

Alpha

a usability study

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Abstract

This Masters Thesis has been performed at TeliaSonera in Luleå, Sweden, 2006.

TeliaSonera has gradually since 2003 implemented Alpha, a new system which aims at assisting operators working in customer service at TeliaSonera. Alpha falls in the category of standard systems, purchased from Oracle and modified by TietoEnator. A standard system implies certain constraints both regarding the implementation process as well as on the organization.

Today operators working in customer service complain about Alpha; they feel that the system is hard to use. This thesis contains a usability study of Alpha. It discusses the usability issues considering both the conditions of customer service and the boundaries of standard systems. It also discusses possible aids for improvement. An alternative help system is one solution to ease the operators' situation. Making the system more consistent by performing small changes in the user interface is another.

A flash prototype was developed to demonstrate the suggested improvements to the existing help function. The prototype has a more active character than the existing help function in Alpha. It is brought closer to the application resulting in easier access, which may lead to increased usability. In addition to the improved accessibility it offers several possibilities for searching help which all leads to the same goal of finding correct information fast. A consequence of this will be satisfied customers.

This thesis concludes that the general standard system design means usability tradeoffs. It is hard to completely satisfy all users because of their varying area of use. The thesis also concludes that some of these usability issues can be bypassed by having a supporting help system. It is not possible to change Alpha to fit the users' needs completely; it is too expensive and takes time. Instead a suitable help system can be developed as a complement to the main system.

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1 Introduction

TeliaSonera AB is one of the leading telecommunication operators in the Nordic and Baltic countries, Russia and selected Eurasian markets. They offer telecommunication services for voice (fixed/mobile), images, data, information, transactions and entertainment. One of TeliaSonera's most important goals is simplicity. Their product should be easy to use.

This thesis is concentrating on the Swedish part of the company; TeliaSonera Sweden and the problems they face. The telecom operator market has stepwise, since late 90s, turned into a public market. Today the competition is full blown and TeliaSonera has faced a severe loss of customers.

TeliaSonera Sweden is divided into different departments, each responsible for specific areas such as private customer service, technical support and invoice service. Customer service employ about 3,400 persons, they give service and support to customers through the telephone. About 20 million phone calls are handled yearly. TeliaSonera is a customer oriented company; the policy is to meet each customer with intimacy in a way that creates value for money. In this environment the customer service function is an absolutely vital part of TeliaSonera Sweden.

Customer service has certain goals to meet besides helping customers. The calls should be short and effective but also aim to sell supplement services. Since the information about the customers are stored in a database there has to be a well working computer system to manage the information and at the same time help customer service to simplify their tasks in order to achieve their goals.

Today customer service uses a wide range of computer systems. This is a result from introducing new systems for almost every new service. This leads to long waiting times when the users have to toggle between the systems to collect all necessary information about the customer. This means that the customer sometimes has to wait a long time and might not get the help they need because the operator cannot find correct information or do not know where to look. Sometimes the operator cannot help the customer at all and has to direct the call to another department. The call can be directed many times before reaching an operator with suitable competence. This is a problem.

Alpha is a new computer system that has been introduced to customer service, in the long run Alpha intends to replace a number of old systems. Its main goal is giving the user comprehensive information (i.e. a 360 degree view) about the customer. Via the new solution customers are supposed to be helped in a more efficient way without being directed to different departments. Alpha also supports development of new services and offers in an easier way than before. This is important for TeliaSonera in order to reduce the time it takes before new products reaches the market. Fast introduction is essential to stay competitive.

Alpha is based upon on an ERP platform called E-business suite developed by Oracle, a world leading database developer. On top of Oracle's platform TeliaSonera has developed customized applications in order to fulfill their specific needs. One example is the forms for configuring a phone connection which is made specific for TeliaSonera. The integration and customizing of Alpha are made by TietoEnator.

The name Alpha stands for

- | | |
|------------------------|-----------------------|
| • Work procedures | A rbetssätt |
| • Profitability | L önsamhet |
| • Products | P rodukter |
| • Intellectual capital | H uman kapital |
| • The deal | A ffären. |

However, today Alpha is far from finished even though it is in use by some departments. It is constantly under development in different areas. For example private customer service (as a whole) has not yet been introduced to Alpha. This means that only some customer information has been converted to Alphas database and the vision about seeing all information about the customer is not yet met. New functionality will stepwise be introduced to the system and extensive development projects are ongoing in the broadband area. Since Alpha is a standard system it is not built to fit TeliaSonera exactly, implying adjustments of work procedures. Until the work procedures are completely adapted there will be dissatisfaction among the users which might lead to unsatisfied customers as well. Even though TietoEnator have customized the software, they cannot change everything. Their changes must always lie within the boundaries that a standard system offers. This is where our work begins. How can one change Alpha to make it more usable to customer service? And maybe even more important; is it possible?

The purpose of our work is to evaluate Alpha and make suggestions for improvement of the graphical user interface in order to make the system more usable. If this will be obtained the employees will be able to do an efficient job, as a consequence, TeliaSonera will take one step closer to their goal of being Sweden's best customer service.

To limit the project the main focus is set on those working in customer service in the enterprise segment. Technical issues such as response time and equipment such as mouse and keyboard are not considered. When improving a standard system there are some extra issues to consider. Changes have to stay within the boundaries of the standard system otherwise they will be too extensive and costly and the whole idea with a standard system will be lost.

2 Theory

The theories that our work is based on are stated in the following chapter. It covers research procedures, user interface design and different theories about help and standard systems. Acceptance of the system is something that also seemed relevant and was brought to our attention during our time at TeliaSonera.

2.1 Research procedures

This section is about qualitative and quantitative methods which describe factors that need to be considered before making surveys and interviews. The following paragraphs are conclusions taken from Carlsson via his books [1] and [2].

There are many ways one can perform a search, but they are usually divided into two main groups, qualitative and quantitative. Qualitative methods consist of research procedures which focus on describing data. It can explain why people think in a certain way, or why/how something works. Quantitative methods do not focus on the reason behind the result. Instead fixed data and stating results are important. The result should be well founded in the research material and it should be fairly easy to measure.

Another thing that separates the two methods is the determination of the survey population. In the quantitative search the population is described in detail before the survey starts in contrary to the qualitative search which starts at once. Qualitative studies have no fixed timeframe and the researcher will continue his study as long as new relevant information appears. [1]

It is up to the researcher to choose the method which supports his research questions the most. No single method or group of methods is best suited for all types of research. In some cases it is not possible to choose one of these methods and then it is justified to use both. In both methods it is important to guarantee the validity and reliability of the material. Validity is defined as the methods ability to measure what is intended. The reliability of a method is the degree of precision at which it operates. To increase the validity one can measure with two independent methods and thereby verify the results. It is required that a measurement has to lead to the same result if it is repeated by someone else independent of the first. It is also important for the researcher to interpret the result. Objectivity is also of great importance otherwise the result will undoubtedly be colored. [1]

The qualitative interview can be described as an unstructured and flexible interview which is similar to an ordinary conversation. This interview concentrates on deep information rather than broad. Other types of interviews are more structured and can be compared to those found in a questionnaire. The structured interviews are bound to present specified questions and the order of the questions is decided. The interviewer's role is simply to read questions and note the answers; a glorified questionnaire. Similar behavior is requested in all interviews and the goal is to be as neutral as possible. These types of interviews are often used when the questionnaire is long and the questions hard, it is also suitable when it consists of many open questions. Participating observations is when interviews and observations is made in the participant's natural environment. [2]

In a quantitative survey it is rather important to state how well the studied sample represents the entire population. In a qualitative search this is not of equal importance even though studying more people will make new aspects of the problem viewable. In the selection of participants it is necessary for the researcher to think about what potential participants are

expected to contribute with. It is important for the participants to have an interest in the survey, it will motivate them to give correct information. It is hard to check whether the information is valid or not. There is always a risk that the participant gives incorrect information and most likely this is not done on purpose. The researcher and the participant can simply have different perspectives which makes one thing valid for the participant but not for the researcher

2.2 User interface design

This section contains guidelines for what to consider when making a good user interface. It talks about the user; how he works and thinks, and how his user level influences his behavior. User heuristics is an important part of interface design; they simplify the evaluation process and can be a good support when designing applications.

2.2.1 What is a good user interface?

According to Finley and Beale in [3] the problem with designing a good user interface lies in both satisfying the user while still constructing a realistic technical solution. Often technology receives the highest priority which leads to neglected users. Of course both must be considered but it is not obvious that the priority must be the technology, at least if the user satisfaction is a goal. There is no point having a system with advanced functionality if the users cannot use it. [3]

2.2.2 Ten usability heuristics

When designing a user interface there are, according to Rogers and Sharp in [4], ten checkpoints to consider. The explanations of these heuristics are stated below. Later on they will be used to evaluate Alpha.

1. Visibility of system status – always keep users informed what is going on through providing appropriate feedback within reasonable time.
2. Match between system and the real world – speak the users' language, use words, phrases and concepts familiar to the user, rather than system-oriented terms.
3. User control and freedom – provide ways of allowing users to easily escape from places they unexpectedly find themselves in, by using clearly marked 'emergency exits'.
4. Consistency and standards – avoid making users wonder whether different words, situations, or actions mean the same thing.
5. Help users recognize, diagnose, and recover from errors – use plain language to describe the nature of the problem and suggest a way of solving it.
6. Error prevention – where possible prevent errors occurring in the first place.
7. Recognition rather than recall – make objects, actions, and options visible.
8. Flexibility and efficiency of use – provide accelerators that are invisible to novice users, but allow more experienced users to carry out tasks more quickly.
9. An esthetic and minimalist design – avoid using information that is irrelevant or rarely needed.
10. Help and documentation – provide information that easily can be searched and provides help in a set of concrete steps that can easily be followed.

