis focused on answering the following questions:

1. Is it usual to order more than five of any PBX service?

2. How many PBX services does an order contain in general, when someone buys the unlimited package?

3. Is it usual to order the twin SIM-card?

4. Is it usual to order several different combinations of licenses and add-ons?

5. How many orders contained services which we hadn't included in the price-calculator so far, such as "Guldnummer", "Portering", "Superuser" and "Reserverat nummer"?

5.2.3.1 Result Collecting the information was a bit difficult since Telavox doesn't already have a system for calculating and displaying this kind of data. The search was narrowed down to a single year: 2016. The analysis was made by extracting data directly from their order database, which wasn't structured by categories, only by a specific name for each product. This means that you couldn't write a general query to extract information of i.e. all PBX services, but instead needed to list all different PBX services one by one, since they didn't have a common category. The most difficult question to answer was how many different combinations of license packages a user would buy, since there was no simple way to write this query. The question was answered by a combination of extracting specific information from the database and also by eying through parts of the whole list of data and looking for general trends. The importance was not to get exact numbers of all these question, but to get a general understanding of the quantities ordered. The investigation led to many useful insights which would help guide the design in the right direction. Here are the answers to the questions above:

1. Yes it is. For example the PBX service "Anslutning" had 35 orders with more than five pieces out of 70 orders in total. "Talsvar" had 18 orders of more than five pieces out of 142 orders in total.

2. Many of the orders containing the PBX package "Unlimited" contained a large amount of PBX services, up to 120 pieces.

3. The twin card was surprisingly rare, there was only one order from the whole year of 2016.

4. Yes, an order often contains several different combinations. This was shown for instance by comparing how many different combinations of surf packages an order could contain, since one license can only be linked to one surf package.

	Service	Amount of orders containing the service
5.	Guldnummer	211
	Portering	2600
	Superuser	2608
	Reserverat nummer	9911

5.2.4 Supervisor meeting

At a supervisor meeting about the feedback collected from the lo-fi tests, we discussed how it can be made more clear that some costs have a setting time and some don't. This will be attempted in the next prototype by displaying several different summations of the total price, such as total monthly cost with setting time and total monthly cost without setting time. The discussion also involved a few extra features which probably won't be incorporated in the design within this project, but which need to be considered before releasing the final website:

- ***Quantity discount*** This will be a way to encourage customers to buy more. There are two different ways it can be implemented, either by changing the price for each item when a certain amount of items is reached, or by only changing the price for the products exceeding a certain number. If not all products are charged the same, this will have to be displayed in the summation of the quotation in the end.

- ***Templates*** After collecting usage information of this website, templates can be prepared to suggest the most popular options to customers. Customers could also receive a proposition of the whole quotation which they can then alter to suit them better.

- ***Framework agreement*** Big clients often negotiate a framework agreement for future purchases. The prices need to be changeable by a salesperson at Telavox somehow.

- ***Expiration date of a link*** Products and prices are subject to change at some point and this needs to be considered. Should the links have an expiration date and what will happen when the supply changes?

- ***Information about additional services*** There could be a text at the end of the price-calculator informing the customer of how much it will cost to move, reserve or choose special phone numbers. These services should not be available in the price-calculator since they require configuration and selecting of numbers. This would make the price-calculator too complex and time consuming to fill out, which is why it's better to handle all configuration at a later stage.

5.2.5 Discussion

After going through the feedback from the tests a decision was made to continue with the one-page version for the hi-fi prototype. If our tests later state that the web site should be partitioned into several pages, this can easily be done at a later stage while still following this general design. The reasons for choosing this version are that it received better feedback from the tests and it's got a conceptual model which differs from a normal web shop. In a normal web shop there is a shopping cart where all products are summarized, and you can complete the purchase in order to buy them. In our website you cannot buy the products but instead they are added to your quotation. In this version it's also more intuitive to understand that you can create several different license packages. It creates less of an overload of information since all selectable services can be hidden while going through the page, and then displayed and highlighted when selecting services from a specific category.

Since there could be large quantities of the same PBX services ordered, the PBX cards will not be displayed one by one, but instead by a single card per service, with a text field containing the quantity. To improve the page's consistency and mapping, the quantity is displayed in the same way through all three categories. Since the PBX package "Unlimited" often includes a large amount of PBX services, the slider must be adapted to this, so that there isn't a specific number of slots available on it, since there should be no limitation.

We decided to remove the twin card from the design since it's so rare. It would make the price-calculator more complicated, which is what we are trying to avoid, and it would not benefit enough customers. Since the created quotation always will be discussed with a salesperson after completion, this is something that can be suggested by a salesperson at that point instead. The services which we investigated and haven't included yet should be mentioned at the end of creating the quotation. They will not be added as an extra step to fill in, since the price-calculator should be kept as simple as possible, but there could be a text explaining that it's possible to add these services when talking to a salesperson. This is not a top priority of this project since it doesn't have anything to do with the understanding and the design of the rest of the page. Since time is of essence, this will not be implemented in the design but instead mentioned as a suggestion of what to improve.

6

Hi-fi prototype phase

The result from the tests in the lo-fi phase and the statistical analysis laid the foundation for the hi-fi prototypes. Two hi-fi prototypes were made with different techniques. Both prototypes were tested with usability testing, the second one with a larger more extensive test.

6.1 Pre-study

When the latest lo-fi prototype was evaluated and the design of the next prototype was somewhat decided, a supervisor meeting was held to determine what format to use for the hi-fi prototypes. The UX team of Telavox was consulted for design details, to make the price-calculator consistent with their current website.

6.1.1 Supervisor meeting

We discussed whether it would be possible to start programming as early as this stage. A functional prototype made in code would be easier to test than one made as static images and it would be one step closer to the final, fully implemented version. It was decided however that the hi-fi phase should begin in the same way as the UX designers of Telavox put up their work, by linking images to each other. The reason for choosing this alternative was because we are not very familiar with the programming language JavaScript which we will need to use, and it will be easier to program when we have a digital template to follow precisely, and not only hand-made sketches. It was hard to estimate how long it would take for us to program a prototype, and by starting with the images we knew that we would at least have one finished hi-fi prototype to test and evaluate.

6.1.2 Guidelines from the UX team

The UX team at Telavox use the tool Sketch to create digital images of their designs. It's similar to Photoshop but less complicated. They then connect their sketches to each other in a tool called Invision. Invision is an online application where you can add clickable fields to uploaded images, which can take the user to another image

of your choosing, or to another part of the same page. These tools will be used for creating the first hi-fi prototype of this project.

To make the design consistent with Telavox's current websites, the following points were taken into account during the hi-fi phase:

- Icons were retrieved from Google's material design guide [Google, 2017].
- A document containing Telavox's different fonts, font sizes and margin sizes was followed.
- The color scheme was also retrieved from this document, and the use of color and background color through the page was inspired by their current website. An example of the general design of Telavox's website can be seen in figure 6.1.
- Most of the informative texts were copied from Telavox's current website. This in order to make the price-calculator work individually and contain all the information it needs, even if it can also be found at another page. Since this page has not existed before, it will somewhat overlap with the current website, which makes it necessary to later go through both pages to decide exactly what information each of them should contain.

  The informative texts are not the focus of this report and can easily be changed if desired.

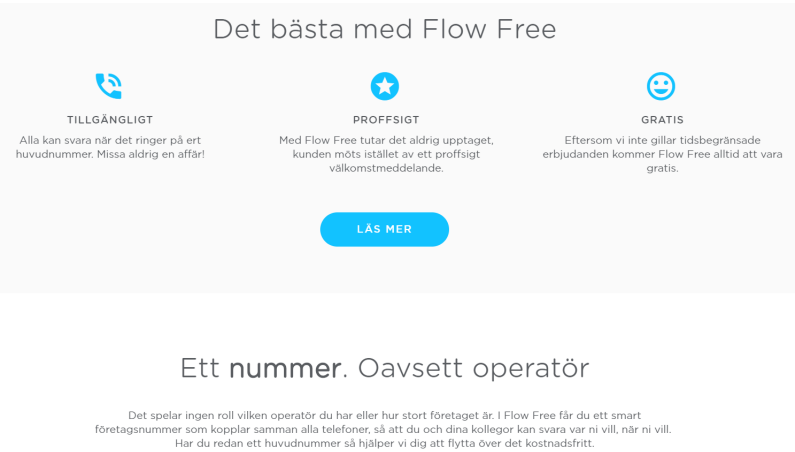

Figure 6.1 Part of Telavox's current website

6.2 Hi-fi 1

The first hi-fi prototype was very similar to the first version of lo-fi 2. The prototype was created as a single page, but was designed in such a way that it could easily be split into several pages if the tests indicated that the users didn't like a long scroll page. When transferring from paper prototyping to a digital prototype several new issues arose and there were many discussions about how to come up with a good design solution. The design was iterated several times and both UX and the supervisors were consulted. The section about hi-fi 1 will mostly focus on the differences between the new prototype and the lo-fi prototype, since the main concept is the same in both.

6.2.1 Prototyping

This was the first time explanatory texts about the products and packages were included in the prototype. In figure 6.2 information about the different PBX packages is shown. The text is displayed in a similar way for both PBX services and user licenses, as shown in the figure. There are tables for each package and type of user license. The information can be hidden if the user clicks on the text "hide information" under the table. The tables are not interactive.

At the top right corner a navigation bar is placed. The blue text indicates the current position and changes if the user scrolls down or clicks on another part. By clicking on a category the user is transported to that part of the page. It also increases the visibility for the user.

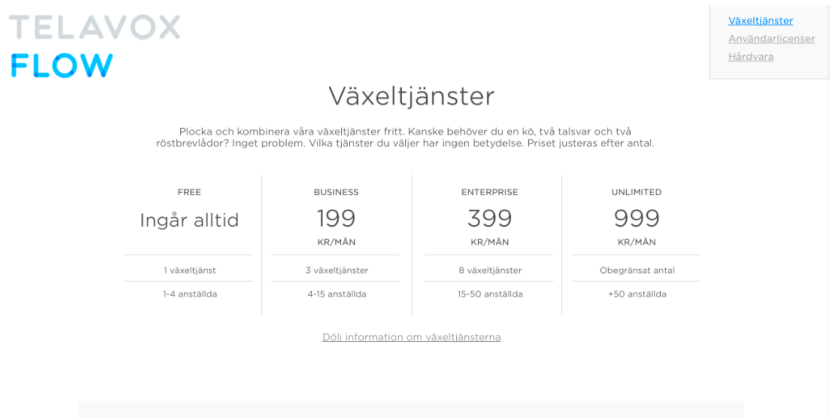

Figure 6.2 Hi-fi 1: Information about the PBX services and packages

Figure 6.3 shows the user's PBX services and the edit view underneath it. The PBX services already chosen by the user are indicated by a gray background. As seen in figure 6.2 the information has a white background, this to help with the

figure/ground principle. This concept is the same throughout the whole page which will help the user with the mapping of the website and create similarity. The law of proximity has also been applied to this website to group the different functions. Both the law of proximity and similarity are applied throughout the whole page to increase the mapping and usability for the user.

The slider indicates which package the user pays for right now. The dark blue is the number of selected PBX services and the dashed blue is the number of services left in the selected package. The number above the slider shows all available packages. The slider visualizes the current package for the user to increase the mapping between the number of PBX services and the price.

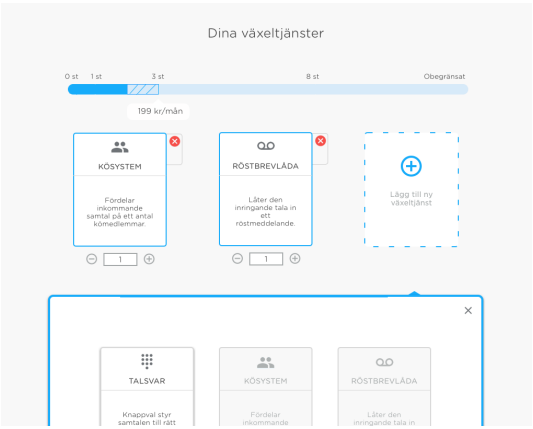

Figure 6.3 Hi-fi 1: The selected PBX services

Below the slider the different PBX services are represented as cards. Both the cards and the slider are from previous lo-fi versions. A difference with the cards was that the remove button was moved to the top right corner instead of next to the amount field. This made it possible to add a "+" and "-" button on each side of the quantity field. The buttons need to be close to the quantity field to increase the proximity and help with the mapping.

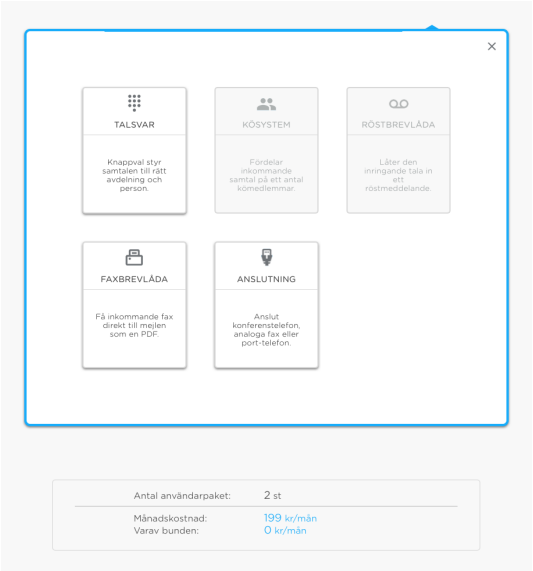

Figure 6.4 Hi-fi 1: The available PBX services

Figure 6.4 shows all of the PBX services in the edit view. The grayed out services have been chosen by the user and can be found further up at the page. Below is a summary of all selected PBX services and their the monthly price.

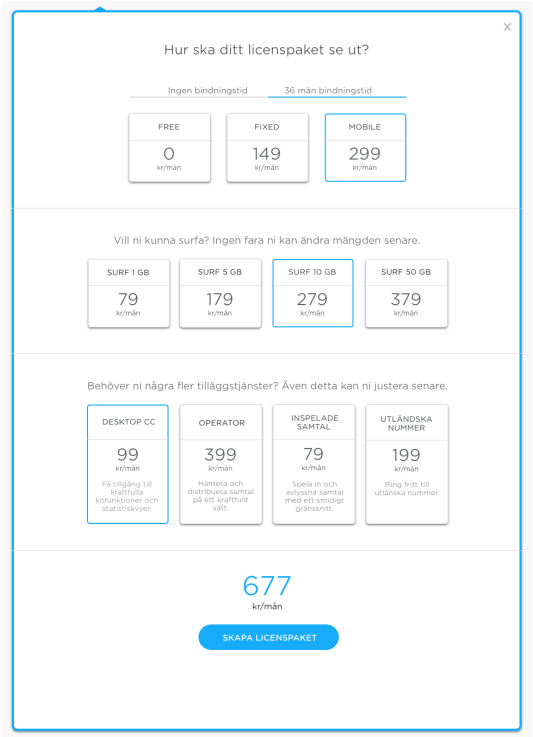

Figure 6.5 Hi-fi 1: The user package edit box

Figure 6.5 shows the user package edit mode. The view can be accessed in the same way as the PBX edit mode, by an add-user-package button. If the user changes setting time the price is updated, which gives direct feedback on how the price and setting time are correlated. When a feature is selected the box gets a blue border. At the bottom of the edit box is a create-package button. All created packages can be found next to the add-user-package button above the edit mode.

The edit view has many similarities with the second lo-fi prototype. One thing that differs between the prototypes is that in the second lo-fi a small card on the right side represented the selected choices. That finished card then ended up above the edit box, as a summary. The card on the side was removed in the first hi-fi since Telavox has a mobile first principle and an extra card to the right could not be placed or motivated in a mobile version. Instead the whole edit box was viewed as a big edit card that later can be viewed as a smaller version in the summary above, seen in figure 6.6. All choices are represented as clickable boxes to create similarity. The add-ons at the last row is the only category where multiple pieces can be selected. The total price is showed at the bottom followed by a create-user-package button.

Both the quantity and the name have been removed from the edit stage and can be altered later in the summary instead.

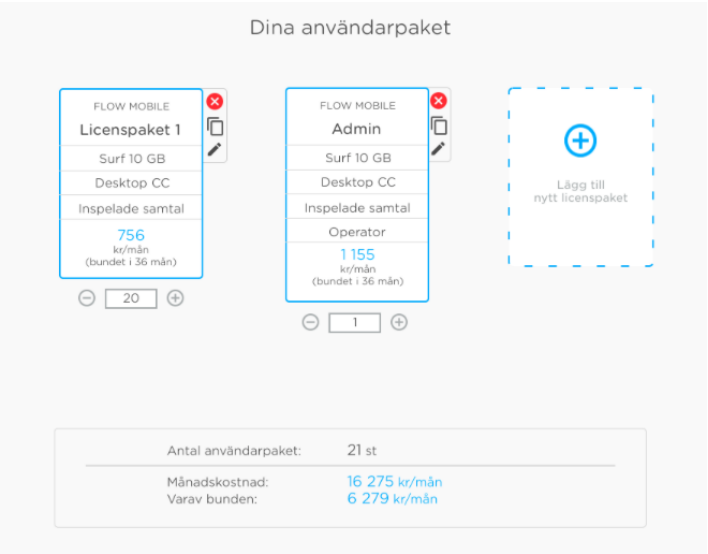

Figure 6.6 Hi-fi 1: A view of the created user packages

The summary of the user packages is shown in figure 6.6. All choices from the previous step (the edit mode) are represented by a row for each choice. The price is displayed at the bottom of the card and underneath that it says if the license has a setting time or not. The name "Licenspaket 1" can be modified if the user clicks on the name. On the right side of the card three buttons appear. The first button, the red X, removes the card. The second one duplicates the user package and shows the new card in edit view, in case the user wants to make a change before creating a new card. The pen symbol is an edit button, if the user clicks on that button the edit view for that card appears and the user can edit the current package. All three icons are retrieved from Material Design by Google. The quantity can be edited underneath the card by clicking on the "+" or "-" button. The user can also write a number directly in the box. The quantity always starts at 1.

Underneath the cards is a summary of the total number of user packages and the total costs. This to give the user an easier overview of the price and how the user packages affect the total price.

Figure 6.7 Hi-fi 1:The footer

In figure 6.7 a footer is shown. The footer is always visible at the bottom of the screen. In the footer the user sees the current price and the monthly cost for all added products and services. If a service has a setting price, that price will appear there too. When the user is finished with their quotation they press the "gå vidare" button to get to the next page, see figure 6.8.

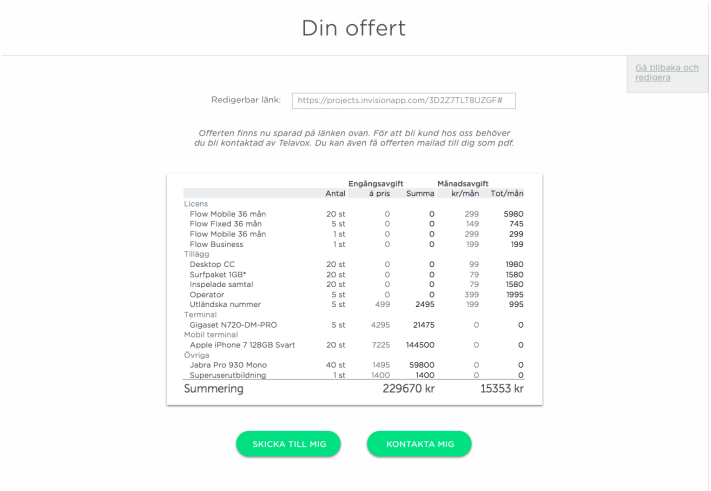

Figure 6.8 Hi-fi 1: Summary of the created quotation

At the last page, figure 6.8, a summary of all selected products can be found. This is what the final quotation will look like and what it looks like today at Telavox. An editable link is displayed, by which the user can edit their quotation and send it to others if desired. The user can choose to go back and keep editing their quotation, send it to themselves or send it to Telavox.

Figure 6.9 Hi-fi 1: A form where the user can fill in their personal information

If the user chooses to send the quotation to themselves a form will appear as a pop-up window, see figure 6.9. The user can fill in their personal information such as name and email and then send the quotation to either themselves or to Telavox. The email will contain a PDF file with the full quotation and a link to the editable quotation.

Worth noting is that the navigation bar was not removed from this prototype but only existed on some of the pages, due to technical difficulties in Invision. The hardware was represented and tested in this prototype, but will not be discussed in the report since it is similar to the other parts of the prototype.

6.2.2 Test and evaluation

The hi-fi prototype was tested through ***usability testing***. Use cases were created for all important features of the website and can be found in appendix F. They were presented to the test persons as a list of tasks to perform. The test person would be asked to act as if they worked at a company for whom they wanted to order communication services. The tasks were described by a short text with the most important words marked in bold. The services which were supposed to be added were not listed by name but instead explained in a more natural way. This is an example of a task from the test:

> At your company you want the customers calling you to be placed in a **queue**. If no one answers they should be able to **record a message** so that you can call them back later. All customers will be calling the same number so you only need one queue. Add these two services.

A few questions were asked during the test to measure the understanding of

certain aspects. After all tasks were performed more questions were asked about what the test persons thought of the website.