2.2.3 Navigating in the interface

In [5] Cooper talks about navigating the interface. He states that it is of great interest that the most frequently used commands are especially quick and easy to invoke. The problem is to, in advance, find out which commands that are used the most. It is not possible to know which

the most frequent used commands will be. What one user uses daily might not be used at all by another. Placing all commands in front making them equally available would be the ideal, but hardly possible. Different ways to navigate and invoke commands must be offered and allowing users to personalize their toolbar might be a good way.

In the same way, commands should be given multiple executing paths, users must also be given alternatives for using the mouse or the keyboard. Beginners are known to prefer the mouse while frequent users like to remember keyboard shortcuts, but everyone uses both in their own favorite combination. [5]

After a user evaluation of a prototype the user population might be divided in half. One half prefers the function and the other dislikes it. For example one group might like the dropdown menu while the other prefers the toolbar. Arguments for each option might be equally valid. To this kind of splits there is no other solution than satisfying both groups. It is important to separate between personal tastes and results from user testing. If you find a significant group with similar opinion, they must be satisfied even if there are three or four conflicting groups. [5]

2.2.4 Minimized/maximized application

Minimized applications are used in many different forms, but their usefulness can be questioned. Cooper claims in [5] that the icons are always covered and necessary information is invisible and states that minimized applications suites those with small screens. A user who uses few applications during the day is not helped. They have no need for running multiple programs with overlapping windows. Zooming and reorganizing windows is bad design. The solution is to use something familiar to windows start bar. It able smoothly changes from one window to the other without the need of rescaling and position the window on the screen. [5]

2.2.5 Beginners versus experts user level

It is important to know which knowledge-level the target users have. Factors concerning experience are therefore discussed in the following section. These are discussed in [5] by Cooper.

All software users are at one point beginners. Some will eventually become experts, but they are a small minority. Most users will never become experts of a particular program, and will stay at an intermediate level forever. It is hard if not impossible to find the balance between adapting the user interface to suit the beginner as well as the expert. Most software developers must be considered to be experts of their program and they tend to develop user interfaces for other experts. Unfortunately few expert users exist. Another bad design idea is adding too simple beginner help aids. It is often used to compensate for the complex interface developed by expert. These aids might have a condescending tone and are therefore often ignored completely. Even if they are used by beginners, users do not stay at the beginner level long and the help soon becomes offensive. To predict a good user interface level it is necessary to understand the users' learning curve. [5]

Most users stay at a beginner level but struggle to improve their performance. Their skills are changing and depend on how frequent they use the program. It is important to let the beginners find an easy way to move from the beginner to the intermediate state while preventing beginner aids to bother the experts. If a user's learning do not progress satisfactorily and move beyond the beginner level fast enough they will avoid using the program. No one appreciates to feel incompetent at their work. [5]

“Nobody wants to remain a beginner. It is merely a rite of passage everyone must pass through. Good software shortens that passage without bringing attention to it“. [5]

Another important issue is the experts influence on less experienced users. When a buyer considers a software application he will trust the experts' opinion. But just because an expert considers a program good, it might not mean that the program is good for an intermediate user. However, intermediate users usually know that advanced features exists, even though they may not know how to use them, but it works as a motivator for them and will motivate them to buy and use the product. [5]

2.3 Standard systems

This section contains the definition of a standard system and also covers the pros and cons of this type of systems.

According to Törngren and Magnusson in [6] the definition of a standard system is; a complete system that can be employed instantly, more or less. Tailored systems have to be developed from scratch and can therefore not be employed directly. A standard system is a general system that is built on one or several computer systems. One reason for choosing a standard system is to avoid reinventing existing solutions. Often changes have to be done to the standard system as well as the organization of the purchasing company to achieve a fully functional system.

A standard system has to be flexible, it is supposed to fit various types of companies and their wide range of needs. When bought it often lacks up to a fifth of the functionality says Törngren and Magnusson in [6]. Sometimes companies realize that there is missing functionality which might be hard to compensate for after the purchase. A reason for this can be sloppy problem analyze and lacking demand specification which entice them to invest in an unsuitable software. Adjusting the software to fit the organization might also be tricky. The functionality of a standard system is not always completely utilized, often standard systems are complex which makes the user unaware of the complete functionality. To get a more successful system companies often change their organization to fit the system and this can cause problems.

It is cheaper to purchase a standard system than a tailored system. This depends on the fact that several companies can use it. The buying companies can be considered to share the development and maintenance costs of the system. One disadvantage of the standard system is that it makes the purchaser dependent on the developer. The developer lacks knowledge of the buyer's organization, but they still have to rely on the system that the developer creates. It is also possible that the developer will forbid the buyer to make further developments in the system leaving the buyer totally dependent on the developer's competence. A reason for this might be to secure future sales of updates and further developments for the developer. [6]

Törngren and Magnusson argue in [6] that a company cannot expect to use a standard system as a weapon in the competition with competing companies. If they use the same systems they will receive the same advantages. Therefore the competition cannot continue in that area and other steps must be taken to win the constantly ongoing competition.

A standard system developer creates distance between themselves and the buyer by handling their contacts through several middlemen. Furthermore the implementation is often done by a third party. The relationship when making a tailored system is the opposite of this, it is very tight. [6]

2.3.1 Software cost

It might be hard to realize that the cost of software is higher than that of hardware. The common thing to forget is one part of the software cost is the cost of installing, training and supporting the users. Another thing that should be included in the expenses for software is the loss of income. The employees will not generate an income to the company while learning and training. Their productivity might also be decreased while their user level is in the beginner state. The cost of lost opportunities might be of the highest value. One conclusion from this is never to let software decisions depend solely on the cost of the software itself, even investments in new hardware might be justified. The key is to compare the total cost of a new software solution which includes every cost until the program is up and running in full scale, not just the price of the software itself. [5]

2.4 Help systems

This section discusses which issues to consider when designing a good help system for a software application. It talks about different types of help systems and how the user perceives them.

Help systems are used to give the user a better understanding on how to use the software. There are many ways one can offer a user manual for a program. The worst way is offering help through the program documentation. Another poor way is offering user manuals through an online help system. It will make the user responsible for finding a way to use the program, and it relies on the fact that the online help is discovered. Ultimately online help is not important, the same way one does not read the TV manual. But still there must be a reference document where users who wish to gain deeper knowledge can find definite answers. The key to make a successful reference document is to supply good tools for navigation. An index is an example of a good navigation tool. What makes the reference manual better than a hardcopy is the increased search functionality. Whether it is better or not depends on how good the index is, not on the quality of the search tool. Having a professional indexer is necessary to create a good index, however, very few indexes are done by professionals says Cooper in [5]. The user will accept a poorly written entry more certainly than he would forgive a missing one. Therefore even if the number of entries is large the index would probably be benefited by doubling the entries. [5]

The concept of an online help function is weak and it would be better if it is presented transparently over the program or built right into the face of it. An example is the underscore mark of letters in menus which indicates the Alt-letter shortcut. Another option is to have an extra menu containing a list of shortcuts. This method is explicit and therefore pedagogic. New users can see that multiple ways for executing commands exist and there is an easy way for finding and learning. All programs should offer this kind of shortcut menu item says Cooper in [5].

Tool tips are effective and a usable help. More help of that sort would be useful. Tool tips can be extended and visual symbols can be used to indicate optional commands. For example, a tiny symbol could be placed on every tool tip that has shortcuts to visually make the user aware of the functionality. [5]

According to Fisher, Lernke and Schwab in [7] there are two major architectural differences between help systems. These are called active and passive systems. A passive help system gives help only when consulted. It does not know anything about the user's actions or knowledge. Active systems on the other hand, are built to know exactly what the user is

doing. They are designed to give guidance and suggestions based on what the system knows about the user. They interfere with the user, trying to give support. Active systems are considered to be much closer to the application than passive help systems. There has to be some communication between the application and the active system, otherwise the system is in no way of knowing what the user is doing and can therefore not provide guidance. Passive systems do not need to know anything, making communication unnecessary.

Adelheit [8], talks about active help systems. It describes how they assembled a group of users that had to learn a new application with help from an active help. Observing those users it showed that some of the users did not read the information material before the test. However, it did not matter because the help system adjusted to the user's level.

According to Tattersall [9], one can classify help systems into three different categories; divorced, separated and integrated. A divorced system does not know anything about the application, it gives help only when consulted and help usually comes in large chunks of pre-stored text. A separated system has some knowledge about the application. It communicates with the application and adapts somewhat to the user. In this category help comes in pre-stored text as well. However, some modifications to the text have been made. The third category; the integrated system, is totally integrated in the application. It knows all about the user and its actions and is able to interact with the user in order to provide the best possible help.

The role of a help system is not to provide help for absolute beginners; they stay away from the help anyhow. It is too complex. Basic functionality should be self-explanatory. Otherwise it is unacceptably bad and no help will help. Help systems are for intermediate and expert users. [5]

2.4.1 What beginners need

Beginners must be considered as both intelligent and busy. They need some instructions but not too much, and the process should be fast. They lack time and reading heavy manuals that describe everything in detail are not of interest. What they need and want is to understand cause and effect, getting a basic understanding is important.