The test was performed at six persons with two of them working at Telavox, one as a salesperson and one as an advisor (telephone support). The goal of the usability test was to see, on a small scale, whether this design seemed suitable or not. It would then be evaluated and polished and later tested in a much larger usability test.

6.2.2.1 Limitations of the test There were a few aspects which affected the result of the usability test. They are discussed below:

Number of participants Since there were only six participants no real statistical conclusions could be drawn. The number of participants was chosen because of time limitations. There was only time for one large usability test in this project, and that was scheduled to happen after the last iteration of prototypes.

Wording of the tasks and questions The test went well in the aspect that most people read the questions as intended. However, there were a few interpretations that weren't anticipated. If the test was larger a pilot study would have been required in order to make sure that the test itself didn't contain any mistakes or ambiguity.

Limitations of the prototype There were quite a few limitations of this prototype compared to a complete product, although it was much closer to the finished version than earlier prototypes. Since the prototype consisted of images connected to each other in a specific order, it wasn't possible to do actions in a different order than intended. This inhibits the test person from freely clicking around on the page and trying anything they would like. If someone clicked where they weren't suppose to, the button they should have clicked on would become marked. This also ruined the real experience a bit.

Another problem was that it wasn't possible to make sure that the user ended up at the right part of the screen after a click. If they created a user package for example, they were supposed to end up where they could see all created user packages. Instead they ended up further down the page, so they had to scroll their way back up.

Since the prototype was viewed through the program Invision, an extra header was added, which made the whole page smaller. There wasn't any way to make the navigation stay at the top of the page when the user was scrolling, without having to freeze the whole top area so that the available screen would become even smaller. Because of this the navigation was only available in the beginning of the test and at the end, so that the screen space could be bigger in between.

6.2.2.2 Result The test went well in general and there was a big improvement in satisfactory of the prototype this time compared to earlier tests. There were fewer

comments about what the test persons wanted to change and many positive comments.

The tasks in general Since the test was small, no certain statistical conclusions could be drawn. However there were a few trends that could be distinguished, which will be further explored in the next, larger, usability test. These are examples of how the tasks went:

- Two of them tried to click on the table in the beginning of the page, where the PBX packages are described. Other than that, everybody found the "add button" easily.
- Everybody answered correctly at the question of how much it would cost to add an extra PBX service. This question tested if they understood the concept of the packages. The correct answer was that it wouldn't cost anything extra in this particular case.
- No one had difficulties changing the amount of services.
- Everybody clicked on the "add-new-user-package" button when they were supposed to create a new package which was similar to an old one, instead of the copy/duplicate-button.
- Everyone clicked on the pencil-symbol when they wanted to change the name of the package. When that didn't work most of them clicked on the name quite quickly.
- All but one of the test persons wanted to keep the website as a single page, like in the prototype.
- When we asked them if they wanted to keep all of the buttons on the user packages, they all said yes. Still, there was no one who used the copy/duplicate button.

Comments from individual test persons

- Would like to be able to save the PDF, but also understood that it was good to force the users to receive an email containing a link to the website. Perhaps the link could be written in the PDF as well.
- It felt safe to click on the buttons and go to the final step of sending the quotation, thanks to the two separate buttons. You can make sure that Telavox will/will not contact you.
- Words such as "modern", "nice", "clean", "fresh" and "intuitive" were used to describe the website.

- If you click on the table describing the user licenses, you could add a license also from there. If you click on Mobile, the edit view could appear with "Mobile" already chosen.
- It was confusing that the number of employees was described in the PBX packages table. This made you believe that you had to choose a package only based on the number of employees, which is not the case. It's better if a salesperson later tells you if they think you have the right amount of PBX services for your company.
- The description of the add-on "Operator" is not very clear, the other add-ons are much clearer.
- It's a bit unclear what the difference is between the user licenses in the table. It would probably be better if the on-hover function worked as it should.
- One person wanted more of the information to be hidden from the beginning, since he would have probably read much more about the products before starting to use the price-calculator.
- The quotation should automatically be sent to a salesperson even if the user doesn't want to be contacted. That way the user can later call Telavox, and the salesperson can find the quotation on his computer while talking to the client.
- At the last page, the heading could be "Your quotation proposal" instead of "Your quotation". That way it doesn't feel too final.
- Would like to have a visual example of what a PBX system could look like.

6.2.3 Discussion

The test went well overall and the test persons seemed to like the concept of the page very much. This lead to our decision of keeping the main part of the design through the next hi-fi iteration as well.

The limitations of the prototype affected the usability test to some extent, which supports the plan to program the next hi-fi prototype. This would enable the users to freely to click anywhere they like. This would make the test results more accurate and less affected by the format of the prototype. The disadvantage of this approach is that it will take more time to program a whole website than it would to change the current images.It will be a trade-off between two different approaches. One is to have more time to polish the design but not being able to test it properly. The other one is to spend much of the remaining time on programming but not as much on changing the design, to achieve a better test. Since we wanted to learn more about web programming and since we were a bit frustrated when testing the Invision

prototype, we decided to program the website in the next iteration.

Hi-fi 1 was the first prototype with real explanatory texts and tables. They were taken straight from Telavox's current website and have not been altered or evaluated very much. Some of the test persons tried clicking on the tables, which might mean that they should be changed. However, this is uncertain since the test was so small. This part of the design will be kept through the next iteration to be tested on a larger scale. This is also a time optimization - by keeping the texts as they are more time can be spent on programming instead of redesigning them.

When speaking with the UX department and the supervisors, they asked if it was possible to remove the extra buttons by the user packages, and only keep the delete button. The delete button could then be placed on the inside of the card instead and it would look more clean. The test result regarding the buttons was ambiguous since the test persons didn't use them, but still they all said that they wanted to keep them. We wanted to keep the functionality through the next test, but decided to remove the buttons and solve it in another way. To edit a package the user should instead click on the package itself, which would take them to the edit mode. When exiting edit mode they could choose between saving the changes or saving them as a new card, which would work as the duplicate functionality.

We are aware of the fact that removing the buttons and reducing the visibility might make it harder to understand that these actions are possible, so this will be tested in the next usability test. After the next test we will be able to prove either that the functionality is comprehensible without the buttons, or that the buttons are needed for the usability, even if it would look better without them. The name will be changed in the same way in the next iteration and we will find out if this is easier to understand when the pencil button is removed or if this is a problem for the users.

We decided to remove the PBX package recommendation text which was based on how many employees a company had, since this was confusing for a couple of test persons. The size of the PBX package is not based on the size of the company, but only on how many services they would like. The text was written to give an understanding of what kind of packages smaller or larger companies usually end up with. Both us and the supervisors agreed that it could be misleading.

We chose to disregard the comment which proposed that you could choose a license by clicking at the table. This because it goes against the conceptual model which we want the user to learn. We want to strictly separate the information from the clickable area where you choose your services. This concept is found in each category of the website for continuity.

Other than the mentioned parts no larger changes will be made in the next iteration and much focus will be put on learning new programming languages and getting the website to work. The next usability test will be more extended, which

will lead to better statistical results of how well the users can perform at the website.

6.3 Hi-fi 2

The second hi-fi prototype was developed in HTML, CSS and Javascript. Programming the prototype enabled receiving better test results and creating better tests. In the real product, the data displayed would be collected from a database, so that the information about the services would always be up to date. In the prototype the data was instead written directly in the code. There would also be differences in how to save the user's choices. However, the code of this prototype would be reusable for creating the appearance of the final product.

6.3.1 Prototyping

The difference between the two hi-fi prototypes is little and mainly consists of small design changes. All information sections of the website have close to no changes between the two prototypes. The information on this website is the same as Telavox's website addflow.com.

The slider, as seen in figure 6.10, is based on the same concept but have white lines to mark the different packages. This was the result after consulting the UX department. The current package is marked with three different colors instead of a dashed part as in the previous version. The red X on the PBX cards, as seen below the slider, have been moved into to the card to get a cleaner design. The edit mode is the same as hi-fi 1.

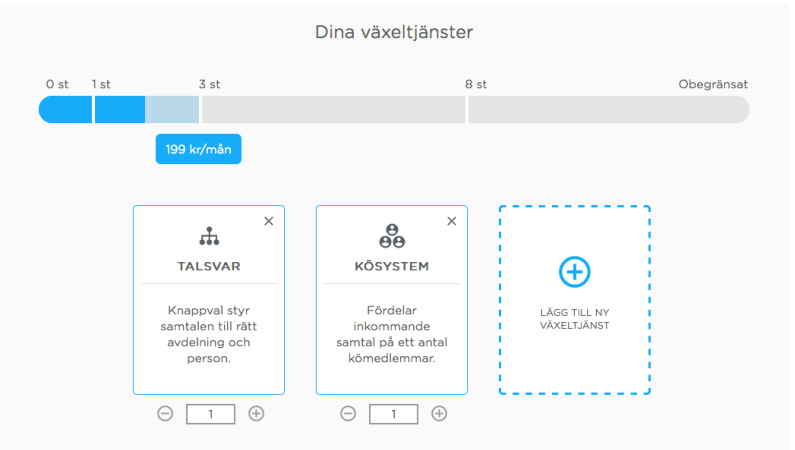

Figure 6.10 Hi-fi 2: The slider

The user cards have some improved design, see figure 6.11. The three buttons on the side of the card was removed. The delete button was moved inside the card, as the PBX cards, and the red color was removed for a cleaner design. The edit mode is entered by simply clicking on an existing card. The name edit is accessed in the same way, but enhanced by a on hover border. When the user clicks inside the box the border changes color to blue, see figure 6.11. This design was chosen to increase the user feedback and visibility.

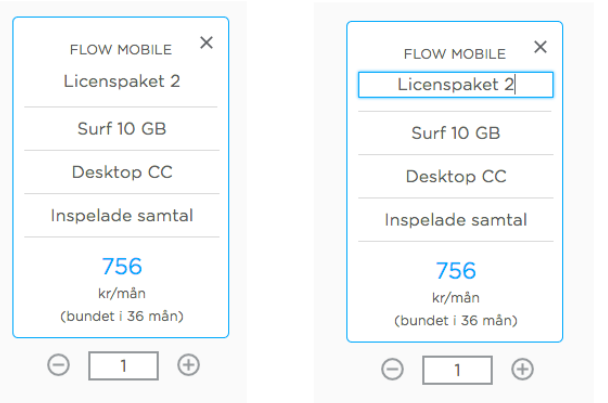

Figure 6.11 Hi-fi 2: The user cards, the right picture shows the edit name mode

The duplicate function was moved from a button on the user card to inside the edit mode, accessed from an existing user card. Instead of the create user package button, two buttons appears when the user edits a user card, see figure 6.12. First a blue button (same as the create button) for saving the changes in the same package and another button for creating a new user card with the changes made on an existing user card. This to differentiate the mapping of the buttons. The blue buttons are set to the same user card, first when creating and then when editing the same card.

Figure 6.12 Hi-fi 2: Editing the user card or creating a new card based on the existing one

The summary of the user packages was discussed at length, and to this prototype only the summary of the user packages was retained. The summary was kept to give the user more feedback about the total amount of user packages, the cost and the monthly cost. Design wise in hi-fi 2 the background was white to enhance the figure/ground concept.

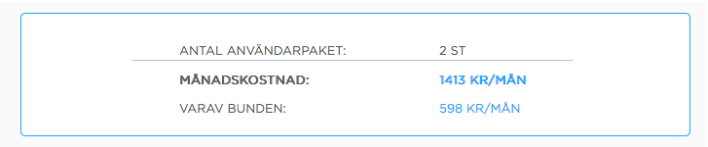

Figure 6.13 Hi-fi 2: A summary of the user cards quantity, price and monthly cost

The footer was very similar as seen in figure 6.14. The monthly cost text was made bold to differentiate it from the cost with setting time. The "move on" button was kept as it was in hi-fi 1 despite a lot of feedback regarding what to call it. This due to no go enough suggestions that matched the design. The decision was made to further evaluate it in the hi-fi 2 test session.

Figure 6.14 Hi-fi 2: The footer with the different costs

6.3.2 Test and evaluation

The second hi-fi prototype was also evaluated through **usability testing**, this time at a much larger scale. A thorough test plan was compiled before creating the test, where i.e. the purpose of the test, research questions which should be answered and participants' characteristics were considered. The test plan can be found in appendix

G. The test consisted of a pre-survey, a list of tasks for the user to perform which can be found in appendix H. and an after-survey for her to fill out. All surveys were digital and created in Google Forms.

The pre-survey had an informative text explaining how the test would work, followed by a few short background questions about the participant. Thereafter they received the actual test which was printed out, and guided them through the tasks while using the website. The first page was a short introduction of the company they should imagine working at. The next page contained a description of which PBX services their company would need, followed by a page about user packages. After completing the user packages tasks, the following page asked them to edit what they had previously done and lastly they were asked to proceed as if they wanted to show their quotation to the boss.

During the tasks one of the test moderators took notes by using a separate survey, also from Google Forms. This way of documenting how well the test persons could perform the tasks was chosen to facilitate the data collection and especially the subsequent data compilation. By using Google Forms the data is automatically summarized and visualized graphically.

After the test the participant filled out the next page of the survey, which contained questions of how it felt to use the website, what was hard and what was easy and various allegations to decide.

The test participants were people of various ages and computer knowledge, since anyone who works at a company or who own a company could be a potential user of the price-calculator. To get a good mix of people, students at LTH, colleagues at Telavox and also employees at four other companies were asked to participate. This resulted in 70 test persons in total which, according to figure 2.4, gives a 85 % chance of finding all rare problems (p=0.05) at least twice. It also gives a 95 % chance of finding the same problems at least once.

6.3.2.1 Result of the test persons' survey

The following results and statistics were taken from the survey which the test persons filled out themselves. The questions were asked in Swedish and can be found above each figure, with a translation underneath them. All responses to the survey can be found in appendix J. Below is a summary of the most important findings.

Diversity of the participants Three questions were asked regarding the test persons background. The survey showed that 60% of the participants were between 20-29 years old, the second largest group were 30-39. Most people used online shopping either several times per month or a couple of times per month. 64% of the participants didn't know about Telavox's products before the test. These numbers can all be seen in appendix J.

Informative texts When asking if the price-calculator contained the right amount of information, 45% answered that it did, while 39% thought that it should contain a bit more. The whole result can be seen in figure 6.15

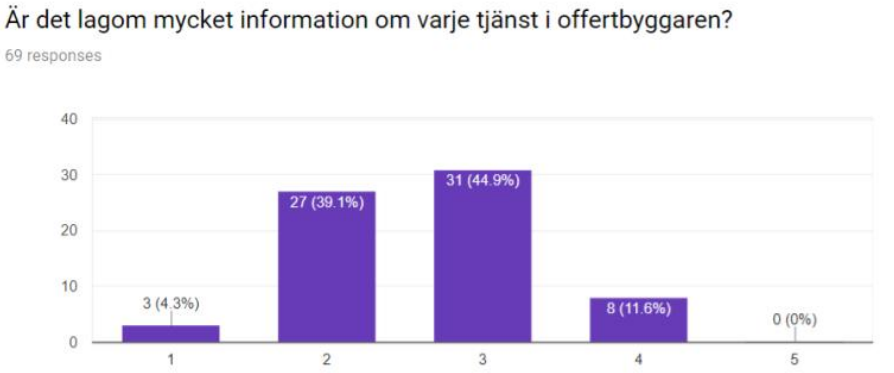

Figure 6.15 Q: How much information was on the website? 1: Too little, 5: Too much.

General feeling after using the website There were eight different emotional states to evaluate for the test persons, which all were more positive than negative. Only one person felt frustrated and one person also felt irritated while using the website. 69% of the participants were not frustrated at all, and 86% were not irritated. Most people felt effective, engaged and not stressed while doing the tasks. No one felt bored and most people were not nervous because of the test situation, although 27% were a little nervous. The question with the most ambiguous answers was whether the participant felt certain while using the website. 34% felt certain, 44% felt a little certain and 17% did not feel certain, figure 6.16.

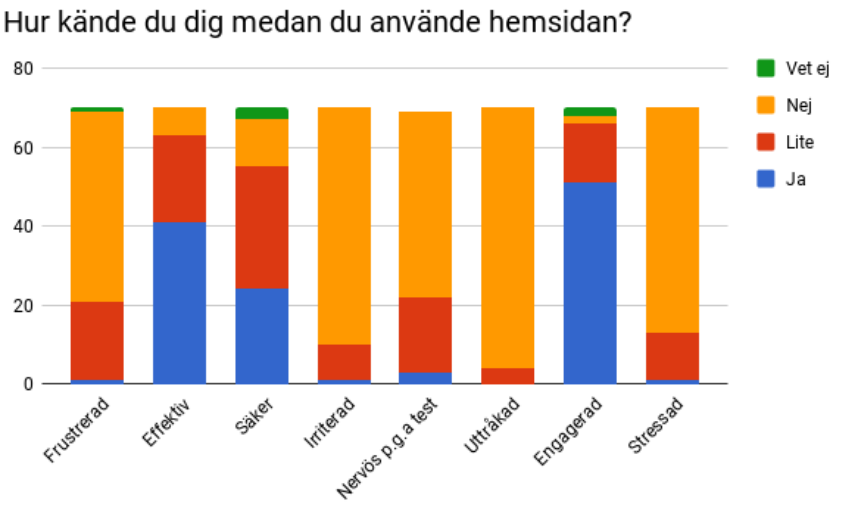

Figure 6.16 Q: How were you feeling while using the website?

Do people want this kind of website? At the question "If you wanted to buy Telavox's products, how would you like to do it?" 48.6% answered that they would like to use this page and then go through their choices thoroughly with a salesperson while 47.1% answered that they would like to use this page and then have as little contact as possible with a salesperson. The result can be viewed in figure 6.17

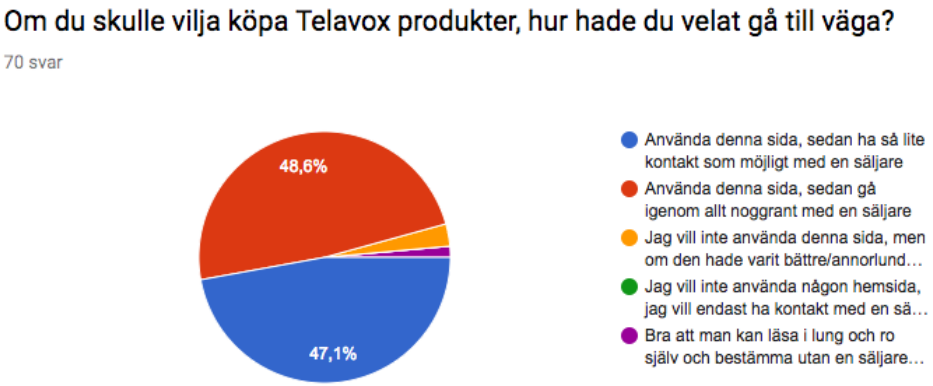

Figure 6.17 Q: If you would buy Telavox's products, how would you do it?

6.3.2.2 Result based on observation of the tasks The following results are based on observations of the test persons performing their tasks. The Swedish questions in this report have not been altered since the test and were answered by the observers. Below each figure is a translation to English.

How to begin using the website Most people understood where to begin using the website, even if it took a bit longer for 26% of them, figure 6.18. Half of the test persons tried clicking on the PBX package table first of all though, figure 6.19.

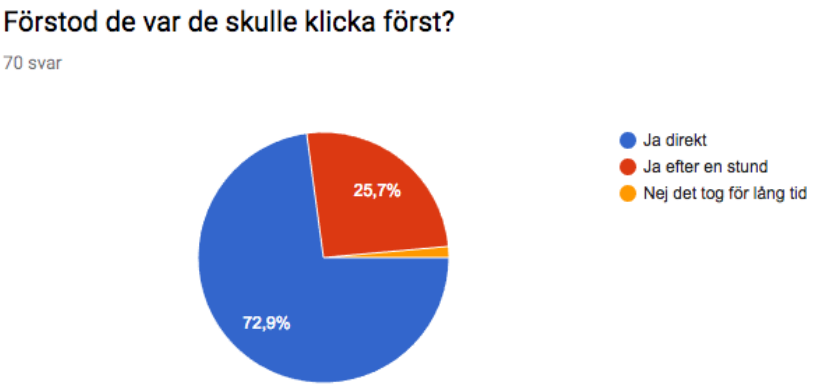

Figure 6.18 Q: Did they understand where to click at first? (Observed data)

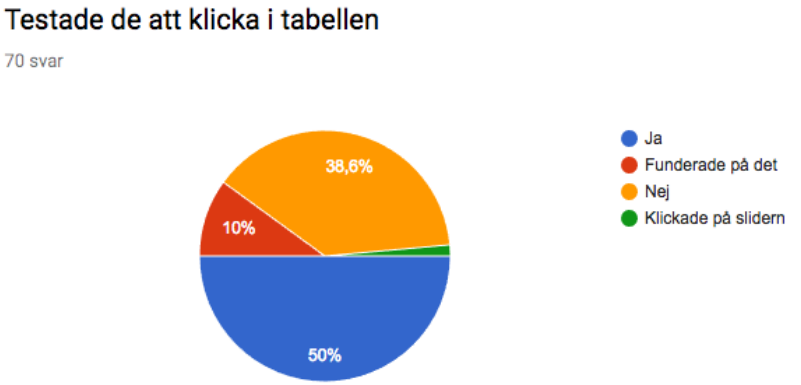

Figure 6.19 Q: Did they test to click in the table (Observed data)

Understanding the PBX services and price packages This result was ambiguous since the two results depended on each other. At the question "Did they have a hard time understanding which PBX services to add?" the test moderators answered that 63% did not have a hard time understanding this, figure 6.20.