Beginners need extra help that can and should disappear when they become intermediates. This means that the extra help cannot be fixed in the interface. Another bad option is online help. Online help is the correct tool to use for reference information, beginners need understanding. A guided tour which can be constructed with dialogs is more suitable. Beginners rely on menu commands, which might be slow but are detailed and reliable. The toolbars can be a distraction. [5]

2.4.2 What intermediate users need

As the users become more and more familiar with the interface they want to find new ways to make their work more efficient. They want faster access to tools; they make more use of tool tips and toolbars and are motivated to read in the reference material to learn as long as it is not too much at once. The online help function is therefore a tool for intermediate users. Users will navigate the online help function by the index so it must be clear and structured. The users will demand that the tools in their working set are placed with in reach, both easy to find and remember. [5]

2.4.3 What expert users need

Experts primarily demand faster access to their working set of tools, which might be quite large. They will occasionally look for advanced functionality and will use it a lot to make their work more efficient. An expert is eager to learn more and wants to find new ways to use the program in his work. Experts appreciate new features. [5]

2.4.4 Wizards

A wizard works in a guiding way, directing users every step, not allowing them to fail. Every dialog contains a question or two and in the end the program performs whatever action decided in the dialogs. Wizards are written as step by step procedures, not letting the user come with any suggestions. The user becomes a robot. Making monotonous tasks contributes to the user negligence and risks that the user only presses a button in reflex not analyzing why. The failsafe guide is then failing. This kind of guide is normally too demanding to be used in daily services. [5]

2.5 Acceptance of Standard systems

This section talks about what to consider when implementing a standard system and how to get it accepted by the members of the organization. According to Friman and Göransson in [10] there are many factors to consider when in the process of anchoring a standard system. These will follow below.

- The user has to be given a chance to put the system in a context. They have to have a total view and understand why the system is implemented. The system cannot change the organization, only the people in it. Those people can only change if they want it themselves. They have to understand the reasons to why they have to change.
- Information has to be delivered in an early stage. This is because the user needs to know what is going in order to feel in control. This will prevent users from getting a negative view or from getting the wrong idea about the system. If the user already has received a negative view it is much harder to change it.
- It is important that the buyer and the supplier make a reasonable presentation of their application so that the user does not expect too much. This is particularly important in the case of a standard system, because the system is not complete when the buyer makes his purchase.
- The information given to the user has to be adjusted to the users' previous experiences. It has to be shaped in to a well designed strategy otherwise the user will not adjust to it and accept the information. There are different approaches such as push- or pull-strategies. Push-strategy is when the user is drowned with information. Pull tries to either figure out what the user wants to know and then provides only that information, or waits for the user to seek the information themselves.
- Informal information can be used to find out which acceptance level the system has.
- Education is an additional way for spreading the goals and ideas with the standard system.

- The company that implements the standard system should see the users as a resource in the acceptance process. If you convince one user he can then continue convincing other users and you will get a domino effect.
- There should be a group of users present during the systems development process. The group is then able to contribute with knowledge about the organization and daily work which makes the system a better fit to the organization. Another effect of this will be that the users participating in the group will feel like it is their system and will then continue to “preach” the systems benefits.
- It is important that the users feel some responsibility. This will motivate them, but only if the amount of responsibility is within manageable limits. If it exceeds the limits the users will feel overloaded, on the other hand, if it is too little users will feel powerless and neglected.
- Goals of usage should be established so that it is possible to measure how frequently the system is used. It is important that these goals are realistic and measurable, but also that the users feel motivated to reach them.
- Another thing which is very important is to create a sense of that the system is indispensable for the organization. The users will then use the system while thinking they cannot do their tasks without it. This can be achieved by removing the old systems which forces usage of the new system.

3 Methods

In order to recreate and understand how studies are made following chapter describes the employed methods. It connects to the theory chapter where comprehensive descriptions of methods can be found. These methods are used for gaining ideas of the prototypes development and evaluation as well as finding solutions to problems.

3.1 Opening general study

The theory section described available methods for research. Forthcoming paragraphs will describe why some were used and explain why others were considered unsuitable. Four methods of information collection were used; passive observations, surveys, interviews and informal information. These will be described in the section below.

Passive observation was the first method used. Users' behavior was observed and notes about what they did and what problems they faced were obtained. In addition to the passive observations, users gladly shared information about problems and bugs they found or had discovered earlier in the system.

The second method was to conduct a survey. It was used to get a clear picture of the systems weaknesses and strengths. Because of the positive feedback and willingness to give opinions in the beginning of the study, a survey seemed suitable for collecting even more information. Due to users willingness to participate a rather large survey was constructed and did not seem to be a problem. The numbers of participators in the survey was chosen to fulfill the demands of a quantitative study. A quantitative study was chosen in order to reflect the opinions of the user population, not describing individuals.

It was impossible to conduct a survey that covered the complete system at depth, due to the systems large scope, therefore two options were considered. Either to conduct a specialized survey which focused on one or a couple of specific tasks, or conduct one focusing on the fundamental concepts of the system. The second option was chosen. One reason for that choice is that a general study would benefit more users. In contrary, if a more narrow study had been made it might have lead to optimization of one specific task and therefore only one specific group of users would have been facilitated. The survey was therefore constructed with questions of a comprehensive nature.

Two survey groups with 10 participants each were requested to answer the survey. Both groups were chosen from the customer service department handling enterprise cases. Experience with the system separated the two groups. The department in Helsingborg was chosen because of their long experience, Luleå because of their availability. The availability was considered as a benefit, if further studies had to be performed these people would then easily be available.

The third method was interviews. One interview was made as a complement to the survey. It was made in a questionnaire manner. The nature of this interview is naturally of a qualitative character as interviews easier reveal extensive information. It was performed by asking the complete set of questions from the survey. It was possible to explain and evolve question, as it was made orally, which in return gave more details in the answers.

In addition to these three methods, it has been possible to achieve a deeper understanding through the informal information collected by listening to operators in their daily work. Their

conversation with customer and colleges has been easy to follow since our workplace lied in the same office landscape as the operators.

3.2 *Improvement suggestions*

Ideas and solutions to problems emerged when the result from the questionnaires and interviews were reveled. The solutions were often obvious and simple. The hardest part was to find every flaw as they were spread through out the whole application. Brainstorming and recalling earlier experience of solutions were the employed methods. However, developing a help function is more extensive and the methods used will be explained in more detail in forthcoming section.

3.3 *Prototype development*

After the opening study the need for change and improvement of the help system seemed to be a suitable area to consider. Suggestions improve to the help systems shortcoming were considered essential. Development of ideas took place mostly by brainstorming but also through literature studies of [3], [7], [8], and [9]. To best present the ideas with the improved help system, a simple demonstration/prototype was constructed. The prototype was built in Macromedia Flash. Flash was used because it is a good tool to create visual demonstrations. It was also considered to be portable when most computers can play Flash files.

3.4 *Validating the prototype*

The prototype was presented to four different persons, three of them were “Key users” of Alpha. A key user is a person who is considered an expert of Alpha and its usability issues and has a teaching role to their colleges. Their opinion was considered crucial. The fourth person was also a key user, but not for Alpha. A reason to include an outsider was that the help system should be general enough and therefore easy to understand not only for expert users.

The evaluation of the prototype was conducted in an interview/discussion form. First the prototype was presented and then questions were asked to start a discussion. A goal of the interview was that it should be as relaxed and informal as possible to make the participant safe and thereby start an open discussion. The purpose was to validate the prototype, further proposals where encouraged.

4 Summary of the survey

This is a summary of the result from the opening general study; the complete result can be viewed in Appendix A. The study contained questions that could be answered on a scale of 1-5, 1 is always representing negative and 5 is always positive views.

The overall user experience is about two years. Users' education is estimated to about one - two weeks continuous education occurs now and then.

The over all grade of Alphas logic lies between 2 and 3. The user states that they cannot find a logical order and claims that they have to learn the order.

When investigating Alphas workflow, two camps were found; one camp thinks that it is quite clear, the other thinks that it is very unclear. However, they seem to be of the opinion that they will learn with time; "you get used to anything". Some users feel that the workflow is concordant with the customer conversation. Although, many users feel that they have to do the conversation in a specific order to fit the systems flow. One user feels that it is uncomfortable to have the customer wait on the phone while doing the tasks, because it takes too long.

TeliaSonera's goal with Alpha was that it should hold a 360 degree view of the customer. When asking the users about this the combined grade is 3. One stated the grade 2 and gave an example of crucial information absent, such as customer subscriptions. There were a lot of other users who stated missing information as well. Users seem to have other systems assisting them in order to gain a total view of the customers. Judging from users' extensive list of used systems they seem to think that Alpha does not have the 360 view over the customer, not yet anyway.

The usage of the existing help function seems to be varied. Some uses the help function and finds it quite satisfying. However, there are many users who only use the help function in a small amount. They complement the help function by asking their coworkers.

Short commands seem to be used by some of the users. They were of help for some, hard to remember for others and some liked them.

The response time was not to satisfaction. Users feel that it takes too long for the program to respond and that it is much worse then before the implementation of Alpha. They seem to prefer completing their tasks while the customer waits on the phone. To meet this wish short response time is necessary.

There were also questions about the tabs found in Alpha. Few answers were given to these questions. But in general they seem to be pleased with the visual appearance of the tabs. However, they state that they are missing information in some of the tabs while other tabs were thought of as quite cluttered.

Menus and toolbars seemed to be appreciated visually and they think that it is good to have functions gathered in this way. They requested ways to create own shortcuts to functions. When asking if the users use dropdown menus or if they prefer toolbars two equally large camps were found.

A question if the user wishes to change anything with the application was asked. Surprisingly few answers were given. Faster response times and more consistent naming were the only suggestions given.

5 Improvement suggestions

Based on the opinions given in the questionnaire the following improvement suggestions are proposed. They are divided in three sections each containing improvements which are considered to be performed either by TeliaSonera, Oracle or a combination of these. Some are small and easy to implement, others are more extensive and has to be implemented gradually.

5.1.1 Responsibilities of the standard system provider, Oracle

Tabs should not be clickable if no customer is chosen (fig. 1 and fig. 2). A simple clarification which can avoid misunderstanding, a usability issue which all users would be benefited of.

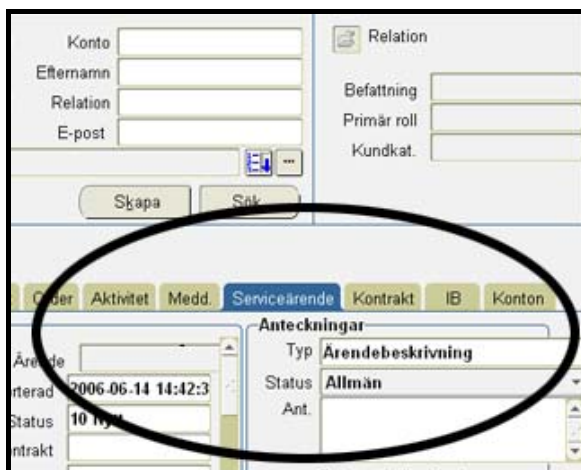


Figure 1

Problem: Fields found in the tab panel can be edited even though no customer is chosen.

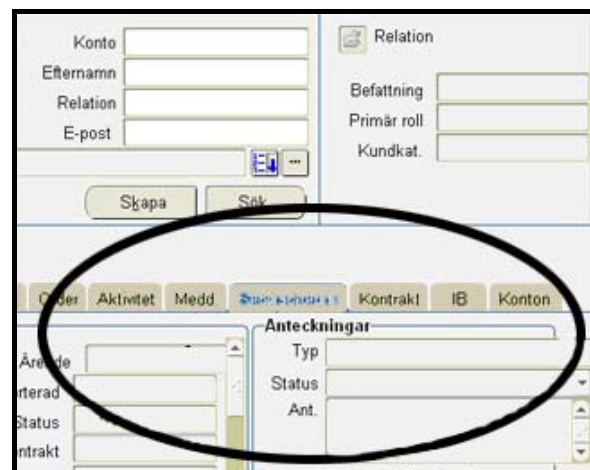


Figure 2

Solution: Make fields unavailable if editing them is pointless. With clear visual hinting, misunderstandings can be avoided.

Support for construction of specialized tools and shortcuts would be good in order to fill different users need. By avoiding a fixed toolbar less energy could be devoted into deciding which tools it should contain and instead more on making a general toolbar suiting everyone. Alphas toolbar is shown in fig. 3.

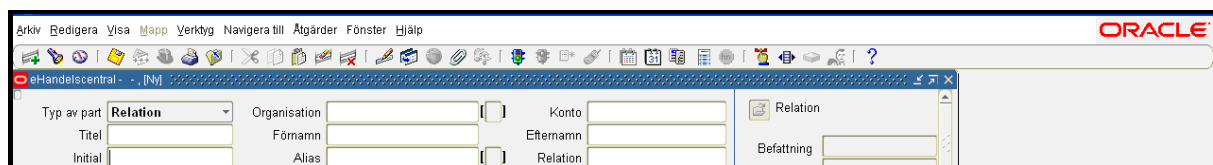


Figure 3

Offering the user possibilities to customize the toolbar would satisfy many.

A push on the Enter button does not generate a consistent result. Sometimes pushing Enter means the same as clicking the [...] button while in other cases will result in a different action. See fig. 4, 5 and 6. The naming and graphical layout should be consistent, a basic demand which should have been fulfilled before distribution. If this issue is not attended to the software is considered defect and will receive complaints.

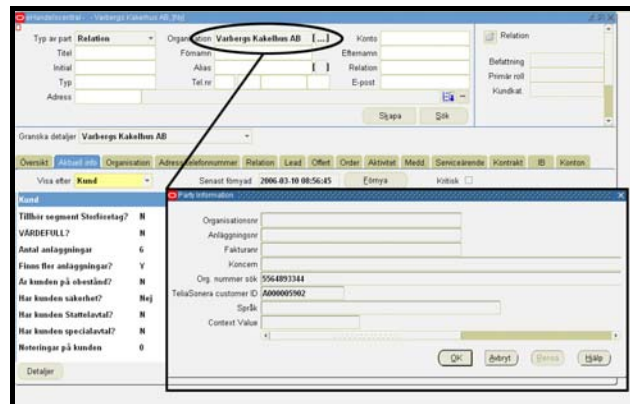


Figure 4

When pushing *Enter* this pop-up window will appear.

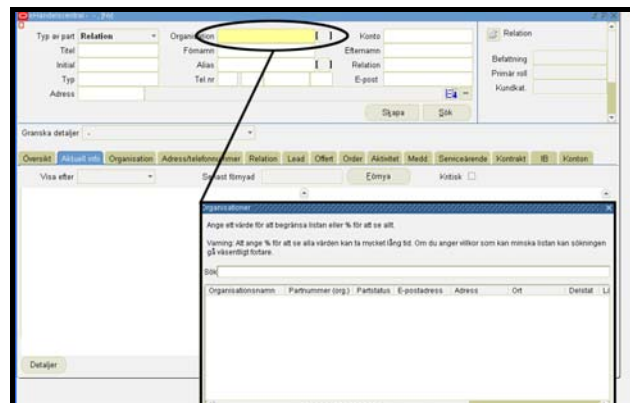


Figure 5

When the [...] button received a click this view will be shown

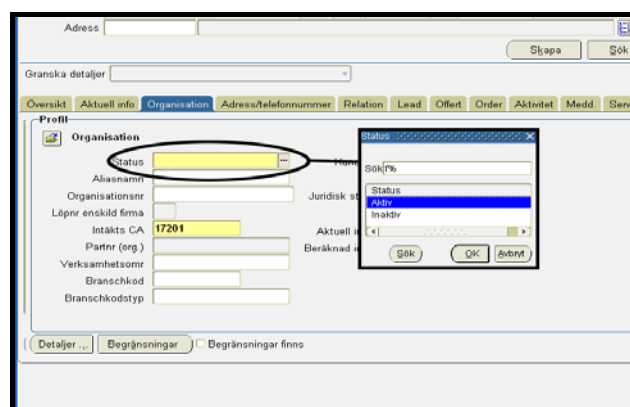


Figure 6

In this case pressing [...] and pressing Enter generates the same view.

It is unclear whether a field possesses a value-list¹ or not, to find out a click on the field is required. If one exist it is necessary type to a “%” to reach the complete list of values, simply clicking the [...] button will give an empty search form. This means that there is too much job reaching for a tool which goal is to simplify the work. This is a basic function that should have received attention from a usability group at Oracle. See fig. 7 and 8.

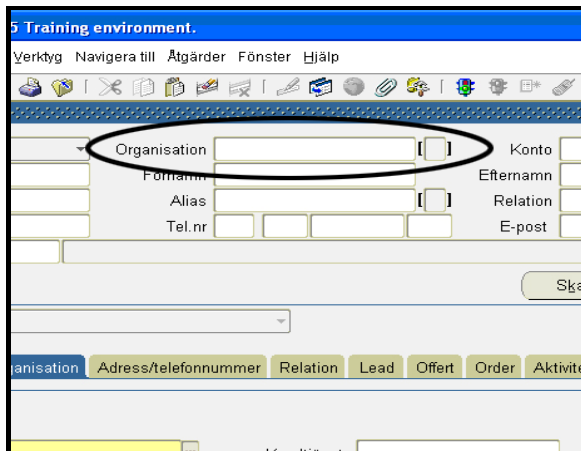


Figure 7
No indication of hidden functionality is given.

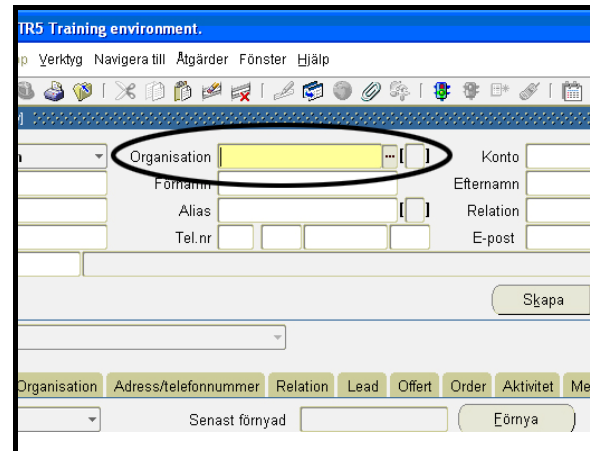


Figure 8
When the field, organisation, receives a click its appearance changes and a symbol for a value list is shown.

The possibility to resize all windows should be obvious. The lack of this function is rather remarkable. When the window is maximized no changes in the window's appearance can be found, as shown in fig. 9 and 10.