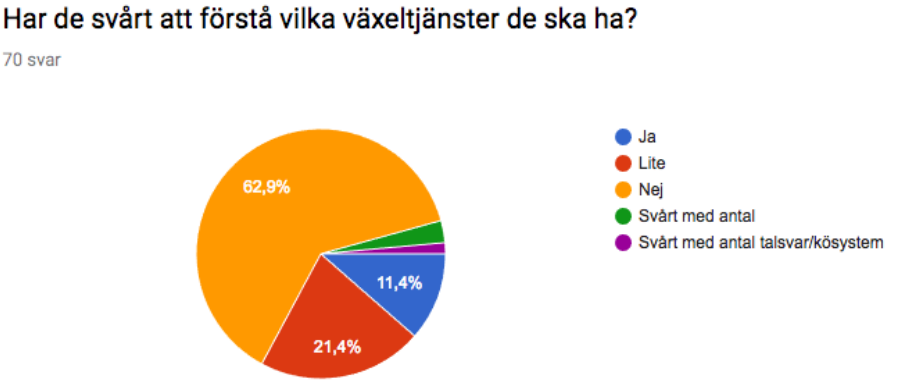

Figure 6.20 Q: Do they have trouble understanding which PBX services they need? (Observed data)

The task regarding the PBX services gave a description of four PB service which were needed for the test company, and five which were desired but not needed. The goal was for the test persons to choose eight services, since that would make it much cheaper than choosing nine. However only 55% of the participants chose eight pieces, see figure 6.21.

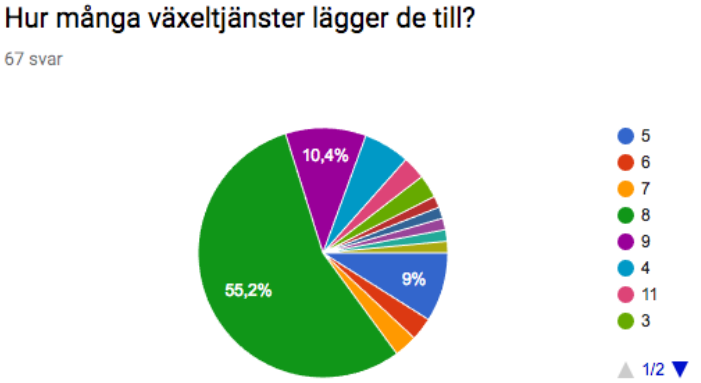

Figure 6.21 Q: Do they have trouble understanding which PBX services they need? (Observed data)

The needed PBX services were one "Talsvar" and four "Kösystem". Confusion occurred on how many of each service that were needed. Some people thought that they only needed one "Kösystem" and four "Talsvar", or only one of each. The moderators noted which PBX services the test persons chose, and the result can be seen in figure 6.22.

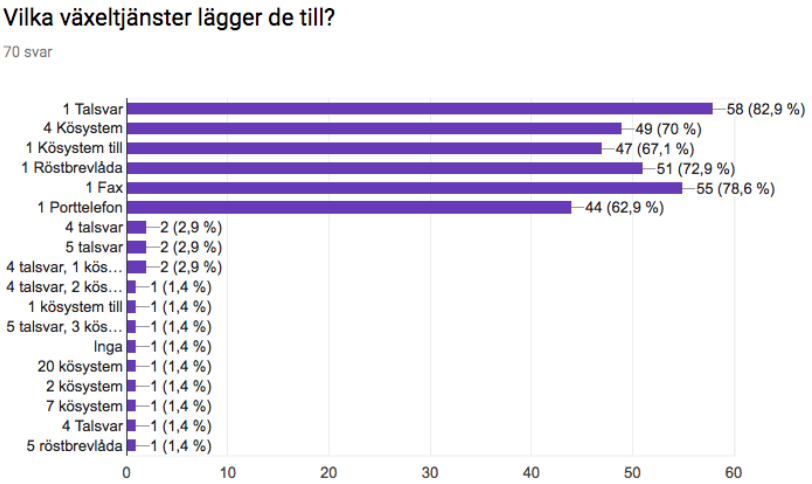

Figure 6.22 Q: Which PBX services did they add? (Observed data)

Understanding what user licenses and add-ons to add 80% of the test persons created exactly the right user package for their first user license task. The second package, which was a subset of the first one, was correctly created by 67% of the participants. The remaining two packages had a success rate of 70% versus 76%. Pie charts representing these findings can be found in Appendix I.

Changing the name of a user package Only two persons changed the name of the user packages by themselves, before they had a task telling them to do it. The rest of the participants did not know that they could change the name, or chose not to do it. After the user packages were created the next task were to edit and change the name of some of them. 76% of the test persons understood right away how to change the name and 7% did not succeed with this task, as seen in figure 6.23.

Figure 6.23 Q: Do they understand how to change the names? (Observed data)

Editing the user packages Most test persons had no problem editing the packages as seen in figure 6.24. Three people didn't change the existing package, but instead added a new one and deleted the old, while one person didn't make any changes at all.

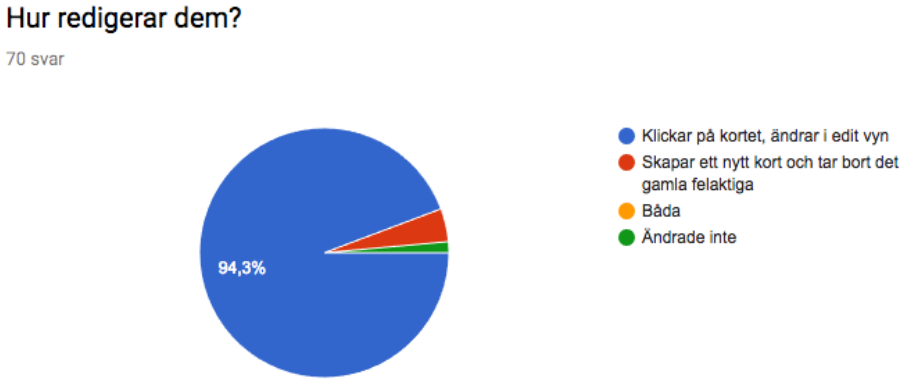

Figure 6.24 Q: How do they edit? (Observed data)

By observing whether the participants used the "create as a new user package" button for duplicating a package, it was noticed that 96% did not use this function at the beginning. However, after editing the packages in other ways, and in this way getting a chance to see this button, 51% used it the next time for duplicating. These results can be found in figure 6.25 and 6.26.

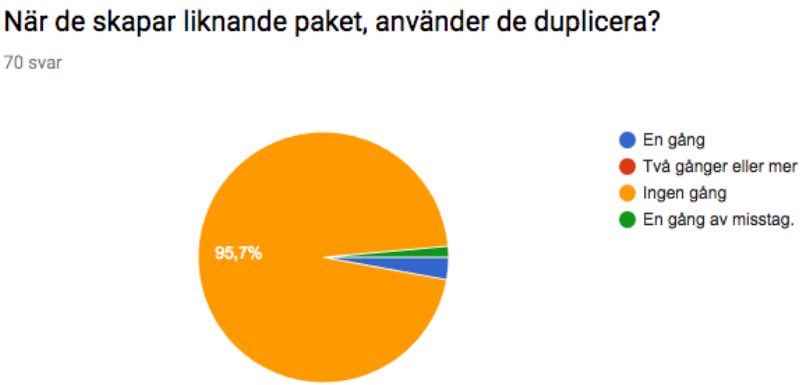

Figure 6.25 Q: When they create similar packages do they use duplicate? (Observed data)

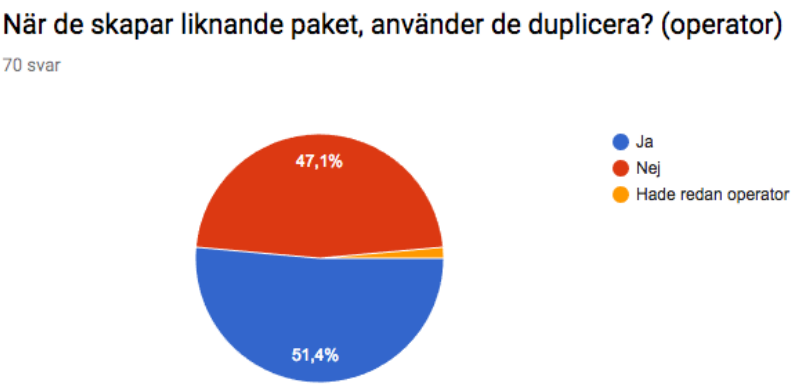

Figure 6.26 Q: When they get a task to create a similar package, do they use duplicate? (Observed data)

Continuing to the next page Many people clicked on the "Gå vidare" button after completing the first task instead of waiting until they were completely done, which they were supposed to. This button took them to the next page, containing a summary of the quotation. When going back to the first page the actions they had done there were not saved, since this was not implemented yet. This led to the moderators asking them not to click on the button when they looked like they were going to do it, since they would lose their data. When the whole quotation was finished the last task was for them to show this to their bosses. At this point 83% clicked at the button right away whereas 12% clicked after some hesitation. At the next page, 82% chose the "Send to me" button. Some people wanted to copy the link and send to their boss and a few didn't send it at all. These results can be further explored in appendix I.

What was good about the page? To wrap up the results of the test, here are some comments from test persons when asking what was good about the page:

> "Gillar att det var enkelt. Likadant i varje moment."
>
> "Simplistisk. Inga scroll-down menyer"
>
> "Tydligt att kunna se hur mycket man kunde lägga till utan att det kostar mer. Det mesta kändes intuitivt."
>
> "Otroligt fint designad"
>
> "Stilren och lätt att redigera på"

> “Stilren sida, och priset som uppdaterades automatiskt var bra sätt att ge feedback på.”
>
> “Inte massa onödig information men allt som behövdes fanns med. Kändes lätt att hitta saker då man slapp läsa igenom stycken med text.”
>
> “Snygg, enkelt, smidig och kul att använda.”
>
> “Tydlig, seriös, trovärdig”
>
> "Stilren design, Ej plottrig, Enkelt att navigera och lätt att förstå hur man gör val - var man ska klicka etc. om man väl vet vad det är man vill ha."
>
> "Det är roligt att bygga sin egen offert, det finns en utforskande del som jag uppskattar, ex. att se vad slutsumman per månad blir när jag kombinerar de olika tjänsterna. Den kändes "modern" i någon bemärkelse, vad gäller design och responsivitet. Jag älskar också tanken på att kunna göra det här själv istället för att ha kontakt med en säljare. Personligen så undviker jag att prata med människor som vill sälja något till mig så mycket det går, och föredrar att göra den här typen av aktiviteter via nätet."

6.3.3 Discussion

This usability test went better than the last one in the aspect that the prototype didn’t have the same sorts of limitations. The prototype worked almost as a finished website, making it easier to test and evaluate the design. The number of participants was large and also more than we planned for in the beginning. When looking for test participants, many people were asked and many were expected to say no. However the interest in contributing to the test was higher than anticipated which in the end led to 70 test persons in total. In hindsight this number might have been too high to be preferable. If we had known that we would get so many results we might have tested for one day, then changed the prototype accordingly and perhaps adjusted the test itself a bit the second day instead of testing, and then kept testing for the remaining four days. Also this would result in a large study from which we could draw statistical conclusions, and it would be more efficient, since there would be another iteration. After the first ten tests or so, the urge was strong to fix the problems with the website which were reoccurring for most users, but we chose not to since we didn’t know exactly how many participants there would be in the end.

6.3.3.1 Test method The method of the usability test was very successful. By filling out a digital form while observing the test persons, the data was automatically compiled and summarized. There would be a lot of work going through all data afterwards, should we have written it down by hand. It was also quicker to take

notes when it could be done mostly by just one click per question. When creating the survey we tried to think of all possible situations which could occur, so that we could have pre-made questions with a good coverage of alternatives for the test. Later it turned out that it's hard to cover all possible scenarios and actions. Two pilot studies were conducted, with changes in both the test and the prototype after the first one. It was important to keep the tests to under 30 minutes, since many of the test participants were working and we didn't want to take up too much of their time.

6.3.3.2 Informative texts Many of the participants thought that the price-calculator should contain more information of the products. The informative texts was the part of the website which had gotten the least amount of time spent on the design, since the text are easy to change at a late stage. The texts were taken straight from Telavox's current website and were not specially adapted to the price-calculator. It wasn't a big problem that many of the participants tried clicking on the PBX package table since they quickly realized that they had to scroll further down, but it could still be avoided by not displaying that information in a table. The user license table might have contained too much information since many test persons seemed stressed while going through the whole table, looking for the add-ons which were hidden in the edit window. This shows that good visibility is very important for a website and where down prioritized by us for the sake of the design. Several people commented in the survey that they wanted to have all the information about the user licenses available when creating a user package. Then they wouldn't have to go back up to read about each license. An example of a user's answer on the question "What was most frustrating?" is the following:

> Svårt att förstå de olika valen vad de betydde och innebar, kanske för att hjälptexter ej fanns på plats? Lite otydlig koppling mellan förstasidans 3 val och de 3 valen på Lägg till-sidan vid val av telefonabonnemang.

6.3.3.3 PBX services Many of the test persons chose another type of PBX package than the one we had in mind when creating the test. The test was supposed to show whether the participants understood the price model of the PBX services, but since the choice of services also depended on how they interpreted the task description and how the services were explained, this could not be clearly viewed. What we did observe was that many people had difficulties understanding what amount of "Kösystem" and "Talsvar" they required. This needs to be explained better to the user, perhaps by an example.

6.3.3.4 User packages The test persons succeeded well with creating user packages, they added the correct license and add-ons most of the time. Sometimes they took their own initiatives or misinterpreted the task, so that they added extra add-ons. A few had some troubles understanding the descriptive texts of some add-ons, especially Operator and Desktop CC.

This prototype evaluated if it was possible to understand how to edit, change the name and duplicate a user package, without having specific buttons for it. Editing the card went well, they clicked on the card quickly. The other two were harder to understand because of the lack of visibility. Most people understood how to change the name of the package after getting a task telling them to do so, but only two persons did it by themselves when creating the packages. Knowing that it is possible to change the names is important for the design, since the structure is what makes design of the the user package cards good. If you can't remember which card was which, then all licenses and add-ons might as well be grouped. The visibility of how to change the name can be accomplished in different ways, either by adding a button for it or by clearly highlighting the name after each user package is created. The latter is probably the most clean and desirable design.

It was more difficult to evaluate the duplicate-functionality. Not many people used it in the first task, but half of the test persons used it in the second. The difference then was that they had already edited a user package before that, which made them see that the duplicate-button existed. This also shows that there was a lack of visibility for this feature. However, this is not certain to be an important feature. After editing a package and seeing the button, many participants still chose to create a new packages instead of using duplicate. Since it's quick to create a completely new one, it might not be vital that every user understands how to use this feature. Another aspect in this matter was that in this user test, not that many packages were added. A user might become more frustrated when adding a larger amount of different packages, and this might make them want to use the duplicate-functionality more. When adding many packages the user might also search more for this functionality, and maybe then find it easier. This could not be tested due to time restraints on the usability test.

6.3.3.5 Continuing to the next page It was hard to evaluate the result of this task, since the user experience was somewhat ruined when many of the test persons clicked at the "Gå vidare"-button prematurely, after finishing their first task. After it was explained that their choices wouldn't be saved, since this wasn't implemented yet, they got more hesitant to clicking on the button later on. The fact that they clicked on the button before finishing their quotation tells us something though. If you have finished adding PBX services, and haven't scrolled further down so that you can see the user packages, then it might look like you are finished and should click the green button. Perhaps the button could be further clarified so that it's more clear that a quotation proposal will be created when clicking on it. There could also be a text at the next page asking if you have added everything you needed, which would give the user a chance to go back to the last page and add more. It was difficult to test how prone users were to go forward on the website, since they were not the real end users and did not have any genuine interest in completing the quotation.

6.3.3.6 Satisfaction after using the website The general feeling while using the price-calculator was positive. The feeling identified as the least positive one was that of being certain, which had 17% answering "no" to it. Most users wanted to only use the price-calculator for creating a quotation, or to use it in combination with support from a salesperson at Telavox. Most felt effective and engaged when using the website and several said that it was easy to use and intuitive. Some criticism about the page having too much space between the different areas was received. The argument was that this made it harder to navigate the page and gave it less visibility. Some commented that it felt like the prototype was made for a bigger screen, which resulted in a lot of scrolling on the test computer, a 13-inch MacBook Air. This was true, since the prototype had been developed at a much larger screen. Despite this criticism the general feeling about the price-calculator was positive and the users had a great desire to use this type of website.

7

Discussion

This chapter discusses the result of the project, together with an evaluation of the effectiveness of the methods used.

7.1 Design process and methods

This master thesis consisted of five sprints with four iterations. During the iterations two lo-fi and two hi-fi prototypes were made. An example of how the prototype changed with each iteration can be seen in figure 7.1. Each iteration improved the design, removed design flaws and added features. Looking at figure 7.1 it becomes clear that all four iteration were essential for this project to get as good a result as it received.

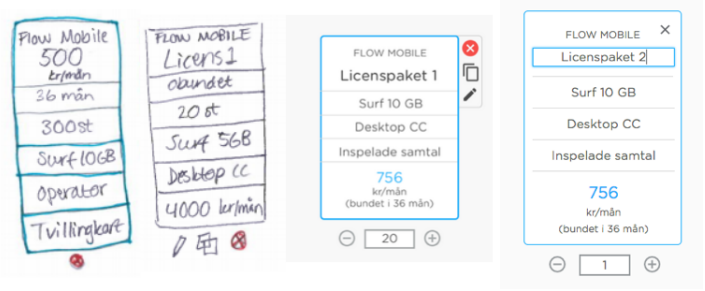

Figure 7.1 How the design of user packages has changed through each iteration

In the first two iterations two versions were made of each prototype. Both tests showed that both a several-page version and a one-page version were equally desired, which made it a question of personal taste rather than better design. A major reason for not continuing with the several-page version was that it was decided early in the project that a user should not have to buy products from all categories of the price-calculator. This conflicted with the several-page version, where the user

"finished" a page and went on to the next one. With this motivation the one-page version was further developed into the first hi-fi prototype. If the tests later would indicate that the user rather wanted a separate page for each step, the prototype would easily be changed, since each part was clearly separated also in the one-page version. The separation of each part and the modular design pattern went hand in hand with Telavox's mobile-first policy.

One big reason why the project was finished on time, and all iterations were completed, was the carefully followed time plan which was set up at the beginning. Another reason for the project being successful was a close connection with Telavox. Several different departments were involved in the process and provided valuable feedback throughout the project.

The decision to program the last hi-fi made that iteration very time consuming. The reason for doing this was the improved test possibility. After performing tests on the prototype made in Invision, it was vital to have a fully functional prototype in the next iteration, to conduct the type of tests that were planned for. Unfortunately, some features had to be down prioritized due to the extended time needed to program the second hi-fi. An example of this was the informative texts used in the prototype. These were taken directly from Telavox's website and needed another iteration for improvement. Other things, like gold-number, porting phone numbers and framework agreements were completely removed from the prototype.

The final test was conducted on 70 persons. After a few tests a pattern was detected, which could have been greatly improved with small changes of the prototype. This would have resulted in better test data for the remaining 50-60 tests that were conducted. In retrospect it would have been a good idea to split the last test into two and make another iteration of the prototype. Even if this would have resulted in fewer tests it would have led to a better result and a more finished prototype. Despite making two pilot tests, with a few changes after each pilot test, some flaws were only noticed after several tests.

7.2 Research questions

Below are the answers to the research questions that were formed in the beginning of this master thesis.

RQ1: How can a website be designed to mediate complicated information and dependencies in an easy and understandable way?

This was the main purpose of the project, and the final tests showed the price-calculator to be good at precisely this. Many of the test persons did not have any prior knowledge of Telavox's products, and some of them had very little computer

experience. However, they were still able to succeed at most tasks. This suggests that the design of the price-calculator provides good mapping and affordance throughout the page. The design also strives to create similarity across the website, even though the products vary greatly in content and complexity. Another important factor is visibility. Many of the test persons had trouble finding the add-ons to the user licenses (e.g surf), since they were not visible from the start. If a list of all possible add-ons was accessible next to the explanation of the user licenses, the visibility would have been improved. However too much information can also be overwhelming and adding it would have been at the expense of the appearance. Another solution would have been to move the information about the user licenses into the edit window. This would require a better introductory text, explaining that all needed information will be found when clicking at the "add user package" button.
A strong design quality of the prototype is the proximity between the different objects. Much effort was put into grouping the objects to clearly mark what belongs together. The user package add-ons were grouped and displayed according to license type. The user got direct feedback on which add-ons that could be added to the chosen license.

Another feature, which later proved to be important, is the error handling. Feedback from the final test showed that a big reason to why the website had good usability, was that regardless of whether the user made a correct action or not, it was very easy to fix the errors. The user received good feedback on their actions which increased the user experience and gave the website a more playful feeling.

The price-calculator is a good example of how a website can be designed to display complex content and provide good usability, regardless of the user's prior knowledge of the subject.

RQ2: How can it be measured if the customer understands what she added to the quotation and if the quotation met the customer's needs and expectations?

This research question is difficult to answer since no real customer was used for the tests. When the test persons receive a predefined scenario, it's still hard for them to imagine exactly what it would be like to create a quotation in real life. How well the test person understood the products was tested to some degree but also here it's hard to get an accurate picture of the comprehension. While observing the test, the moderator noted whether she thought the participant understood the products or not and if the participant had any trouble selecting which products to add to the quotation. When interpreting this data it's difficult to determine the cause of the confusion. It could be the products and how much they are explained but it could also be the test scenario and how it's worded. Since the test persons didn't have an actual need for the products, they could only be satisfied by completing their given tasks, but we were not able to measure how these products would satisfy an actual need. Many of the test persons commented that they though the products were expensive, but they did not have anything to compare with and were not familiar

with the market.

To further test this aspect it would have been necessary to find a real end user. This would have to be a person who is considering buying a communication system and is looking into Telavox's website, but hasn't made contact with a salesperson yet. After conducting a usability test on this person, the created quotation could later be reviewed by a salesman. By letting the salesperson complete the quotation together with the customer, conclusions could be drawn about how much the quotation changed and whether the user felt like she already understood the products before speaking to the salesperson or not. This is somewhat what will happen when the price-calculator is released by Telavox. The quotation will always be reviewed by a salesperson and after a few customers there will hopefully be an indication of whether some part of the website is difficult to understand.

RQ3: Which parameters make a customer hesitate to complete a quotation at Telavox?

Since the usability test didn't have any real end users it's hard to know exactly how a potential customer would behave. The website was designed to be available for anyone, without any requirements of being an expert, but by being in a test environment the participants might have a different acceptance of the website than they would in a real scenario. The test participant also didn't have any real life restrictions, such as a budget to follow.

Something that was noticed during the final test was that some test persons had trouble understanding the products and particularly the add-ons. The main problem was that they could not find them, since they were only explained in the edit window. If a customer sees that they can buy a user license, but can't find any information about i.e. surf, this might make them hesitate to continue with the quotation.

Another possible source of frustration could be the confusion of the "move on" button. Many users wanted to press it already after finishing the PBX part of the quotation. When this website work as intended a real quotation will be created in that step, which could take some time. This could make some users not complete the quotation due to frustrating waiting times.

Many test persons commented that the price seemed very high, which could definitely be a cause for hesitation. It's important to highlight all features and benefits that they will receive, so that they feel like it's worth the money. This is an important task, especially for this type of website, since these kinds of products are usually explained by a salesperson. The salesperson would give a good sales pitch, which now must be conveyed at the website instead. This without making the texts or the page itself too long. In the usability test you could see that 74% of the participants fully agreed to the statement that it was easy to understand how the price changed when adding products. There were 17% who mostly agreed to this statement. This is another aspect of the price that could possibly have potential customers hesitate,

had it not received such a good result in the test.

Another statement which had a very good test result (see appendix J) was "It was quick to choose what one wanted". It's important to grab the user's attention as fast as possible, and to let the user complete their actions before their attention span runs out, [Weatherhead, 2014]. If it takes too long to work through a website, this is definitely something that would make a customer hesitate to use it.

RQ4: How much information is needed in the price-calculator to understand the products?

This question addresses the dilemma of design versus better usability. Regarding information about the products, the project focused more on the design than having much information. This decision was based on the assumption that the user would most likely study the products beforehand and would already have a fair idea of what their company needed. There's always a fine balance between making the design beautiful and giving the user all information possibly needed. There were more test persons who thought there was too little information on the website than who thought there was too much, but most test persons also passed the test scenarios. There's a difference between what the user thinks that they want and what they actually need, [Nielsen, 2001]. To the statement "I can quickly find the information I'm searching for" 26% agreed completely and 50% mostly agreed. By adding more information it can become harder to find the specific piece that one is searching for. The important part is that the right information can be found on the page.

7.3 Future studies

The result from the final test showed that the prototype worked well, but could also benefit from a few changes. There are some areas that could be studied further. These include both already existing features and those which were down prioritized during the course of the project or removed completely due to lack of time. An example of the latter is how to create a framework agreement in the price-calculator.

According to the feedback, some persons had trouble navigating the page since they had to scroll a lot and the navigation box didn't show their current position. As seen in the first hi-fi prototype, the navigation was supposed to change according to screen position, but this was something that wasn't implemented in the last prototype due to time limitations. When this styling is added navigating will be easier. Additionally, to simply reduce the distance between the different parts of the website will lead to less scrolling and increase the visibility over the website. Examples of detailed features that could be studied further are listed below:

Example of how to build your PBX Many test persons had trouble understanding the PBX services "Talsvar" and "Kösystem", and especially how many of each

they would need. An example of how a PBX could be structured would have been helpful here. This was discussed in the beginning of the project, but it was decided to be out of scope for this master thesis. This is a highly desirable feature, where future studies are needed to evaluate how to display this information.

Examples of common user packages Examples of common user packages was also a desired feature. Many test persons thought the licenses were expensive, which could mean that they didn't understand all the benefits of the licenses. When a salesperson creates a quotation they have the opportunity to explain all the unique selling points to the customer, but on a website that is not possible in the same way. Some further investigation on how to highlight these qualities and features which Telavox offers is needed. Examples of common user packages could also benefit the price-calculator.

Changing the name How well the test persons could change the name of a user package was evaluated during the final test. The focus was to determine if the clean design of no specific button for this purpose worked, or if the user needed more assistance to find the feature. The result showed that most users did not find the feature if they were not instructed to change the name. Since the feature is important to the concept for the price-calculator, this feature needs further work. A suggestion to increase the visibility is to mark the name when the user package is created or by having a symbol of a pen in front of the name.

Duplicating user packages The duplicate function was another feature whose button was removed in the last iteration to create a cleaner design. As with changing the name most test persons did not find the feature at first. It's possibly a valuable feature when the user needs to create several packages with only small changes, but to be sure if this feature is even needed more tests are required.

Mobile first To be able to switch platform to a mobile device, the price-calculator needs to be further optimized regarding what information to show on a smaller screen. Most functions are scalable since everything is built in blocks, but some adaption and modification will be needed. This master thesis focused at the web version.

Quantity discount Quantity discount has been discussed on a few occasions in this master thesis but no action has been taken. This is a potential selling point and could motivate customers to buy even more services and make them feel that it's not too expensive. A solution for quantity discount was considered out of scope for this project, but is definitely a field for future studies.

"Gå vidare" button The test showed that the "Gå vidare" button didn't have good enough mapping. Many users clicked on the button after they finished the PBX part, which was not intended. Here some further work is required to investi-

gate how to increase the mapping of the button. Maybe some constraints are needed to stop the user from making premature decisions.

8

Conclusion

The purpose of this master thesis was to explore a new way of presenting and ordering communication solutions for companies. After the project it's clear that the customer, and also employees at Telavox, want this type of solution. It's also proved that the final hi-fi prototype is an example of a well-functioning way of displaying complex information.

An iterative process with great focus on usability was applied to this project. Four iterations were conducted, each of them evaluated by tests with potential users. The difference between the test persons and the real end users was that most test persons had no prior knowledge of either Telavox's products or general communication solutions for companies. This means that the final product should get better results when tested on real end users, since they often know more about their company's communication needs and what they are using today.

Different evaluation methods where used for triangulation purposes, which led to different sorts of input after each iteration. Both the design of the prototypes and the methods used evolved during the process. The final test would not have been as good if it wasn't for the lessons learned from the three tests before it.

The general opinion from our test participants was that they wanted as little contact with a salesperson as possible. This is a great evidence that the demand for this kind of website is big. Several employees from Telavox also expressed their interest in the price-calculator and said that this could facilitate their daily work, even by just being used by themselves and not the customers. An employee of Telavox is a new type of end user who was not discussed or prioritized in the beginning of this project. Another hope is that this website will ease the customers' understanding of the products, which is a great problem for salespersons today.

With the Internet usage increasing for all kinds of services, it's a natural demand that more advanced products should also become available online. At first the created quotation will be checked by a salesperson, but in the future this should be a fully self-serviced price-calculator. The interest and demand for this type of product will likely increase over the coming years and will favor a lot more end users than first anticipated.

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Appendices

Appendix A - Survey (In Swedish)

Synpunkter på nuvarande offertsystem

Som exjobb ska vi utveckla en ny offertsida som kunderna själva ska kunna använda. I denna enkät letar vi efter lärdomar från er säljare och det nuvarande systemet, även om sidorna kommer att vara ganska olika i slutändan. Den nya sidan kommer att innehålla prissättning och förklaring av produkterna så att en helt ny kund ska kunna förstå och skapa sin egen offert.

Vilka problem brukar uppstå när du skapar en offert?

Your answer

Är det något som känns onödigt krångligt?

Your answer

Vad har kunderna svårast att förstå när de ska välja produkter?

Your answer

Vad är ditt bästa knep för att sälja in Telavox's produkter?

Your answer

Finns det något kunderna brukar vara omedvetna om att de behöver?

Your answer

Övriga synpunkter:

Your answer

SUBMIT

Never submit passwords through Google Forms.

Appendix B - Survey answers (In Swedish)

Vilka problem brukar uppstå när du skapar en offert?

- Växeltjänsterna som man valt ska stå med
- Glömmer bort vad namnen på produkterna innebär
- Kunderna vet inte vad de själva behöver. De tror att de bara behöver kunna ringa.

Är det något som känns onödigt krångligt?

- Krångligt att lägga till olika licenser med olika tilläggsprodukter.
- Förklara varje produkt, tex hover över ett frågetecken

Vad har kunderna svårast att förstå när de ska välja produkter?

- Svårt att greppa flow, fixed, flex osv.
- Vad som är vad i PBX
- Bindningstiderna, vad är bundet och inte
- Växeltjänsterna, vad är tex anslutning?
- Fixed - engelskt produktnamn Svårt att fatta.
- Namn på hårdvara - det behövs en bild och lite text som beskriver dem.
- Ge exempel på hur man kan räkna med växeltjänsterna.
- Skillnad mellan fixed - mobile
- Surf
- Vad kunden behöver
- Vikten av riktig utbildning.

Vad är ditt bästa knep för att sälja in Telavox's produkter?

- Telavox är lokala, finns i större regioner.
- Visa vad som skiljer oss från andra, tex app, gränssnitt, bra svarstid på service.
- Enkelheten, WOW-känslan.
- Att kunden kan samla allt på ett ställe
- Dema hur enkla tjänsterna är att använda.
- Att vi har med allt i prissättningen: fri support, utbildning.

Finns det något kunderna brukar vara omedvetna om att de behöver?

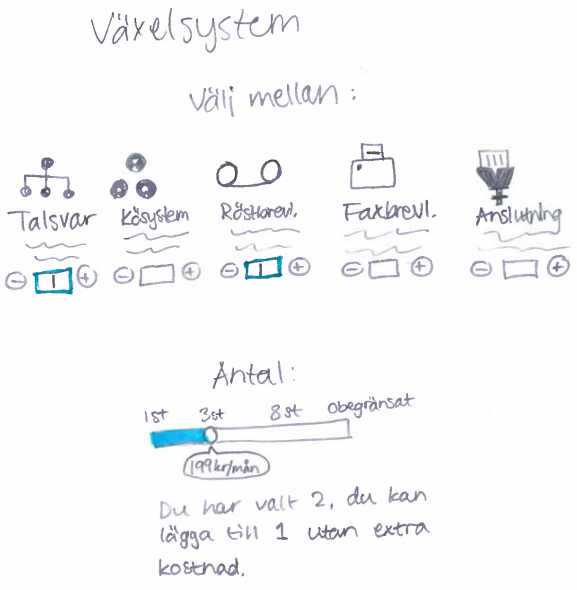
- Köfunktion, välkomstbesked, fast nummer som visas utåt men egentligen är mobilt.
- Hårdvaror, tex telefoniadaptrar.
- Småsaker som underlättar.
- De kan inte behålla befintlig hårdvara som fasta telefoner.
- Ha koll på sitt nätverk/brandvägg och ha bra mobiltäckning i sina lokaler.
- Samtalsinspelning
- Utbildning.

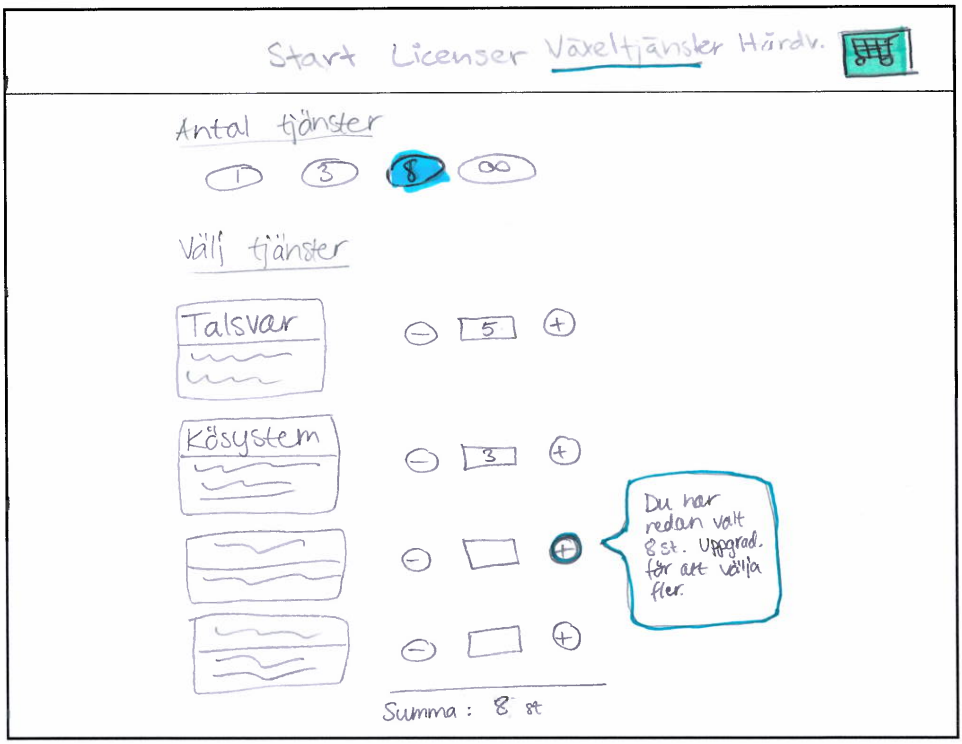
Övriga synpunkter:

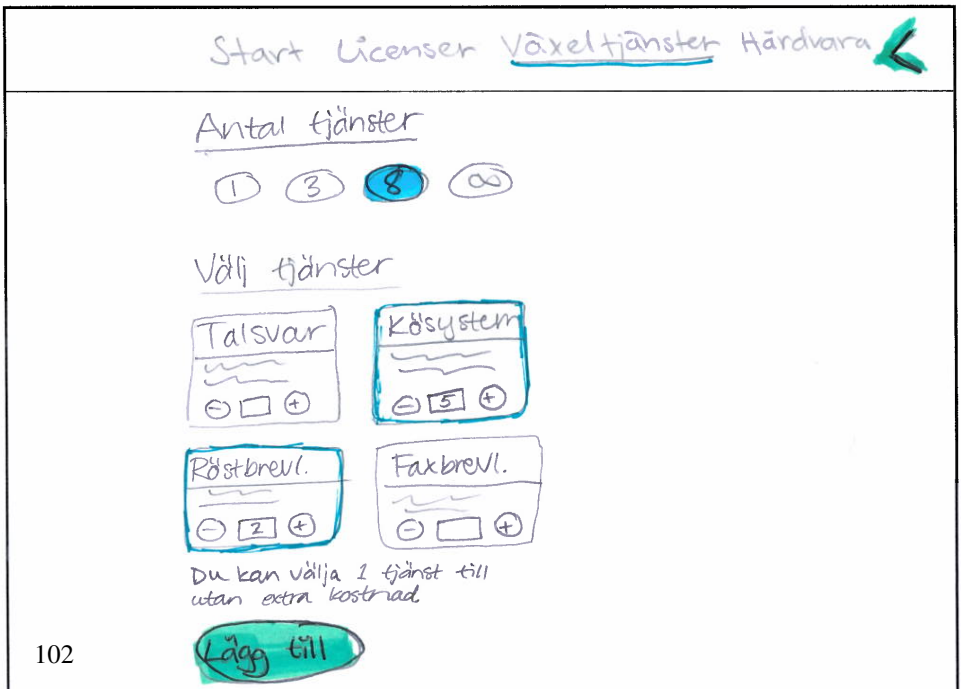
- Lägga in en text om deras vardag och hur våra produkter löser deras problem.

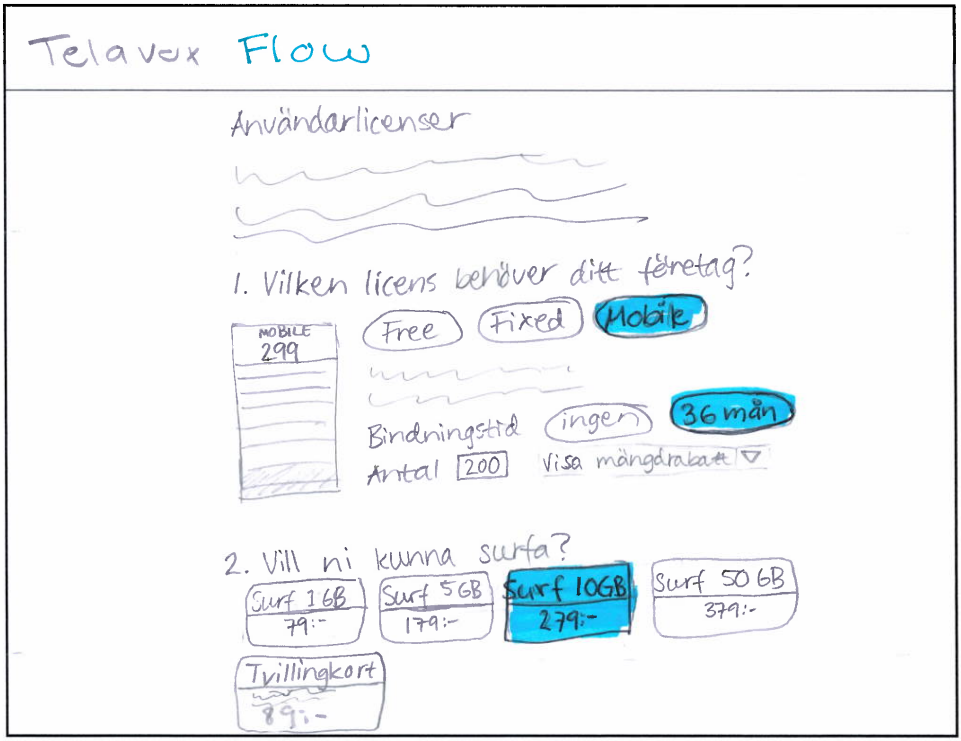
Appendix C - Lo-fi prototypes version 1 (In Swedish)