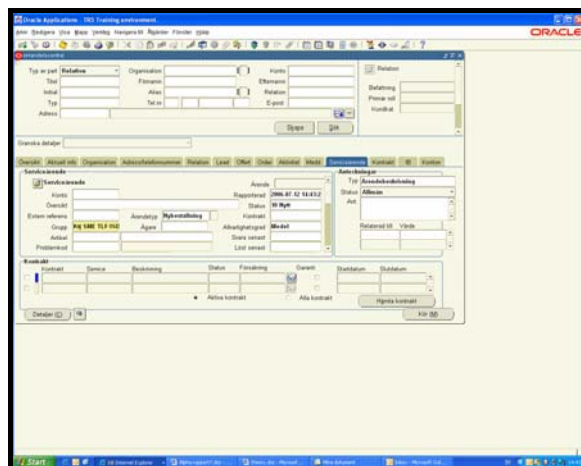


Figure 9
Before scaling

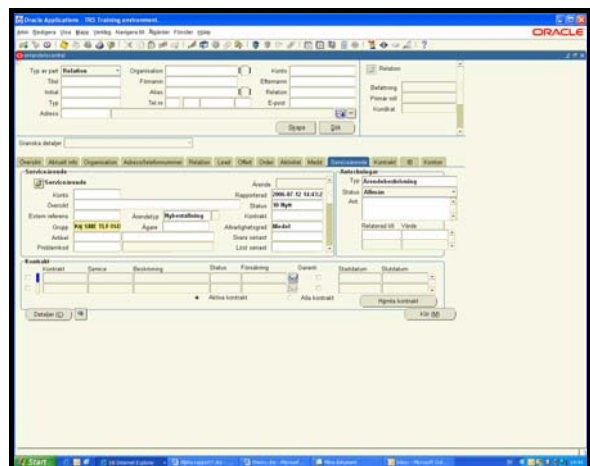


Figure 10
After scaling, no visible effect is shown.

To facilitate quick navigation and the use of keyboard-shortcuts it should be possible to navigate between all fields with the help of ALT-tab- buttons.

¹ A list containing possible input values.

There are many occasions when the users need to save their work but this is rarely indicated in the graphical user interface. Most dialogs miss a save button, users have to instead use the save button in the shortcut toolbar as shown in fig. 11. This seems quite illogical. The need for saving at all might be questioned. Saving is basically a shortcut method for not having a backward button but many users are familiar with a save functionality and like it. It can therefore be justified to have. If a save functionality is used it should, however, be visible to users and it should be clear when they are supposed to save. Having a save button in appropriate places should be more suitable.

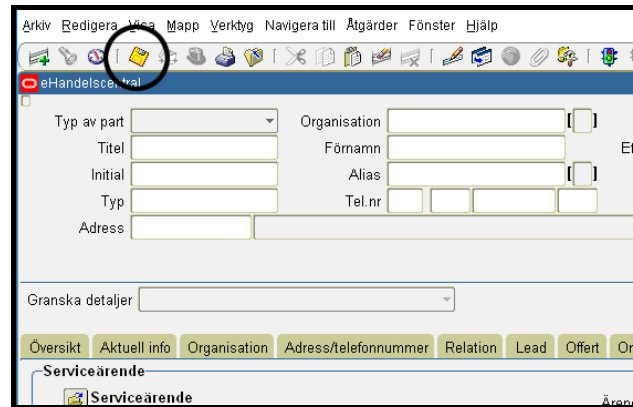


Figure 11
Save button found in the shortcut-toolbar

When working with the work queue the status of the service-commission must be changed manually. This is to show that someone is currently working the case otherwise someone might make conflicting changes. This could be done automatically. Today the cases position in the work queue will change even if it is opened and closed without any changes. It will be moved to the bottom of the queue even if it just was brought up by mistake. The position of the service-commission in the queue should not be changed. A user must have the freedom to look into cases without changing their positions in the queue.

To improve visibility of system status, open windows should be made visible in the work area. Today the opened windows are shown only under the window drop-down menu. No indication of which windows opened exists. The windows lie on top of each other covering their existence. Implementing a start bar, similar to the one found in Windows, will prevent this (fig. 12).

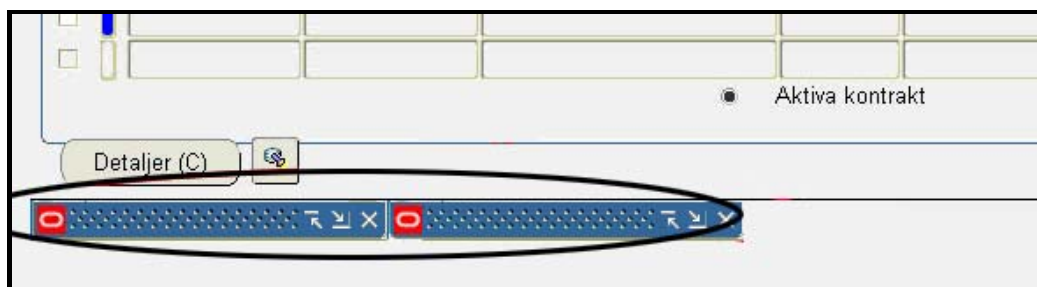


Figure 12
All windows opened are made visible, making it easy to toggle between them.

A complete list of customers addresses can be found under the tab named "adresser/telefonnummer" (fig.13 and 14). This list will easily be long and it can be necessary to have a function which can filter some of them, for example it could be an option to hide all inactive addresses. It should also be possible to create addresses when needed.

Today the user is forced to abandon their tasks and return to the window where addresses are created.

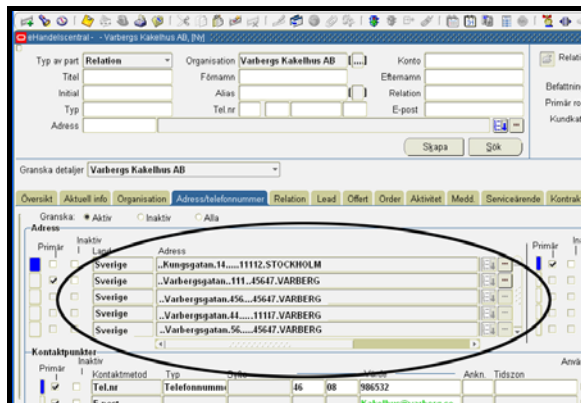


Figure 13
A long list of addresses can be hard to search.

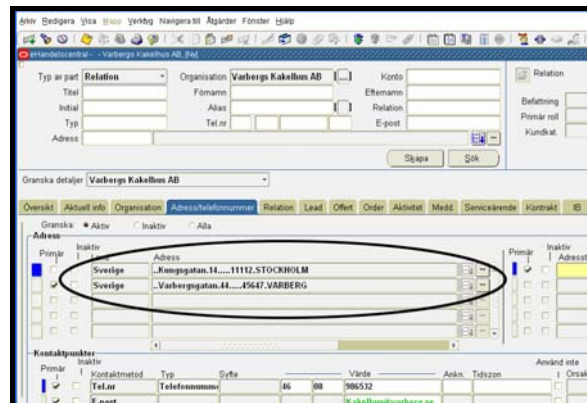


Figure 14
A filtering option can decrease the list and make the search easier.

It is not clearly visible if a message has or do not have an appendix enclosed. The only indication, see fig. 15 and 16, is a small icon shown in the menu bar and only when a selected message is chosen, this is easy to miss.

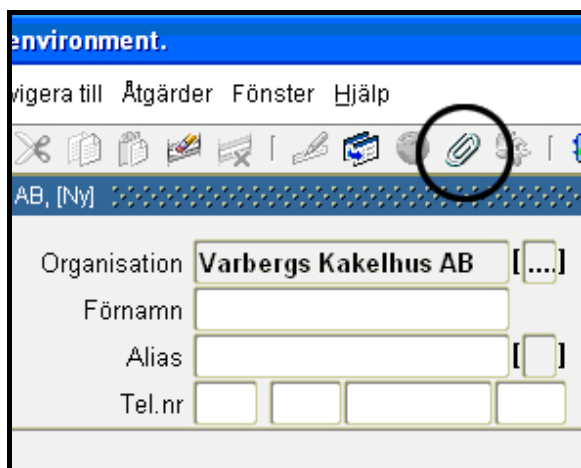


Figure 15
A message without attachment

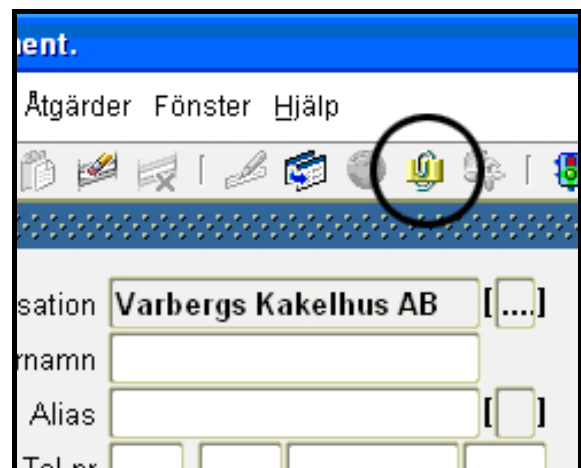


Figure 16
A message with attachment

In the tab current info (“aktuell info”) shown in fig. 19, some rows are clickable. However, this is not visualized in the graphical user interface. Covering information can never be considered good. The priority pile could be removed completely, it is not used at all and the information it radiates is not relevant. See fig. 18. In this tab, shown in fig. 17, it is also very inconsistent naming of attributes; some are in English while some are written in Swedish.