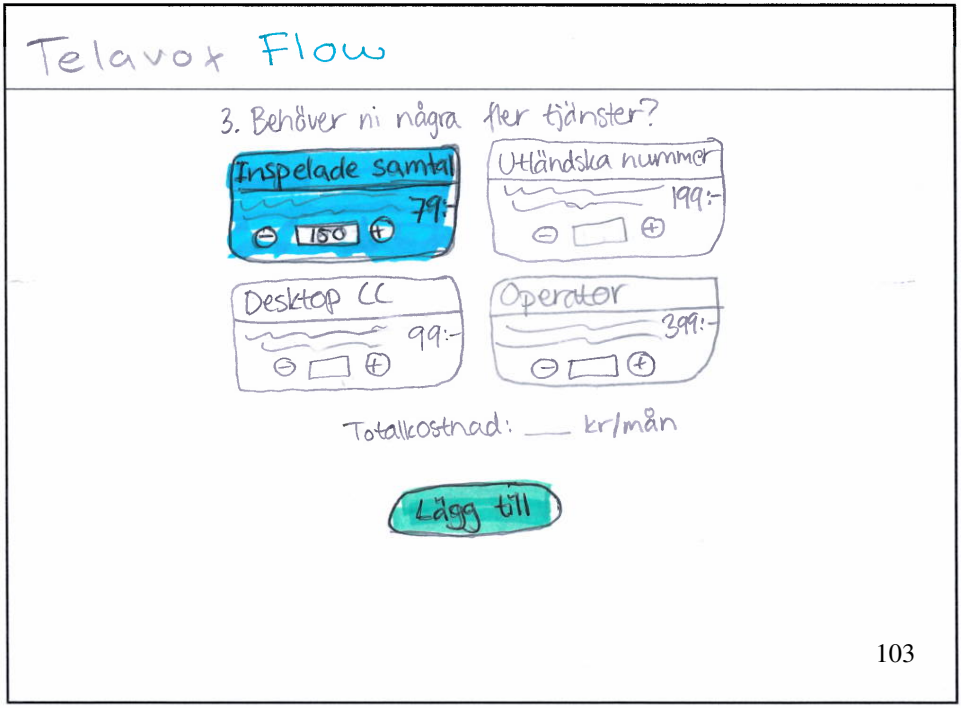
Telavox Flow

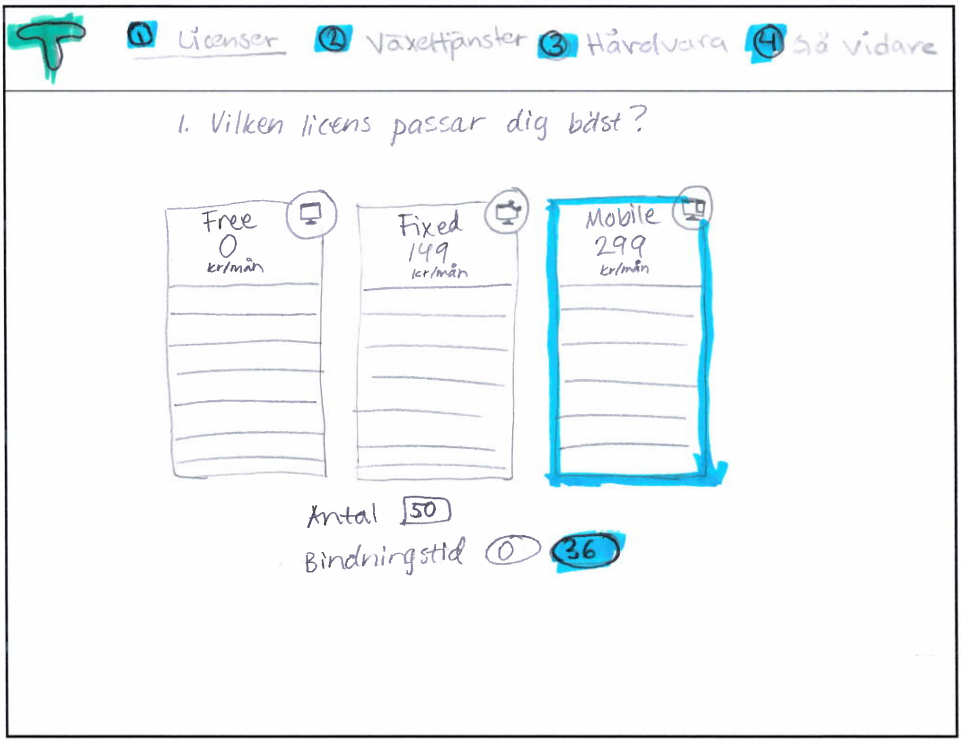


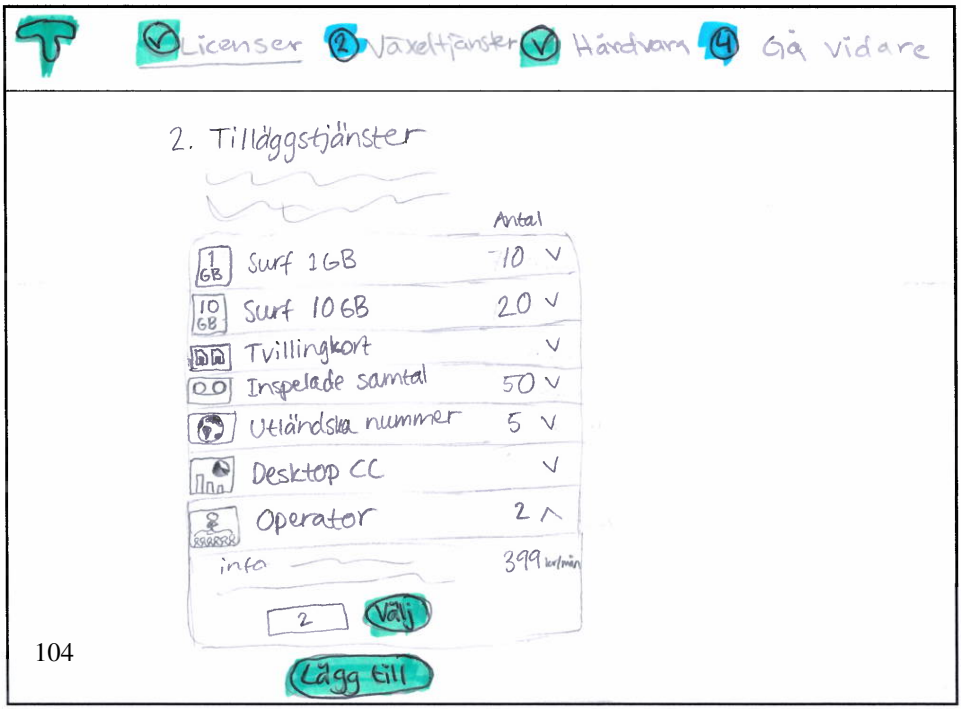

Start Licenser Växeltjänster Hårdv.
Antal tjänster
1
3
8
∞
Välj tjänster
Talsvar
5
Kösystem
3
Du har redan valt 8 st. Uppgrad. för att välja fler.
Summa: 8 st

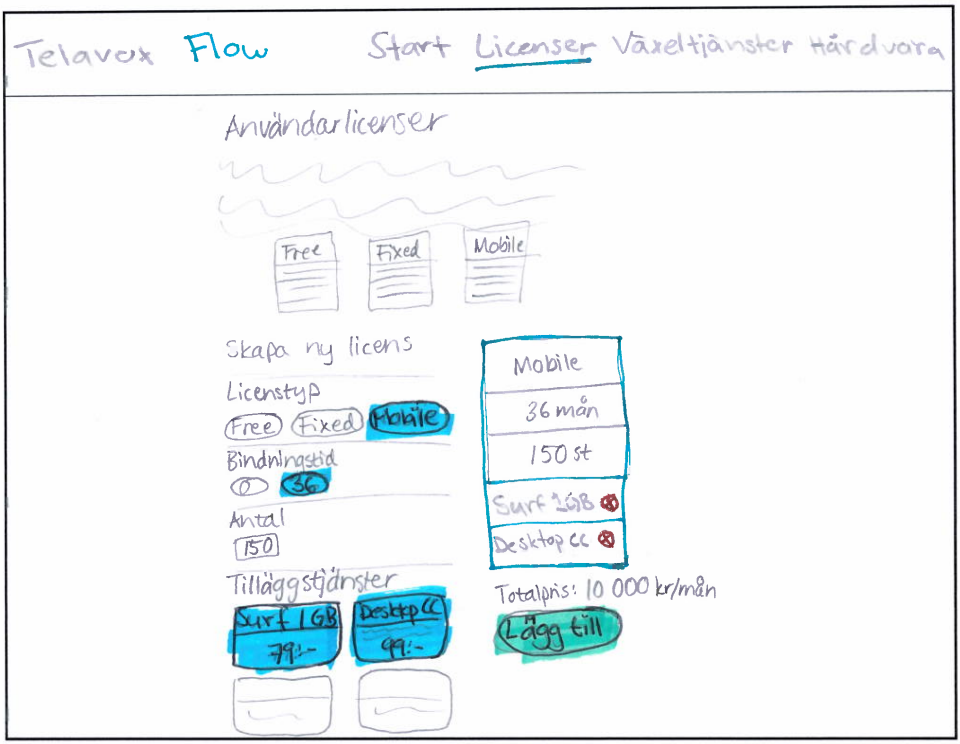

Start Licenser Växeltjänster Hårdvara
Antal tjänster
1
3
8
∞
Välj tjänster
Talsvar
Kösystem
5
Röstbrevl.
2
Faxbrevl.
Du kan välja 1 tjänst till utan extra kostnad
Lägg till

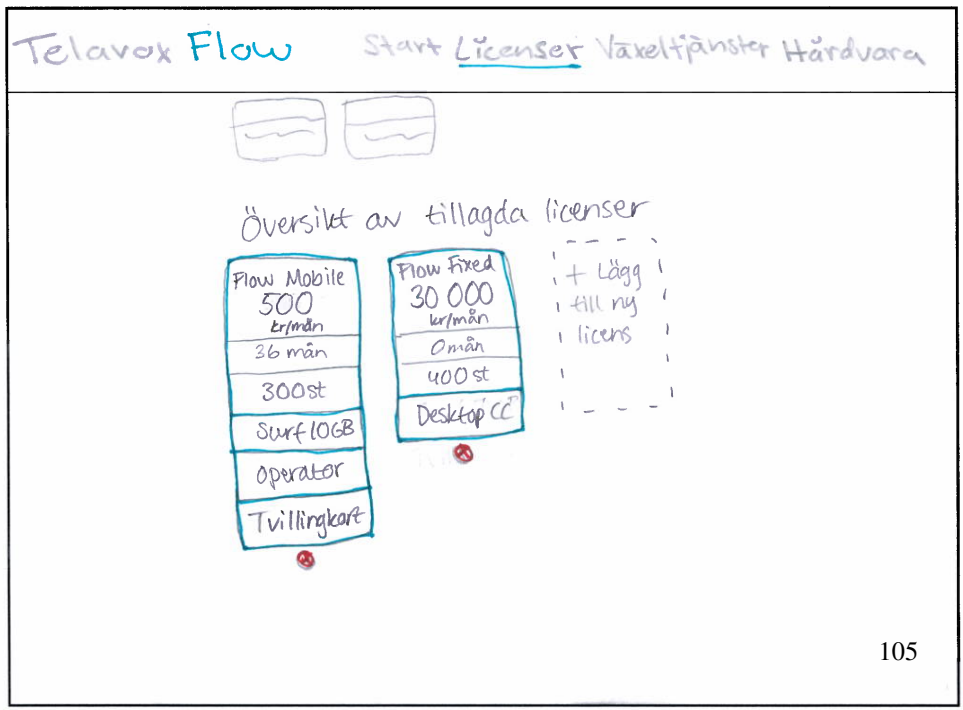

Telavox Flow
Användarlicenser
1. Vilken licens behöver ditt företag?
MOBILE 299
Free
Fixed
Mobile
Bindningstid
ingen
36 mån
Antal
200
Visa mängdrabatt
2. Vill ni kunna surfa?
Surf 1GB 79:-
Surf 5GB 179:-
Surf 10GB 279:-
Surf 50 GB 379:-
Tvillingkort 89:-

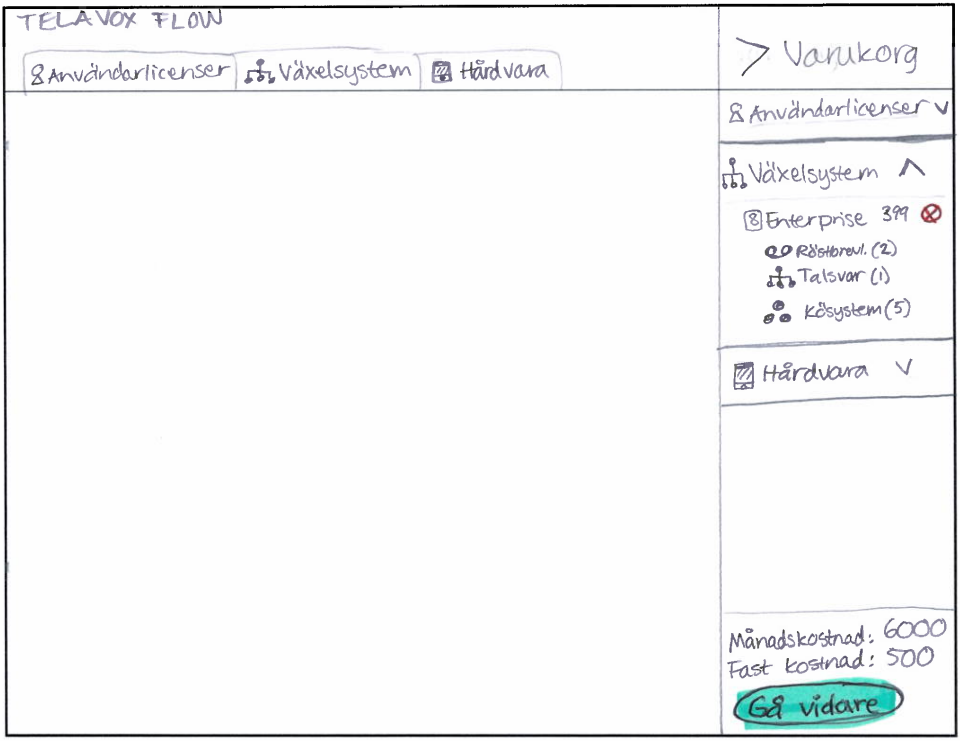

Telavox Flow
3. Behöver ni några fler tjänster?
Inspelade samtal 79:-
150
Utländska nummer 199:-
Desktop CC 99:-
Operatör 399:-
Totalkostnad: ___ kr/mån
Lägg till

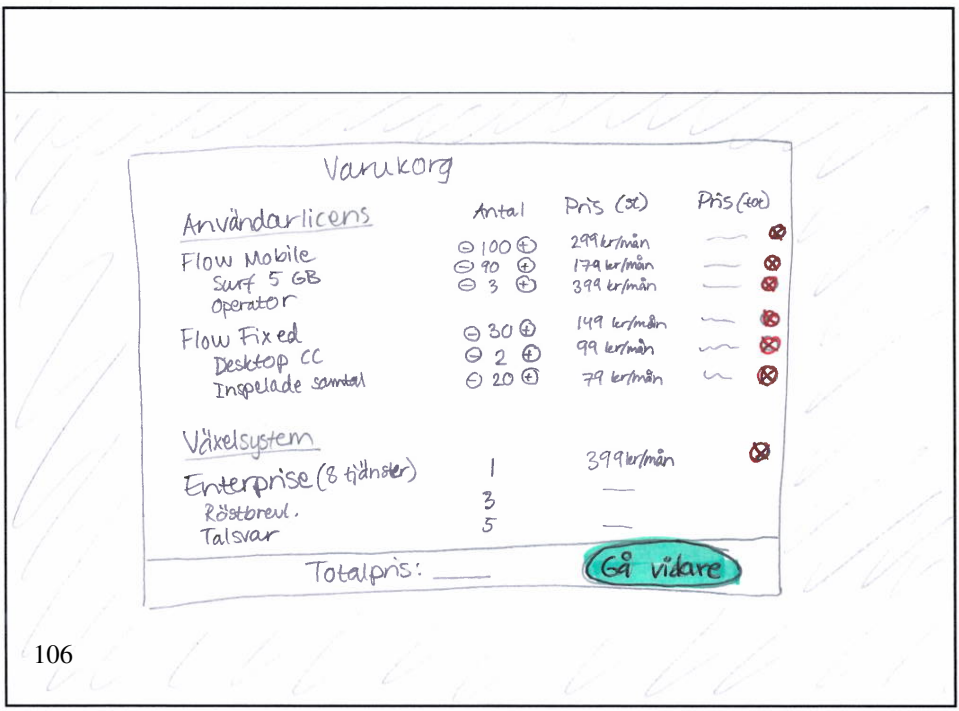

1 Licenser
2 Växeltjänster
3 Hårdvara
4 Gå vidare
1. Vilken licens passar dig bäst?
Free
0
kr/mån
Fixed
149
kr/mån
Mobile
299
kr/mån
Antal 50
Bindningstid 0 36

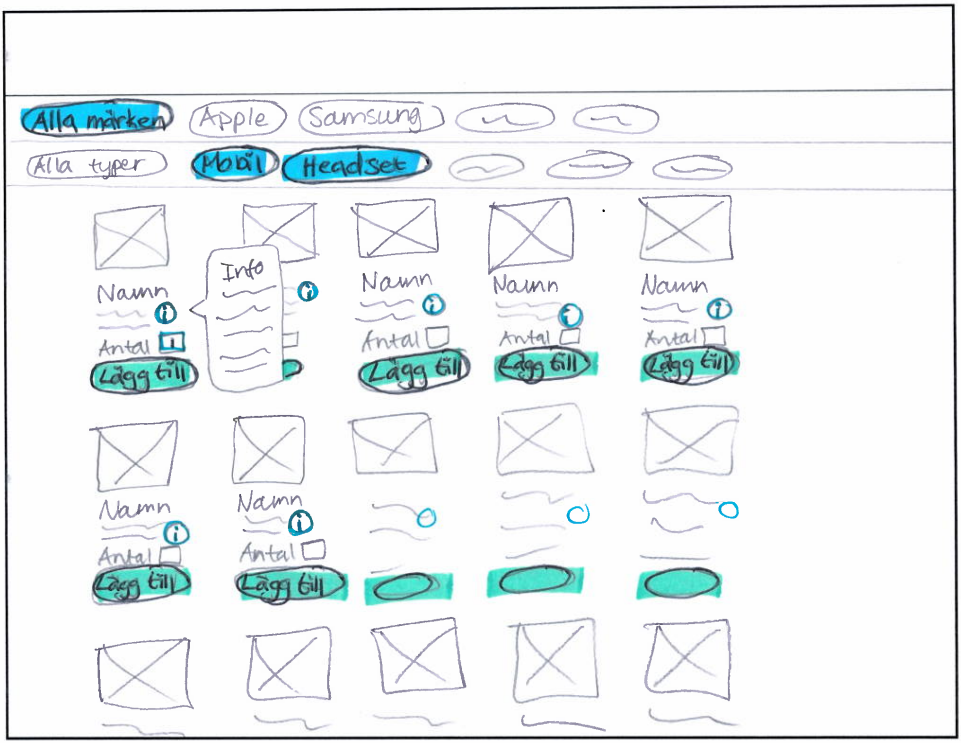

Licenser
2 Växeltjänster
Hårdvara
4 Gå vidare
2. Tilläggstjänster
Antal
1 GB Surf 1GB 10 V
10 GB Surf 10GB 20 V
Tvillingkort V
Inspelade samtal 50 V
Utländska nummer 5 V
Desktop CC V
Operator 2 ^
info 399 kr/mån
2 Välj
Lägg till


Telavox Flow
Start Licenser Växeltjänster Hårdvara
Användarlicenser
Free
Fixed
Mobile
Skapa ny licens
Licenstyp
Free Fixed Mobile
Bindningstid
0 36
Antal
150
Tilläggstjänster
Surf 1GB 79:-
Desktop CC 99:-
Mobile
36 mån
150 st
Surf 1GB
Desktop cc
Totalpris: 10 000 kr/mån
Lägg till


Telavox Flow
Start Licenser Växeltjänster Hårdvara
Översikt av tillagda licenser
Flow Mobile
500
kr/mån
36 mån
300st
Surf 10GB
Operator
Tvillingkort
Flow Fixed
30 000
kr/mån
0mån
400 st
Desktop CC
+ Lägg till ny licens


TELAVOX FLOW
Användarlicenser
Växelsystem
Hårdvara
> Varukorg
Användarlicenser
Växelsystem
Enterprise 399
Röstbrevl. (2)
Talsvar (1)
Kösystem (5)
Hårdvara
Månadskostnad: 6000
Fast kostnad: 500
Gå vidare


Varukorg
Användarlicens
Antal
Pris (st)
Pris (tot)
Flow Mobile
Surf 5 GB
Operator
100
90
3
299 kr/mån
179 kr/mån
399 kr/mån
Flow Fixed
Desktop CC
Inspelade samtal
30
2
20
149 kr/mån
99 kr/mån
79 kr/mån
Växelsystem
Enterprise (8 tjänster)
Röstbrevl.
Talsvar
1
3
5
399 kr/mån
Totalpris:
Gå vidare

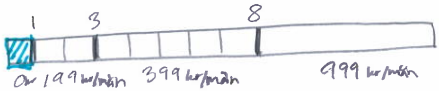

Alla märken
Apple
Samsung
Alla typer
Mobil
Headset
Namn
Info
Antal
Lägg till

Appendix D - Lo-fi prototypes version 2 A (In Swedish)

1. Växeltjänster — 0 st, 0 kr

Växelpaket för företaget

Dina växeltjänster

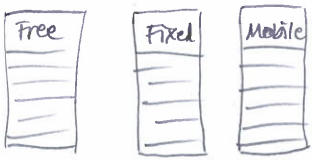


+ Lägg till växeltjänst (1 ingår gratis)