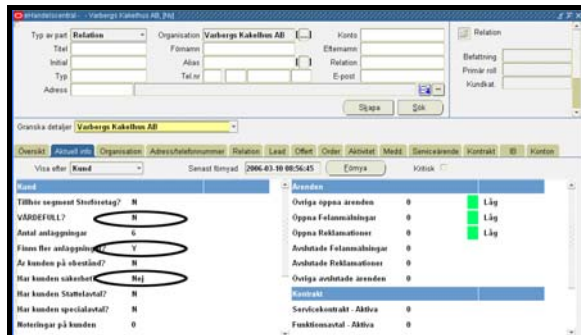


Figure 17
Some attributes are written N/Y and other NEJ/JA which is the Swedish translation of NO/YES.

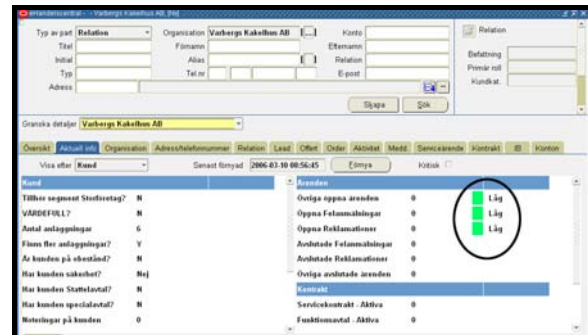


Figure 18
The thought behind the priority pile is good, however, the information is too inaccurate.

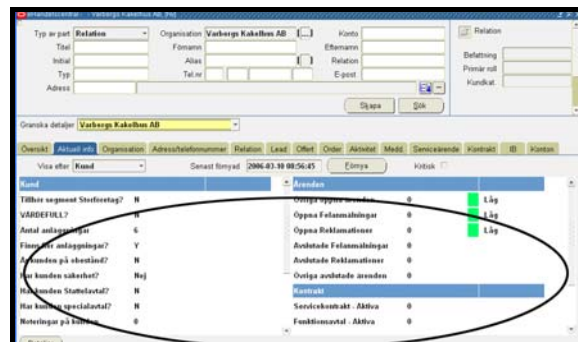


Figure 19
These rows are actually clickable buttons, something a beginner never can guess.

5.1.2 TeliaSonera's responsibilities

The tab Contract (“Kontrakt”) should contain information about the customer’s price-plan². It should also include more detailed information about the price-plan’s content. This is a feature that might be of interest especially for TeliaSonera and is therefore their responsibility.

Alpha should be connected to current marketing activities. Operators could then easier suggest suitable products and thereby increase their sales.

5.1.3 TeliaSonera's and Oracle's shared Responsibilities

There should be modes that can adjust the information visible depending on the user’s competence. Every user does not necessarily need to see everything. This function is both Oracle’s and TeliaSonera’s responsibility. Oracle is responsible to offer functionality that makes it possible to have user modes, and TeliaSonera is responsible for classifying and customizing the modes for the specific groups.

² Price-plan is an agreement of which prices the customer is entitled to.

All mandatory fields should be made visible. Instead of completely relying on the user to give correct information the system should support the user in his work. If it is not possible to mark all mandatory fields it would be better to keep the consistency and refrain from marking any field. Marking some fields can give the user an illusion of completion and they will skip double checking their work. Fixing this is a mixed responsibility. Of course Oracle cannot know which of the fields who should be mandatory, it might be different for every company. Their job is instead to offer an interface that easily allows marking of mandatory fields.

Increased possibilities for automatic information filling such as addresses and postal numbers should be given. This function might be hard to implement, but initially a feature that should be supported. This should be useful to all users and can be implemented by those companies that have access to address registers.

The existence of flexi-fields³ must be made more visible. Flexi-field is recognized by the symbol, [], shown in fig. 20. Flexi-fields hold information that is additional, customer specific, or in some way outside the standard content. The content hidden in them, which can be varying, should be made more visible. Sometimes mandatory information is hiding under a nameless flexi-field. Simplest solution would be to add a description of the content inside the brackets. Completely removing the brackets and just naming the field/button with a proper name could also be a working solution. This is a shared responsibility were Oracle should give the possibilities to name the fields and TeliaSonera's duty to actually do the naming.

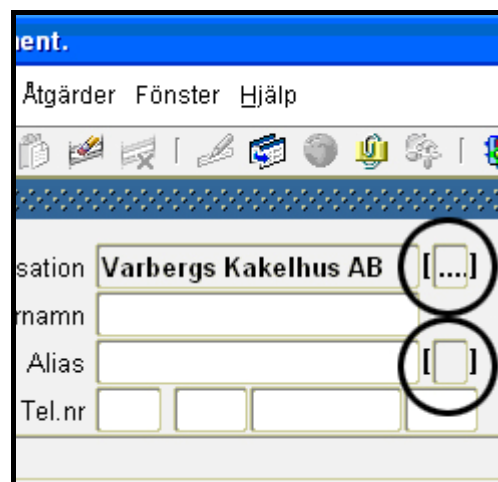


Figure 20
Visual appearances of flexi-fields.

³ A flexi field is actually like a button and will when clicked open a window which contains extra information.

6 The prototype

The help system was evaluated due to the indication of its shortcomings which emerged in the discussion with TeliaSonera. Our survey also suggested improvement needs. Forthcoming sections contain a description of the developed prototype. It contains two parts, the help system and the wizard.

6.1 The help system

Today Alpha includes a help function written by the lead trainers at TeliaSonera. A lead trainer is a person responsible for the information and education given to the users. Access to the current help function is reached by clicking on an icon in the toolbar, shown in fig. 21. The help function offers complete information about Alpha and is structured in different categories forming a tree of information, shown in fig. 22. It is necessary to know which category to pick in order to get the information needed. The help content describes how to navigate in Alpha as well as complete work procedures. This is a passive help function which does not communicate with the application at all. It gives help only when consulted and is unaware of users' actions.

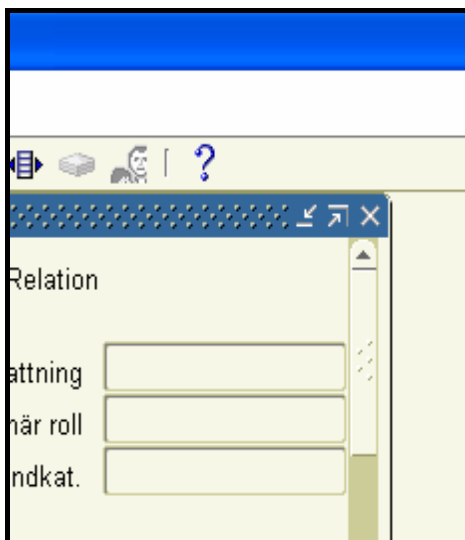


Figure 21
The current help system is reached from the toolbar.

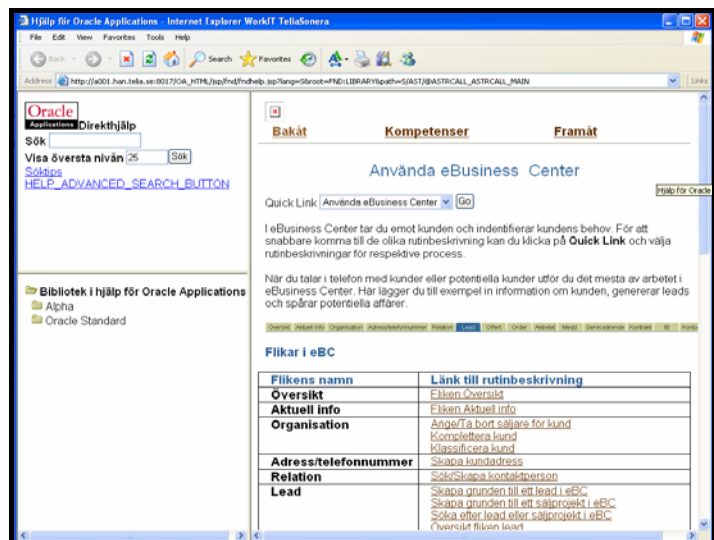


Figure 22
Overview of the current help

The prototype developed is of a more active nature than the current help system. It communicates with the application on some levels and has knowledge about the user's actions. Among other things it knows where the user operates. As the old system it gives help only when consulted.