1. Växeltjänster
2. Användarlicenser
3. Hårdvara

2. Användarlicenser — 0 st, 0 kr

Telefonlicenser för användaren



Dina användarlicenser

+ Lägg till ny licens

3. Hårdvara — 0 st, 0 kr

+ Lägg till ny mobil

+ Lägg till ny fast telefon

Total månadskostnad: 0 kr

Total engångskostnad: 0 kr

Skapa offert

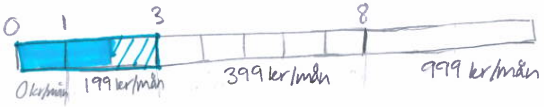
1. Växeltjänster

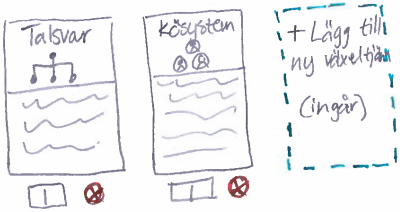
2 st, 199 kr/mån

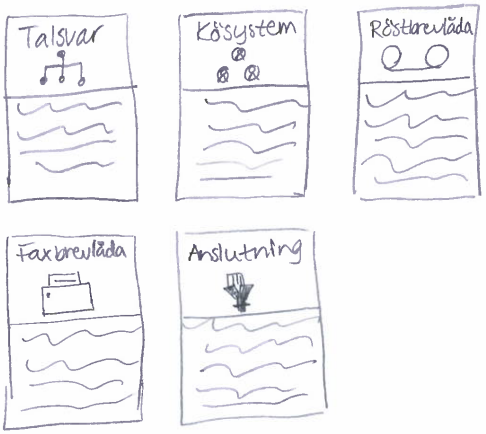
Växelpaket för företaget

1. Växeltjänster
2. Användarlicenser
3. Hårdvara

Dina växeltjänster







Total månadskostnad: 0 kr
Total engångskostnad: 0 kr

Skapa offert

2. Användarlicenser

90 st, 16700 kr/mån

Telefonlicenser för användaren

1. Växeltjänster
2. Användarlicenser
3. Hårdvara

Free	Fixed	Mobile

Dina användarlicenser

FLOW MOBILE Säljare
36 mån
30 st
Surf 10GB
Inspelade samtal
6000 kr/mån

FLOW MOBILE Licens1
obundet
20 st
Surf 5GB
Desktop CC
4000 kr/mån

FLOW FREE Licens2
36 mån
10 st
1000 kr/mån

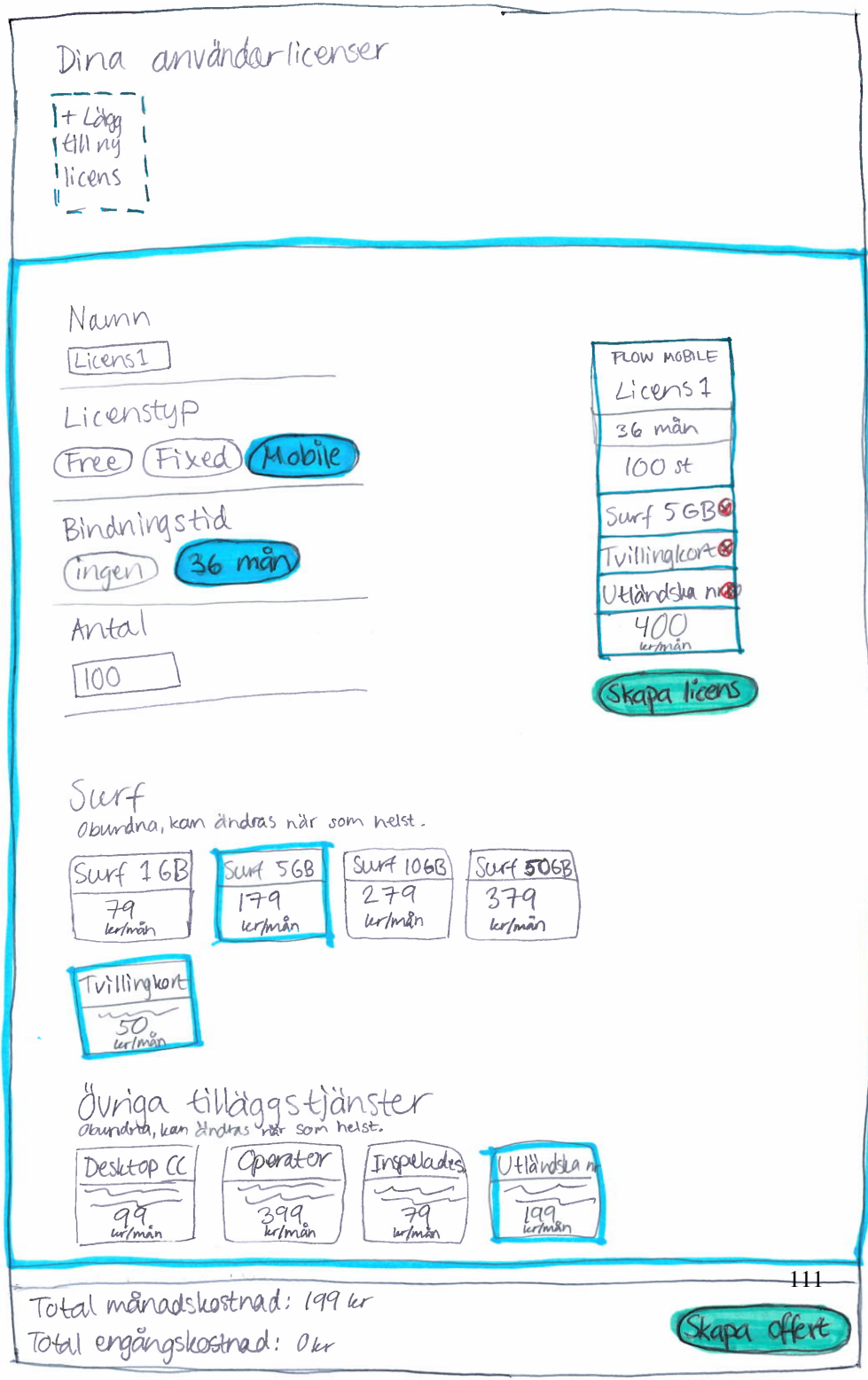
FLOW FIXED Finans
36 mån
5st
700 kr/mån

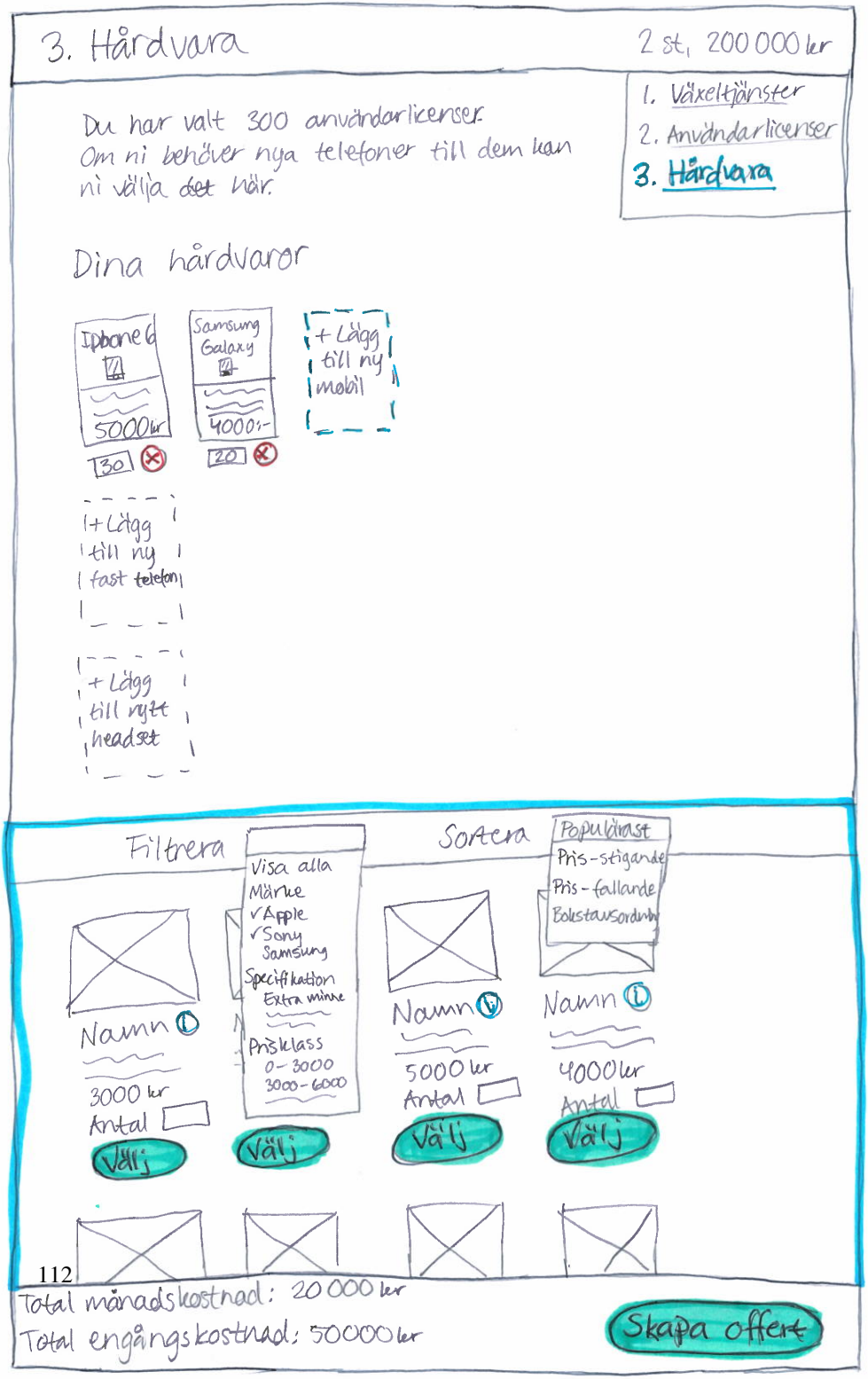
FLOW MOBILE Utvecklare
36 mån
25 st
Surf 10GB
Desktop CC
Operator
5000 kr/mån

+ Lägg till ny licens

Total månadskostnad: 199 kr
Total engångskostnad: 0 kr

Skapa offert


Dina användarlicenser
+ Lägg till ny licens
Namn
Licens1
LicenstyP
Free
Fixed
Mobile
Bindningstid
ingen
36 mån
Antal
100
FLOW MOBILE
Licens1
36 mån
100 st
Surf 5GB
Tvillingkort
Utländska n
400
kr/mån
Skapa licens
Surf
Obundna, kan ändras när som helst.
Surf 1GB
79
kr/mån
Surf 5GB
179
kr/mån
Surf 10GB
279
kr/mån
Surf 50GB
379
kr/mån
Tvillingkort
50
kr/mån
Övriga tilläggstjänster
Obundna, kan ändras när som helst.
Desktop CC
99
kr/mån
Operator
399
kr/mån
Inspelades
79
kr/mån
Utländska n
199
kr/mån
Total månadskostnad: 199 kr
Total engångskostnad: 0 kr
Skapa offert


3. Hårdvara
2 st, 200 000 kr
1. Växeltjänster
2. Användarlicenser
3. Hårdvara
Du har valt 300 användarlicenser.
Om ni behöver nya telefoner till dem kan ni välja det här.
Dina hårdvaror
Iphone 6
5000 kr
30
Samsung Galaxy
4000:-
20
+ Lägg till ny mobil
+ Lägg till ny fast telefon
+ Lägg till nytt headset
Filtrera
Visa alla
Märke
✓Apple
✓Sony
Samsung
Specifikation
Extra minne
Prisklass
0-3000
3000-6000
Sortera
Populärast
Pris - stigande
Pris - fallande
Bokstavsordning
Namn
3000 kr
Antal
Välj
Namn
5000 kr
Antal
Välj
Namn
4000 kr
Antal
Välj
Total månadskostnad: 20 000 kr
Total engångskostnad: 500000 kr
Skapa offert

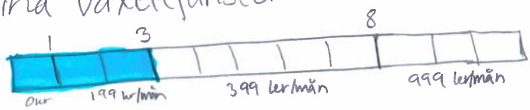
1. Växeltjänster

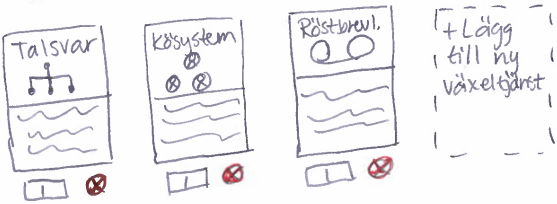
3 st, 199 kr/mån

Information om växeltjänster ∨

1. Växeltjänster
2. Användarlicenser
3. Hårdvara

Dina växeltjänster





2. Användarlicenser

80 st, 3000 kr/mån

Information om användarlicenser ∨

Dina användarlicenser

3. Hårdvara

15 st, 20000 kr

Total månadskostnad: 100 000 kr
Total engångskostnad: 10 000 kr

Skapa offert

Din offert

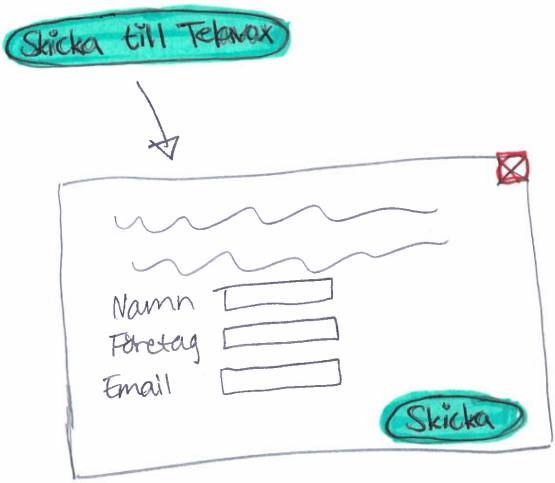
Gå tillbaka och redigera

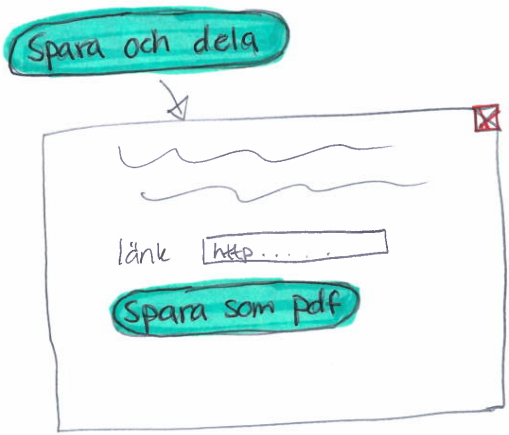
		Engångsavgift		Månadsavgift	
	Antal	á pris	Summa	kr/mån	Tot/mån
Licens					
Flow Mobile 36 mån	20 st	0	0	299	5980
Flow Fixed 36 mån	5 st	0	0	149	745
Flow Business	1 st	0	0	199	199
Tillägg					
Desktop CC	20 st	0	0	99	1980
Surfpaket 1GB*	20 st	0	0	79	1580
Inspelade samtal	20 st	0	0	79	1580
Operator	5 st	0	0	399	1995
Utländska nummer	5 st	499	2495	199	995
Terminal					
Gigaset N720-DM-PRO	5 st	4295	21475	0	0
Mobil terminal					
Apple iPhone 7 128GB Svart	20 st	7225	144500	0	0
Övriga					
Jabra Pro 930 Mono	40 st	1495	59800	0	0
Superuserutbildning	1 st	1400	1400	0	0
Summering			229670 kr		15054 kr

Total månadskostnad: 15 054 kr/mån
Total engångskostnad: 229 670 kr

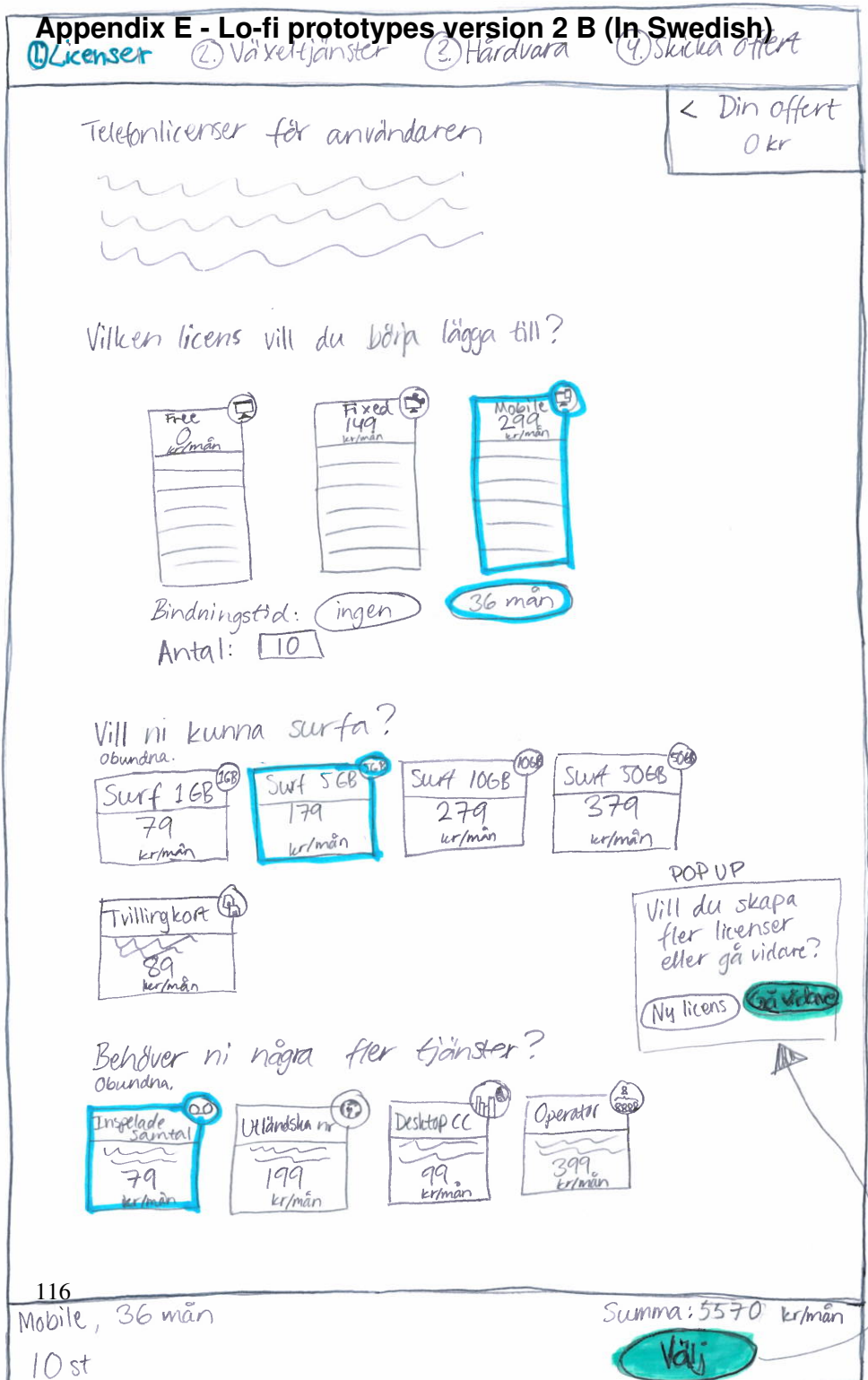
Skicka till Telavox

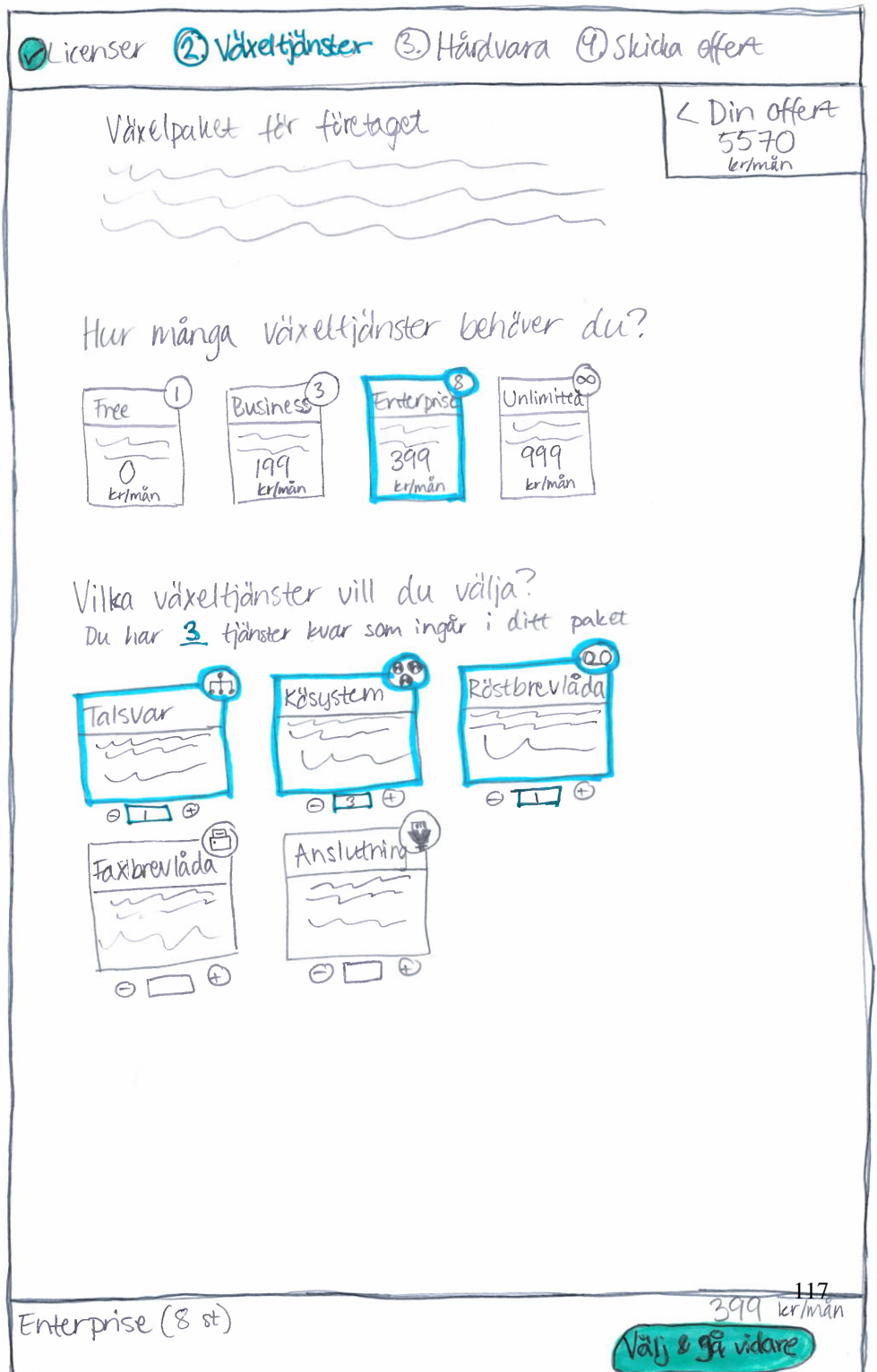
Spara och dela

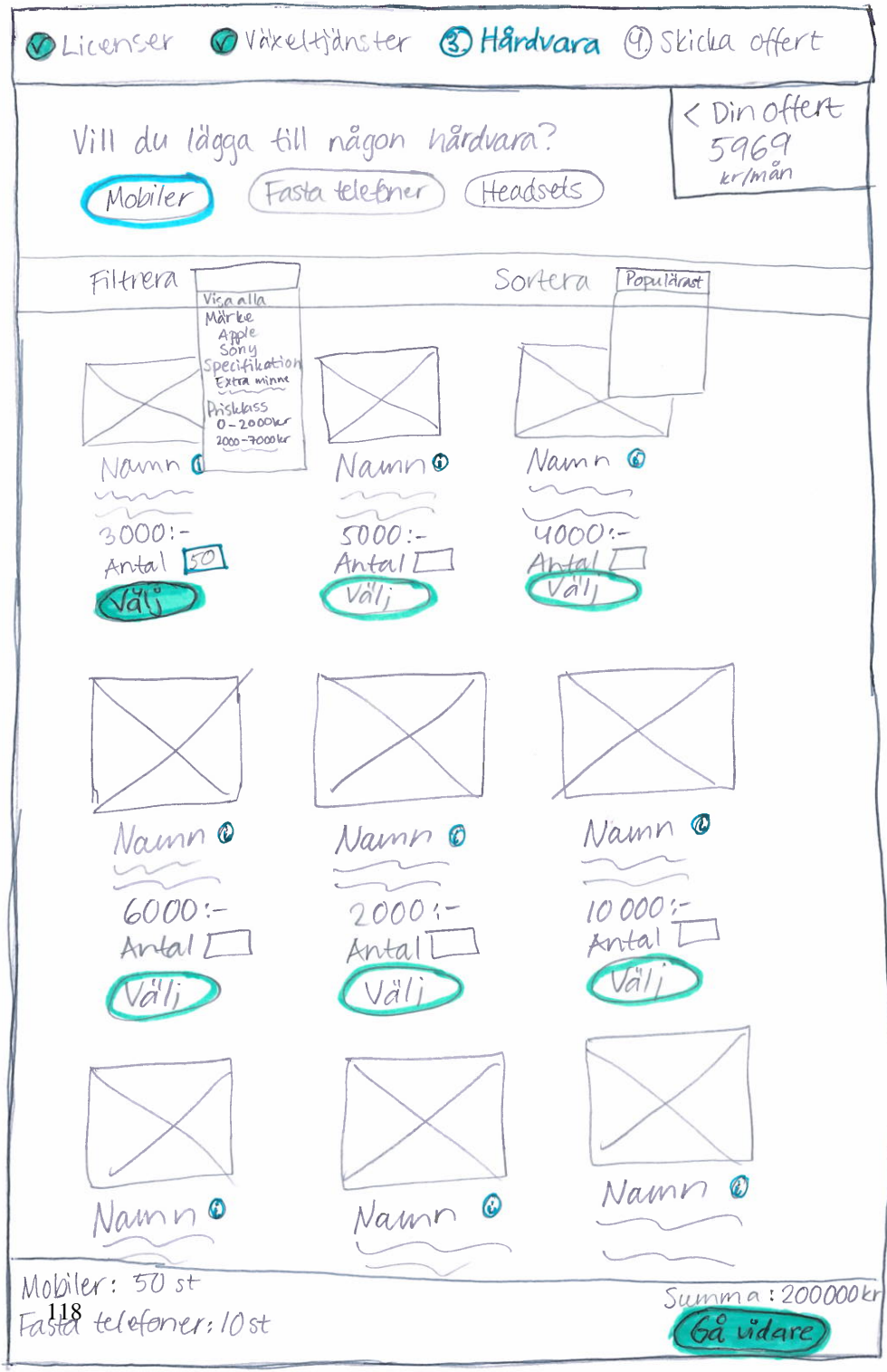

Skicka till Tekwox
Namn
Företag
Email
Skicka

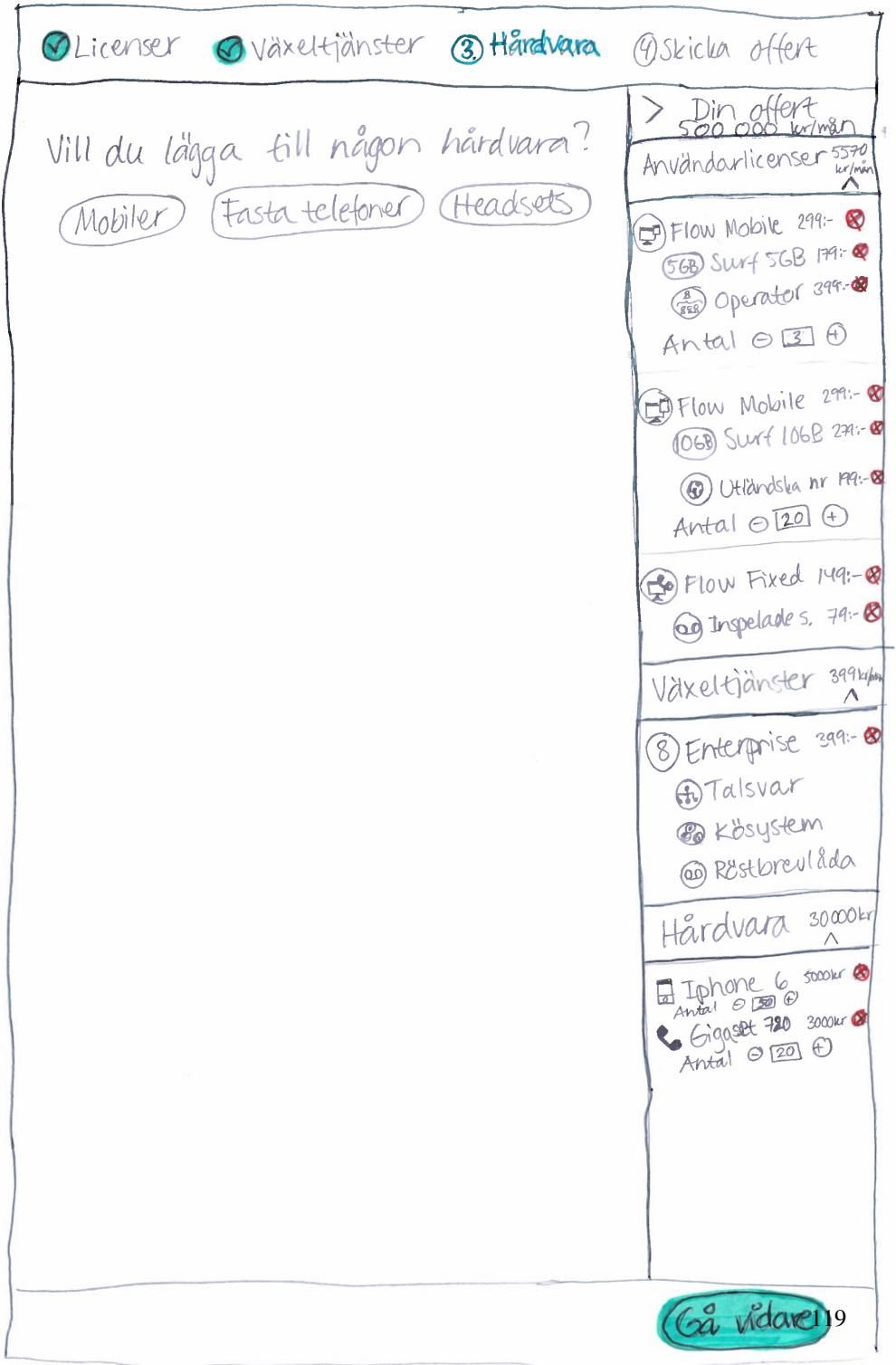

Spara och dela
länk
http.....
Spara som pdf

Appendix E - Lo-fi prototypes version 2 B (In Swedish)




Licenser
2. Växeltjänster
3. Hårdvara
4. Skicka offert
< Din offert
5570
kr/mån
Växelpaket för företaget
Hur många växeltjänster behöver du?
Free
1
0
kr/mån
Business
3
199
kr/mån
Enterprise
8
399
kr/mån
Unlimited
∞
999
kr/mån
Vilka växeltjänster vill du välja?
Du har 3 tjänster kvar som ingår i ditt paket
Talsvar
Kösystem
Röstbrevlåda
Faxbrevlåda
Anslutning
Enterprise (8 st)
399 kr/mån
Välj & gå vidare


Licenser
Växeltjänster
3. Hårdvara
4. Skicka offert
Vill du lägga till någon hårdvara?
Mobiler
Fasta telefoner
Headsets
< Din offert
5969
kr/mån
Filtrera
Visa alla
Märke
Apple
Sony
Specifikation
Extra minne
Prisklass
0-2000kr
2000-7000kr
Sortera
Populärast
Namn
3000:-
Antal
50
Välj
Namn
5000:-
Antal
Välj
Namn
4000:-
Antal
Välj
Namn
6000:-
Antal
Välj
Namn
2000:-
Antal
Välj
Namn
10 000:-
Antal
Välj
Namn
Namn
Namn
Mobiler: 50 st
Fasta telefoner: 10 st
Summa: 200000kr
Gå vidare


Licenser
Växeltjänster
3 Hårdvara
4 Skicka offert
Vill du lägga till någon hårdvara?
Mobiler
Fasta telefoner
Headsets
> Din offert
500 000 kr/mån
Användarlicenser 5570 kr/mån
Flow Mobile 299:-
5GB Surf 5GB 179:-
Operatör 399:-
Antal 3
Flow Mobile 299:-
10GB Surf 10GB 229:-
Utländska nr 199:-
Antal 20
Flow Fixed 149:-
Inspelade s. 79:-
Växeltjänster 399 kr/mån
8 Enterprise 399:-
Talsvar
Kösystem
Röstbrevlåda
Hårdvara 30000kr
Iphone 6 5000kr
Antal 30
Gigaset 720 3000kr
Antal 20
Gå vidare

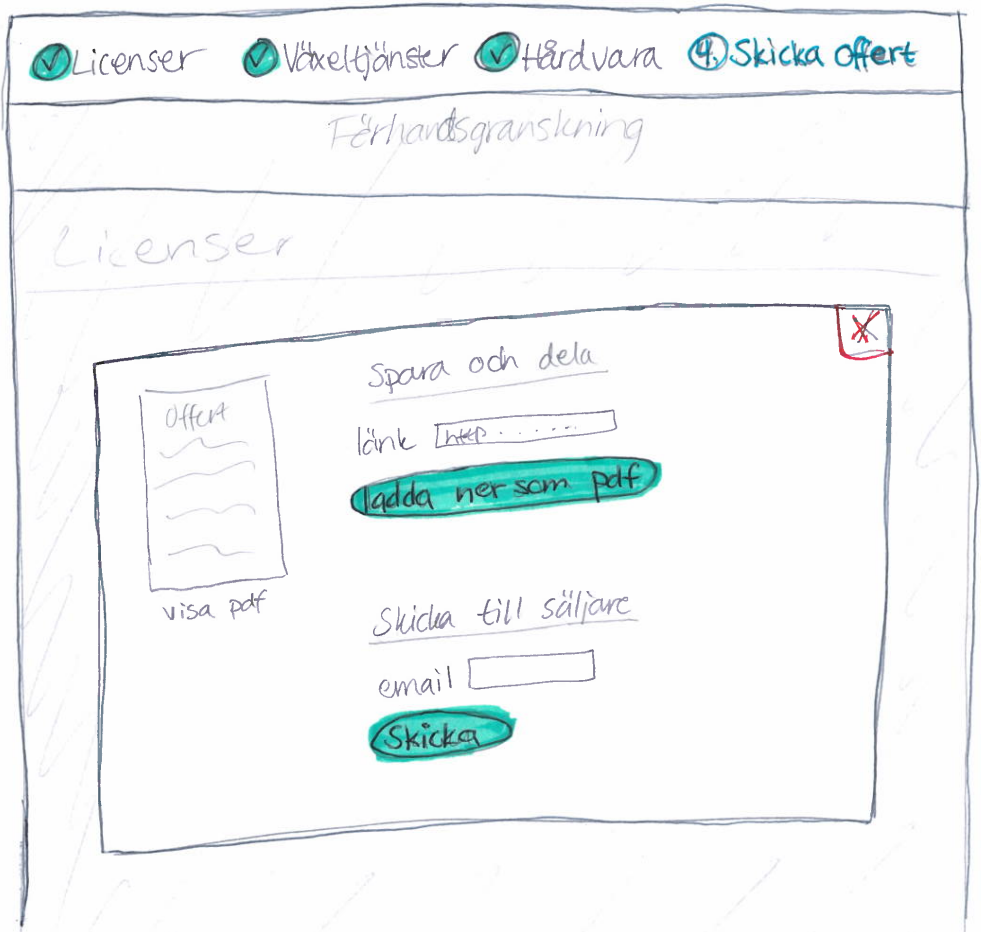
Licenser ✓ Växeltjänster ✓ Hårdvara ✓ 4. Skicka offert

Förhandsgranskning

	Antal	Pris (st)	
Licenser			60 000 kr/mån
⊗ Flow Mobile (36 mån)	⊖ 20 ⊕	299 kr/mån	⊗
⊗ Surf 5 GB		179 kr/mån	⊗
⊗ Operator		399 kr/mån	⊗
		Totalt: 20 000 kr/mån	
⊗ Flow Mobile (obunden)	⊖ 30 ⊕	299 kr/mån	⊗
⊗ Surf 10 GB		179 kr/mån	⊗
⊗ Tvillingkort		399 kr/mån	⊗
⊗ Desktop CC		349 kr/mån	⊗
		Totalt: 20 000 kr/mån	
⊗ Flow Fixed (obunden)	⊖ 14 ⊕	179 kr/mån	⊗
⊗ Inspelade samtal		69 kr/mån	⊗
		Totalt: 20 000 kr/mån	
Växeltjänster			399 kr/mån
⊗ Enterprise	1	399 kr/mån	⊗
⊗ Röstbrevlåda	3		
⊗ Kösystem	2		
⊗ Talsvar	3		
Hårdvara			20000kr
⊗ Iphone 7	⊖ 10 ⊕	6000 kr	⊗
⊗ Samsung Galaxy	⊖ 20 ⊕	5000 kr	⊗
⊗ Gigaset N740-D2	⊖ 5 ⊕	800 kr	⊗

Total månadskostnad: 60 399 kr/mån
Total fast kostnad: 20000kr

Skicka offert


Licenser
Växeltjänster
Hårdvara
4. Skicka offert
Förhandsgranskning
Licenser
Offert
visa pdf
Spara och dela
länk
ladda ner som pdf
Skicka till säljare
email
Skicka

Appendix F - Usability test Hi-fi 1 (In Swedish)

Testuppgifter

Växeltjänster:

1. På ditt företag vill ni att kunder som ringer in till er ska hamna i en **telefonkö**. Ifall ingen svarar ska de kunna **spela in ett meddelande** så att ni senare kan ringa upp. Alla kunder ringer in till ett och samma nummer så det är bara en kö som behövs. Lägg till dessa två tjänster.

2. *Fråga: Vad skulle det kosta att nu lägga till ett talsvar?*

Användarlicenser:

3. Du har **20** anställda säljare som behöver ha telefonabonnemang. De behöver alla ha **10 GB surf**, kunna se **statistik** över hur kunderna ringer er och kunna **spela in** sina samtal för att använda som bindande kontrakt. Det ska bli så **billigt** som möjligt. Lägg till detta.

4. *Fråga: Efter att licenspaketet är köpt, vad kan det kosta som billigast under de 36 månaderna som det är bundet, om man vill ta bort alla tjänster man får ta bort?*

5. Ni har även en person som behöver ha extra kontroll och göra **avancerade kopplingar** mellan sina kollegor. Hon vill veta alla sina kollegors statusar för att kunna koppla vissa samtal till rätt person.
   Förutom denna möjlighet behöver hon ha **exakt samma** saker som de övriga 20. Skapa hennes användarpaket.

6. Döp om hennes användarpaket till “Admin”

7. *Fråga: Vad tror du händer om man klickar på knapparna som hör till de färdiga licenspaketen? Tycker du att de ska finnas med?*

Hårdvara:

8. Lägg till första bästa **mobil** till alla dina anställda. Du vill helst **betala mobilerna direkt** så att de hamnar på rätt budget.

9. Gå tillbaka upp till växeltjänsterna för att dubbelkolla att du fått med allt. Dölj all onödig information du kan hitta, för att lättare få överblick.

10. Nu vill du ladda ner ditt färdiga offertförslag som en **pdf** så att du kan visa det för din chef. Du vill helst kolla med chefen först innan du tar kontakt med Telavox. Det vore även bra om du kan spara den här sidan på något sätt för att kunna komma tillbaka och **redigera**.

Frågor efteråt:

1. Var det svårt eller lätt att förstå var man skulle klicka för att börja lägga till något?

2. Hade du helst velat ha sidan som den är, eller hade du hellre haft den uppdelad på tre olika sidor/steg?

3. Vad tyckte du om det sista steget, när man ska spara/skicka? Är det lätt eller svårt att förstå hur man går vidare om man vill bli kund?

4. Ifall du vill spara offerten innan du kontaktar Telavox, känns det som att det går bra, eller är du rädd att de kommer att kontakta dig ändå?

5. Vad tyckte du var bra?

6. Vad kan förbättras?

Appendix G - Test Plan

Purpose and goals

The purpose of this test is to test if the website is usable. The test shall evaluate if the user understands the products and if the user adds the right products to the quotation.

Research questions

- How can a website be designed to mediate complicated information and dependencies in an easy and understandable way?
- How to measure if the customer understands what she added to the quotation and if the quotation met the customer's needs and expectations?
- Which parameters make a customer hesitate to complete a quotation at Telavox?
- How much information is needed in the price-calculator to understand the products?

Participants characteristics

The participants shall be from a broad user group with variety in age, technical knowledge and previous knowledge of Telavox's products.

- A group from Telavox, knowledge of the products and diversity in age.
- A group without previous knowledge of the products
    - With technical knowledge
    - Without technical knowledge
- A wide age span.

Method (test design)

The test will consist of a presurvey that the user fills in before the test. Here data about the age and previous knowledge of the products will be collected. During the test the test moderator (us) will fill in a form to gather data about the test person's performance. After the test the user fills in a survey about their experience and thought about the test.

- Presurvey
- Survey filled in by the moderator
- Postsurvey

Task list

See the test.

Test environment, equipment and logistics

The test can be performed anywhere in a closed room. A laptop with the website for the testperson will be needed. The tasks shall be printed out on paper. The moderator needs a laptop or tablet to fill in their survey.

Test moderator role

The test moderator takes notes in the survey. Focus will be on the completion of each task. Some qualitative data can be gathered in the same survey if needed. Little to no questions will be answered during the test. The test persons survey will be anonymous and the moderator will look another way when the test person fills it out.

Data to be collected and evaluating measures

Most quantitative data on how usable the website is will be collected. The data will be collected through observation made by the test moderator and by a survey that the test persons fills in. Some qualitative data will be collected through open ended questions in both surveys.