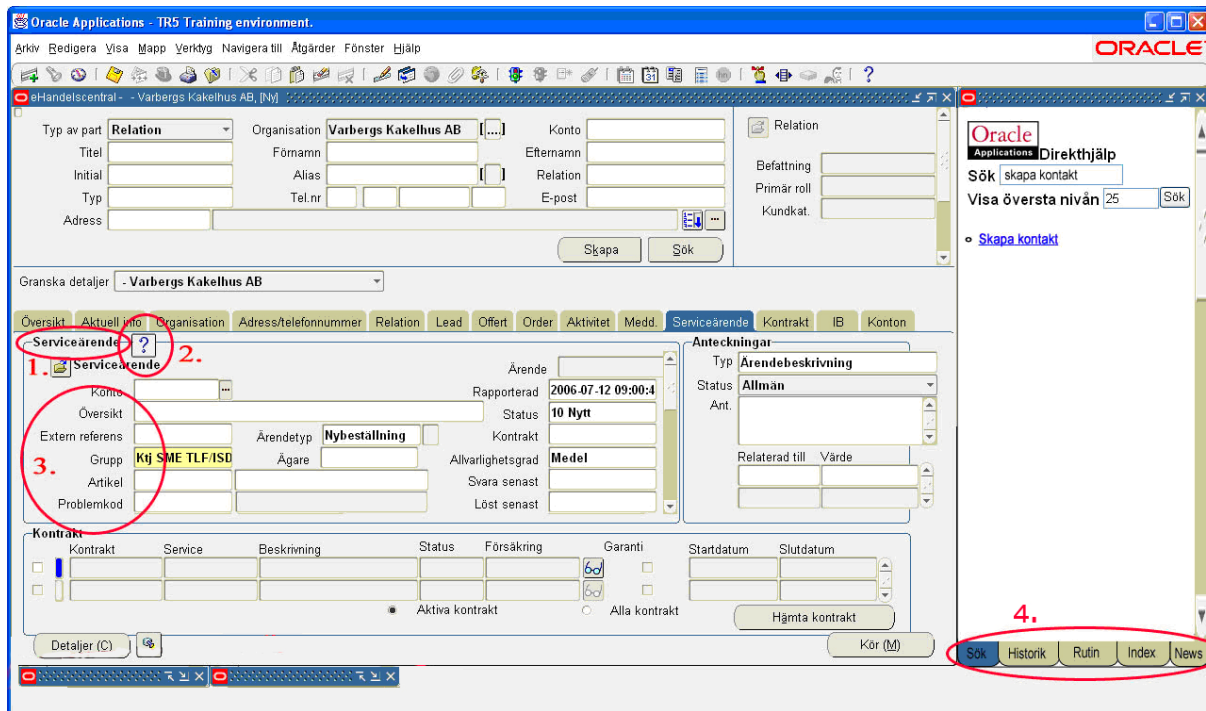


Figure 23
Overview of the developed help prototype

To make the help function even more accessible it is moved closer to the application. The current help function is located outside the main application and is accessed through a separate window. In the new help, information is shown within the application and is accessed through several locations;

- Region names (fig. 23, label 1),
- Region question mark (fig 23 label 2),
- Field names (fig. 23 label 3)
- The question mark in the main toolbar (fig 21), same as before.

The help information is found within the window located on the right side of the application shown in fig. 23 label 4. All help is found within that window. The help window is divided into different tabs to easily find relevant information, more about the tabs later.

When a region name is clicked a window appears. The text displayed in the windows is explanatory information of the corresponding region (fig. 24 label 1). The goal is to give users a basic understanding of the regions purpose. Windows can be moved and closed. They will always lie on top of the application to easily view the information while working with the application.

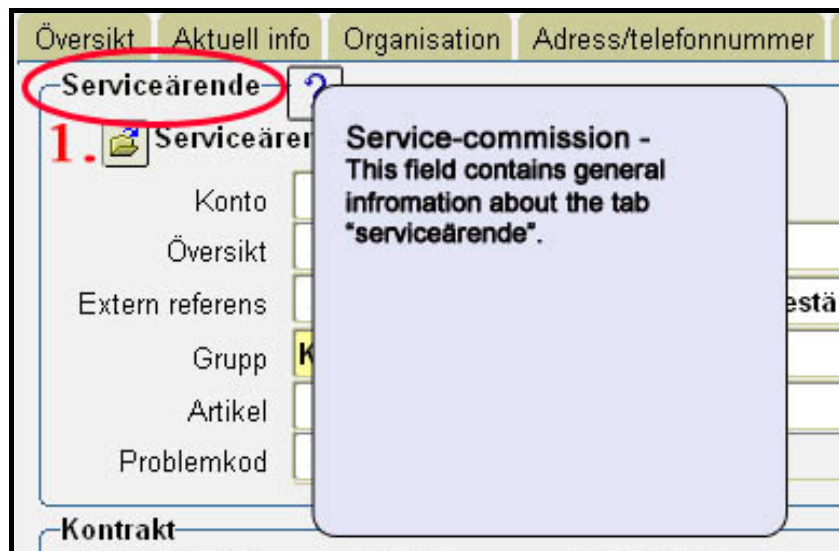


Figure 24

If a region names is clicked this will be shown

Another way to access help function is by the question mark button found next to the region name (fig. 25 label 2). The button locates all information which belongs to the region and displays it within the help window (fig. 23 label 4). The information contains descriptions of all procedures which can be invoked from that particular region. In this way irrelevant information is eliminated and users' information-search is thereby simplified.

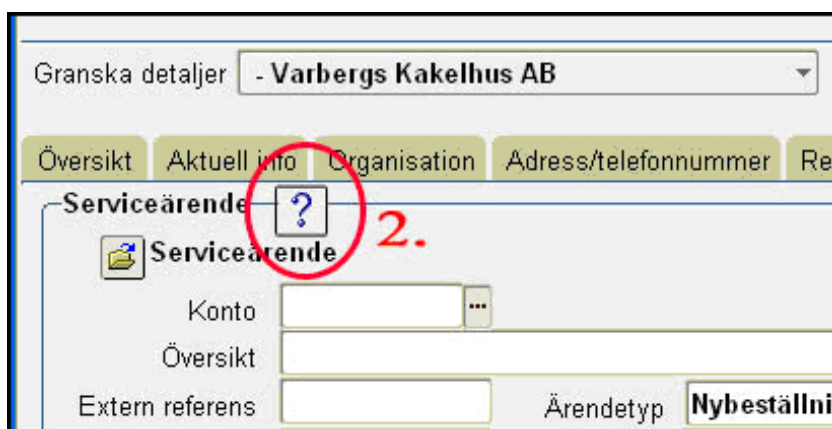


Figure 25

The access to help which are specific for this tab.

The field names shown in fig. 26 label 3 are also clickable. An indication of this is the changing appearance occurring on mouse-over; the text changes to a bold font. Clicking will give an explanation on what the field is used for and the input needed. It is hard to remember all the fields' functionality and meaning due to the systems large scope. This will therefore work as a small reminder getting the user back on track and confident with their work. It is easy to access and is reached within a click without having to search all available information. The text-window is of course movable and closable as well. The purpose of this is to make the help visible without covering needed parts of the work-area.

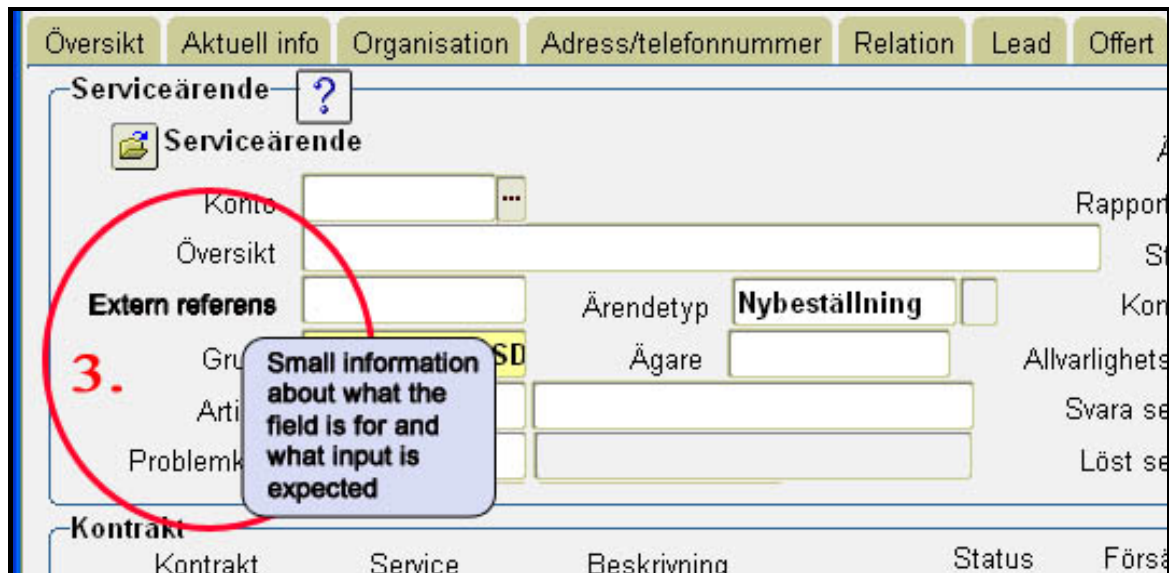


Figure 26

When pointing the mouse over the field name it gets a bold appearance and when clicked an information box appear.

The main help-window is divided into five different tabs shown in fig. 27 label 4. All help is available through this window. Today information can be found in several places and that makes it hard to know where to look. In this way information-search is facilitated by gathering all information in one place. The user knows where to look and can be confident about finding help within the limited time that he possess. Information is in one place but can be searched with several different tools. Offering several ways of searching for help broadens the possibilities to find correct information. Sometimes the topic is very vague and a broad search must be made, other times the subject is specified and browsing information by categories is faster.

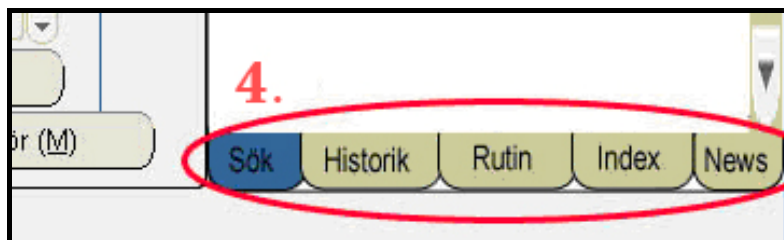


Figure 27

Overview of the different tabs found in the bottom of the help-window.