Appendix H - Task description (In Swedish)

Introduktion:

Företaget Trygg Pansa är ett litet försäkringsbolag med kontor i Malmö. Företaget har 27 anställda och du har fått i uppdrag att ta fram en offert för en kommunikationslösning till Trygg Pansa. Det finns många kunder som ringer in till försäkringsrådgivarna och de vill kunna bli kopplade till rätt område direkt. Det behövs även intern kommunikation mellan de olika avdelningarna. Detta är Trygg Pansas anställda, och deras arbetsuppgifter:

Arbetsuppgift:	**Antal:**
Försäkringsrådgivare	20 st
Receptionister	3 st
Chefer	4 st

Växeltjänster

När kunder ringer in till Trygg Pansa ska de mötas av en inspelad röst som berättar vilka olika avdelningar som finns, och ger dem möjlighet att trycka på ett nummer för att kopplas rätt.
Det finns fyra olika avdelningar: Hemförsäkring, Djurförsäkring, iPhoneförsäkring och Barnförsäkring. Varje avdelning behöver ha en egen telefonkö där vem som helst inom avdelningen kan svara. **Detta är de tjänster som ni måste ha.**

Det finns även några tjänster som inte är nödvändiga, men som du har funderat på att de vore trevliga att ha:

- En telefonkö till receptionen.
- Kunna ringa till receptionen och prata in ett meddelande ifall ingen svarar, så kan alla tre receptionister lyssna på det senare.
- Få fax som ett mail istället.
- Ringa ner till portlåset för att släppa in gäster som ska hälsa på.

Lägg till alla de tjänster ni måste ha, och **välj själv** hur många av de tjänster som vore trevligt att ha som du vill lägga till. De är alla lika önskvärda. Basera ditt beslut på att göra det så billigt som möjligt.

Användarpaket

Alla Trygg Pansas anställda behöver kunna kommunicera med varandra och sina kunder. Detta är vad de anställda i varje avdelning har för kommunikationsbehov:

Försäkringsrådgivare
De behöver ha varsitt mobilabonnemang, de vill även kunna spela in sina samtal när kunderna ringer eftersom de kan användas som kontrakt. 10 GB surf blir lagom. Det finns 20 st rådgivare, men du vill helst inte binda upp alla i abonnemang, eftersom det är möjligt att några kommer att sluta på Trygg Pansa. Du vill max binda upp 15 st av alla rådgivare.

Receptionister
Trygg Pansas receptionister har endast en fast telefon per person. De vill kunna se statistik om hur många kunder som ringer in till företaget. Bundna abonnemang går bra.

Chefer
Bara det bästa är gott nog för Trygg Pansas chefer, ge dem all surf de kan få. Bundna abonnemang går bra.

Ändra

Cheferna gick förbi och tyckte att det såg lite dyrt ut, de vill dock inte tumma på sina egna surfpaket. Ändra försäkringsrådgivarnas surfmängd till 5 GB.

Döp om receptionisternas paket till “Receptionister”.

En av cheferna behöver ha extra kontroll och kunna göra avancerade kopplingar mellan kollegorna. Hon ska även kunna se alla kollegors statusar för att kunna koppla vissa samtal till rätt person. Förutom detta tillägg ska hennes paket se likadant ut som de andra chefernas.

Avslut

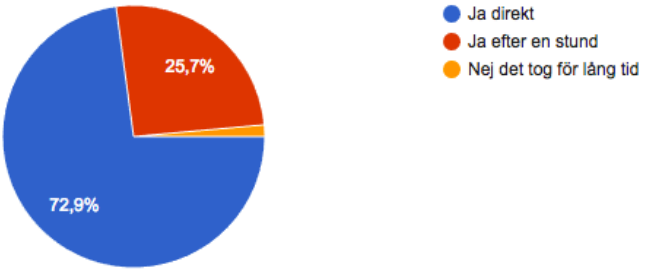
Nu känner du dig färdig med offerten och skulle vilja visa den för cheferna så att de kan gå igenom den innan den skickas till Telavox. Gör detta.

Appendix I - Test Survey 1 (In Swedish)

Växeltjänster

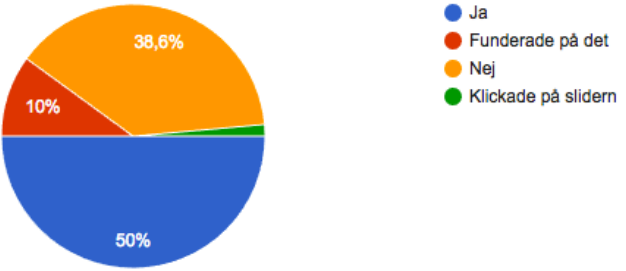
Förstod de var de skulle klicka först?

70 svar



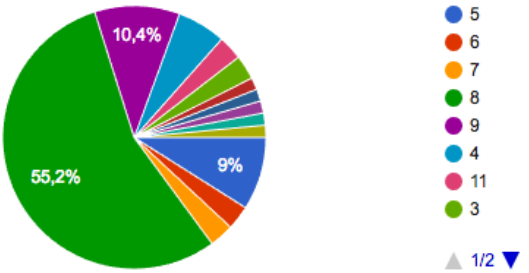
Testade de att klicka i tabellen

70 svar



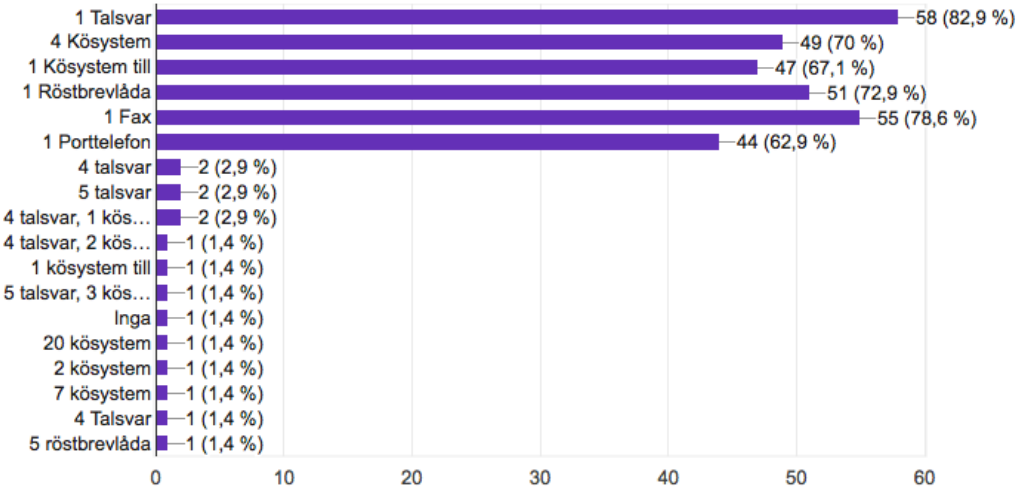
Hur många växeltjänster lägger de till?

67 svar



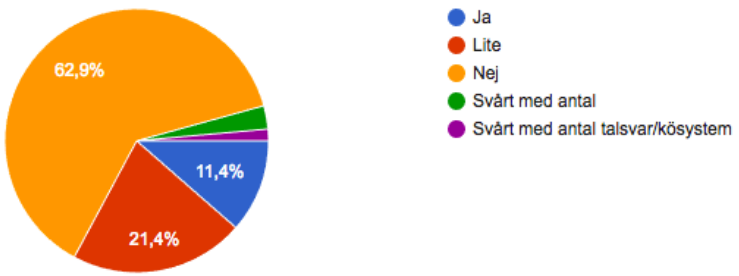
Vilka växeltjänster lägger de till?

70 svar



Har de svårt att förstå vilka växeltjänster de ska ha?

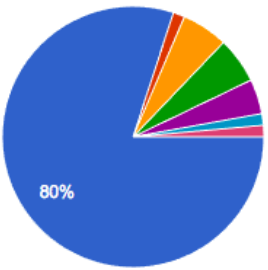
70 svar



Användarpaket

Försäkringsrådgivare 15 st

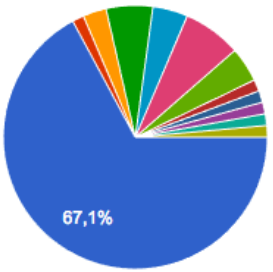
70 svar



- Mobile, 10 GB, inspelade samtal bundna.
- Fel licenspaket
- 1 tilläggstjänst fel.
- Fel bindningstid
- Fel antal
- Flera fel
- Extra deskto cc och oppetator

Försäkringsrådgivare 5 st

70 svar

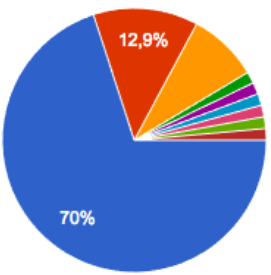


- Mobile, 10 GB, inspelade samtal, o…
- Fel licenspaket
- 1 tilläggstjänst fel.
- Fel bindningstid
- Fel antal
- Flera fel
- Skapade inte
- Skapade inte

1/2

Receptionister

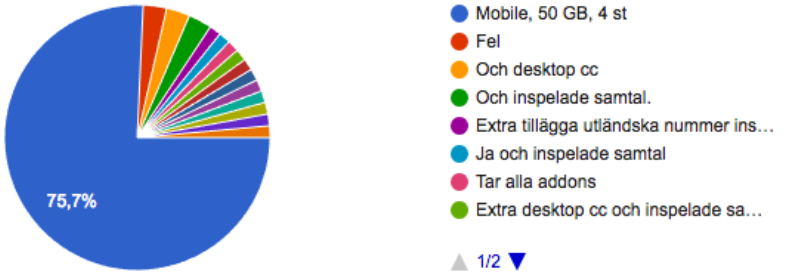
70 svar



- Fixed, Desktop CC, 3 st
- Fel
- Och opperator
- Extra inspelade samtal
- Tog operator också
- Och opperator.
- La först till desktop cc på alla andra
- Tog operator också.
- Gjorde inte

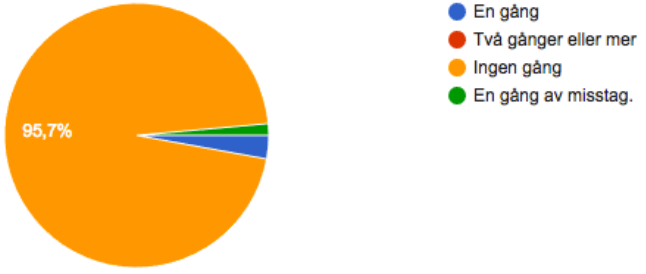
Chefer

70 svar



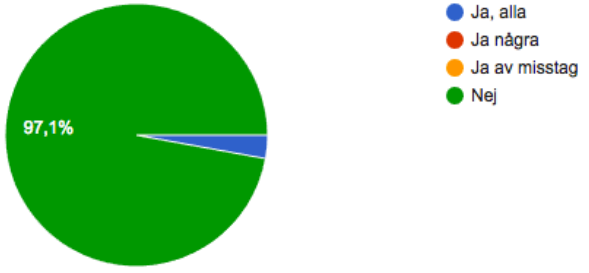
När de skapar liknande paket, använder de duplicera?

70 svar



Ändrade de något namn

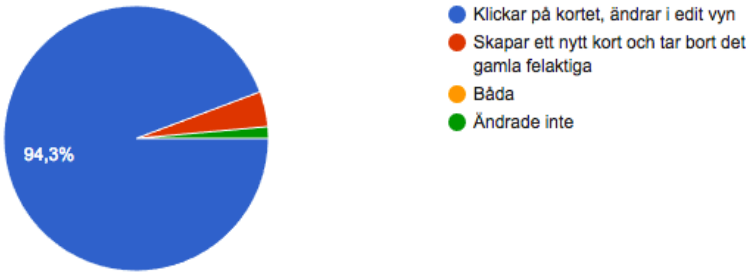
70 svar



Editera

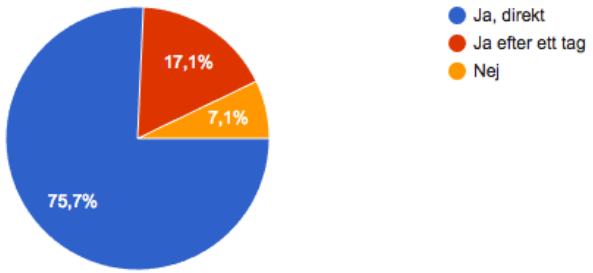
Hur redigerar dem?

70 svar



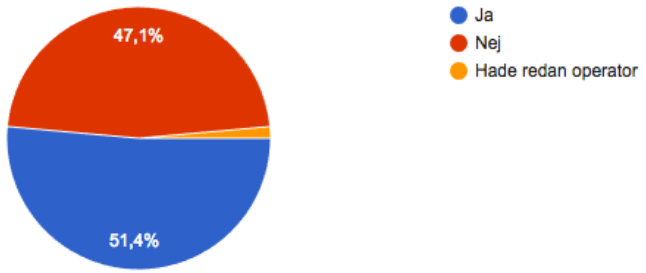
Förstår de hur de ska ändra namnen?

70 svar



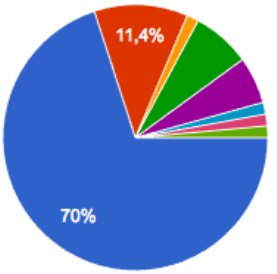
När de skapar liknande paket, använder de duplicera? (operator)

70 svar



La de till operator?

70 svar

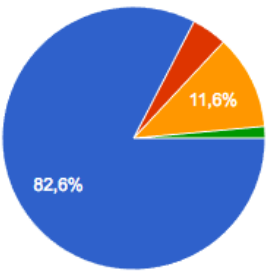


- Ja
- Ja, men funderade på andra
- Nej, men funderade på andra
- Nej
- Ja och desktop cc
- Ja och desktop cc
- Och desktop cc
- Nej, tog desktop cc

Sista steget

Vågar de klicka på gå vidare knappen?

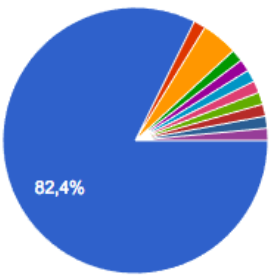
69 svar



- Ja
- Nej
- Ja, efter viss tvekan
- Nej, eftersom han inte skulle trycka där innan.

Vilken skicka knapp klickar de på?

68 svar



- Skicka till mig
- Skicka till Telavox
- Skickade inte
- Klickade ej, tänkte visa sista sidan f…
- Skickade inte. "Kopierade" länken
- Kopierat länken
- Vill visa summeringssidan
- Hade kopierat länken och mailat den.

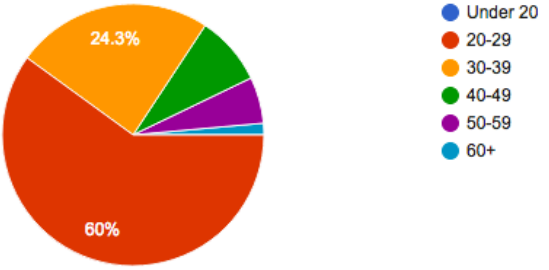
1/2

Appendix J - Test Survey 2 (In Swedish)

Före testet

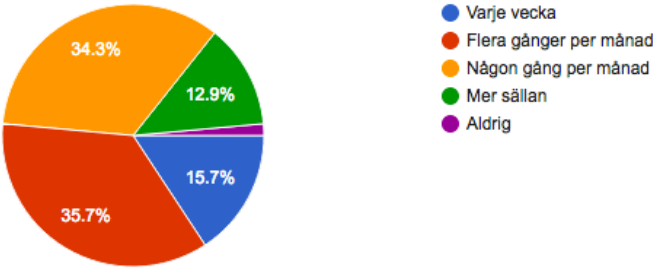
Ålder

70 responses



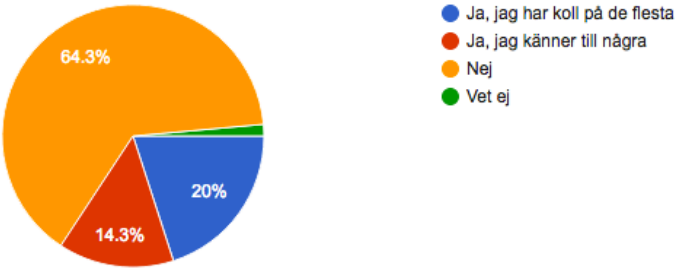
Hur ofta använder du e-handel?

70 responses



Känner du till Telavox produkter sedan tidigare?

70 responses



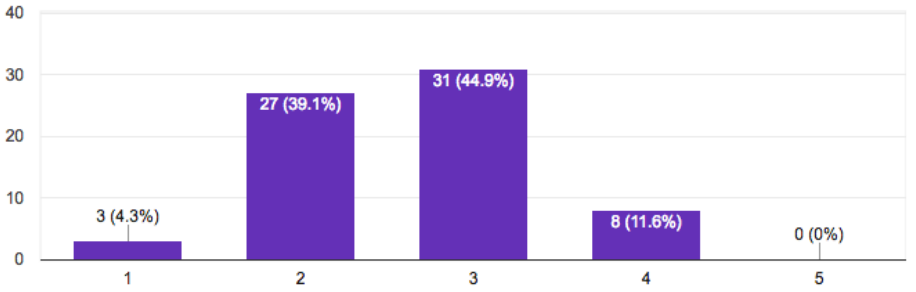
Efter testet

Om du skulle vilja köpa Telavox produkter, hur hade du velat gå till väga?

70 responses

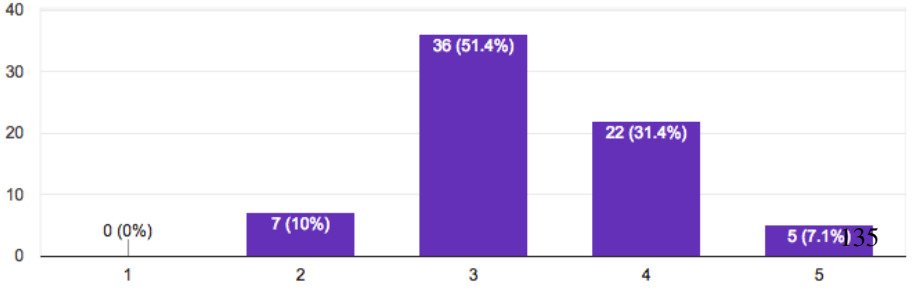
Är det lagom mycket information om varje tjänst i offertbyggaren?

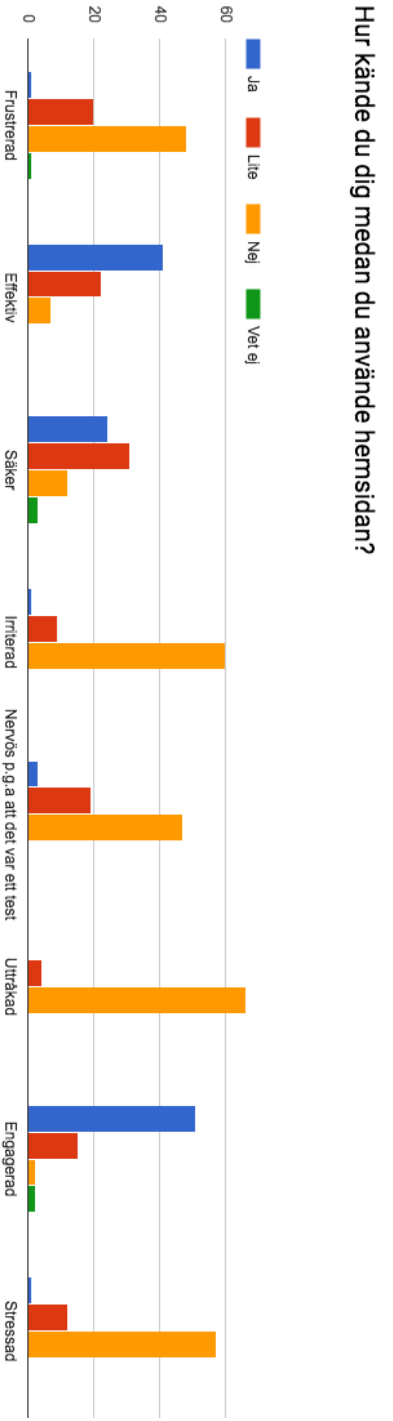
69 responses



Hur hade det varit att använda sidan om du haft denna arbetsuppgift i verkligheten, utan att det var ett test?

70 responses




Hur kände du dig medan du använde hemsidan?
Ja
Lite
Nej
Vet ej
0
20
40
60
Frustrerad
Effektiv
Säker
Irriterad
Nervös p.g.a att det var ett test
Uttråkad
Engagerad
Stressad

	Håller inte alls med	Håller inte riktigt med	Håller mestadels med	Håller med till fullo	Vet ej
Det var lätt att förstå var jag skulle klicka	0	8	38	24	0
Det var lätt att förstå informationen om alla produkter	1	12	40	13	4
Det var lätt att förstå hur priset förändrades	1	3	12	52	2
Det gick snabbt att välja vad man ville ha	1	5	12	52	0
Sidan kändes effektiv	0	4	21	45	0
Jag tyckte att det var lagom mycket färger	0	3	9	56	2
Det var lätt att navigera runt på sidan	1	3	26	39	1
Jag kan hitta den information jag söker snabbt	1	13	35	18	3
Det var roligt att utforska sidan	0	4	28	35	3
Det var lätt att komma ihåg var man kan hitta saker	1	2	15	52	0
Om jag gjorde fel var det lätt att åtgärda	0	3	3	62	1