The first tab contains the search function. Users can search by keywords without further specification of the topic or select to search within topics connected only to the opened tab. Specification of a certain department can also narrow the search. When a search has been made, the result is shown in a list within the help-window. To view the content of a specific search the user can click on the search hit as it is a link to the detailed information. Information is then displayed below the search field. If it is the desired information and further guidance is needed it is possible to activate a wizard. More about the wizard in the next section. Previous search results will be replaced by the detailed information. To return to the search result the user can push the back button.

The user can find old search hits under the History tab (Historik). Often users look for the same things and repeating the same search is common. It is therefore possible for the user to save the search hit. This hit is saved in the History tab and thereby enables an easy way to go back and review old search results. The purpose is to give the user the possibility to make a personalized “clipboard” which can be filled with whatever information the user feels necessary.

Routine (Rutin) is a tab that contains all the routines. It is similar to the current help and is structured like a tree. Sometimes this is the superior way to find information. For example when the category is known and the user needs all information under that category. Detailed information can on the other hand be hard to find. Even if it is there it can be lost in the massive information. Because of the similarity to the current help function this will ease the transition making it as seamless as possible for those users who uses the current help function.

There is also an Index tab which contains information listed in alphabetical order. This information, if desired, is not limited to the user’s area of expertise (department). Sometimes the user needs to access information not needed on everyday basis. The user is able to choose if he prefer to view all information or just the information connected to the specific department.

Links to the latest information is displayed in the next tab called News. Under this tab the user can find additional information that will directly affect their work. Today this kind of information is spread by each key user through mail and it is up to the key user to decide the content of this mail. This leads to inconsistency in the information-flow. Key users have different priorities which may result in different interpretations of the procedures. In worst case this will lead to inconsistent information to the customers. An example of this kind of news is updates on the installation time of broadband. Another is updates of procedures for placing a specific order. In this way both users and key users can be guaranteed information which is correct and updated.

The above suggestion of the help functions visual presentation will hopefully make the transitions between help function and application transparent. It is useful to have a help function close to the application making the user feel that the help function is a part of the application. This will also avoid switching between windows to access the help function. The help area is of course scalable if the user wishes to view more text.

6.2 The wizard

To evolve the idea with a help function which helps users in an efficient way it was decided to develop a suggestion for a wizard. The wizard is supposed to operate transparently above Alpha and should be easily activated through a button in the help function. It is possible to activate the wizard whenever the user feels insecure about performing a task. The wizard would then help the user with the task making sure all the mandatory fields are filled correctly. It also shows the user if a certain order of procedures is necessary. To activate a wizard for a specific task, users first have to search for the “manual” describing the desired task and then activate it through pushing the button in the help function. A sequence of pictures of the wizard is shown below. They explain how the wizard is supposed to work.

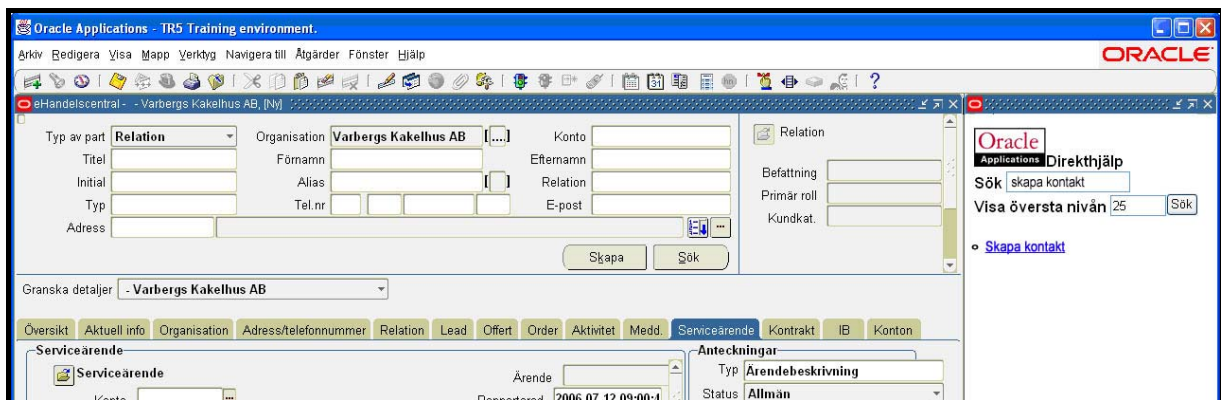


Figure 28

When a search for a routine is made the results will be shown as above. This view will be visible when a desired manual is found and chosen.

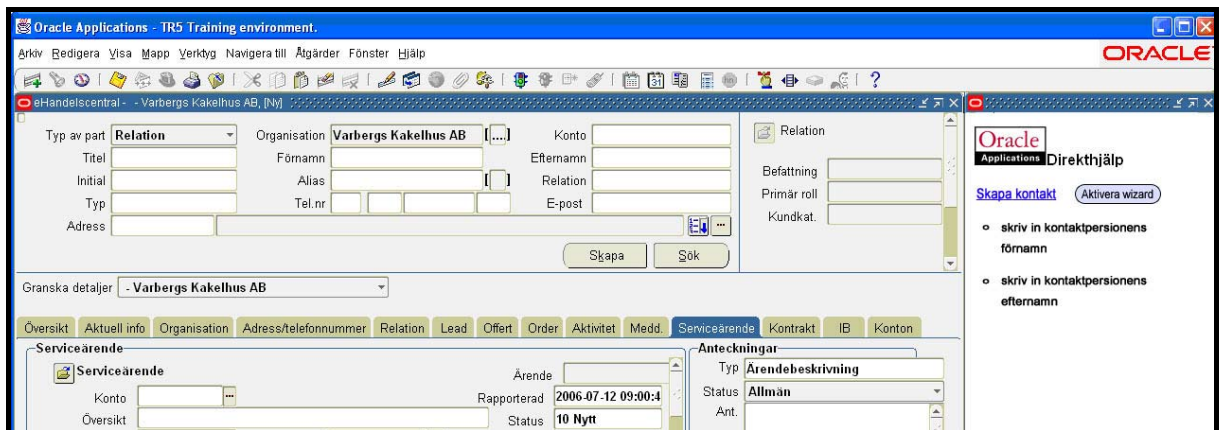


Figure 29

The wizard is activated by clicking on the button named "Activate wizard". The wizard will then take the user through the procedure step by step as shown in the figures below (figure 30-32).

Oracle Applications - TR5 Training environment.

Arkiv Redigera Visa Mapp Verktyg Navigera till Åtgärder Fönster Hjälp

ORACLE

eHandelscentral - Varbergs Kakelhus AB, [N]

Typ av part: Relation Organisation: Varbergs Kakelhus AB [...] Konto: Relation

Titel: Förnamn: E-post: Befattning:

Initial: Alias: Relation: Primär roll:

Typ: Tel.nr: Kundkat:

Adress:

Granska detaljer: - Varbergs Kakelhus AB

Översikt Aktuell info Organisation Adress/telefonnummer Relation Lead Offert Order Aktivitet Medd. Serviceärende Kontrakt IB Konton

Serviceärende

Ärende: Rapporterad: 2006-07-12 09:00:4

Anteckningar: Typ: Ärendebeskrivning Status: Allmän

Oracle Applications Direkt hjälp

WIZARD AKTIVERAD!

Skapa kontakt Aktivera wizard

- skriv in kontaktpersonens förnamn
- skriv in kontaktpersonens efternamn

Figure 30

Oracle Applications - TR5 Training environment.

Arkiv Redigera Visa Mapp Verktyg Navigera till Åtgärder Fönster Hjälp

ORACLE

eHandelscentral - Varbergs Kakelhus AB, [N]

Typ av part: Relation Organisation: Varbergs Kakelhus AB [...] Konto: Relation

Titel: Förnamn: Lisa Efternamn: Be Pri Ki

Initial: Alias: Relation: E-post:

Typ: Tel.nr: Kundkat:

Adress:

Granska detaljer: - Varbergs Kakelhus AB

Översikt Aktuell info Organisation Adress/telefonnummer Relation Lead Offert Order Aktivitet Medd. Serviceärende Kontrakt IB Konton

Serviceärende

Ärende: Rapporterad: 2006-07-12 09:00:4

Anteckningar: Typ: Ärendebeskrivning Status: Allmän

Oracle Applications Direkt hjälp

WIZARD AKTIVERAD!

Skapa kontakt Aktivera wizard

- skriv in kontaktpersonens förnamn
- skriv in kontaktpersonens efternamn

Figure 31

Oracle Applications - TR5 Training environment.

Arkiv Redigera Visa Mapp Verktyg Navigera till Åtgärder Fönster Hjälp

ORACLE

eHandelscentral - Varbergs Kakelhus AB, [N]

Typ av part: Relation Organisation: Varbergs Kakelhus AB [...] Konto: Relation

Titel: Förnamn: Lisa Efternamn: Andersson Be Pri Ki

Initial: Alias: Relation: E-post:

Typ: Tel.nr: Kundkat:

Adress:

Granska detaljer: - Varbergs Kakelhus AB

Översikt Aktuell info Organisation Adress/telefonnummer Relation Lead Offert Order Aktivitet Medd. Serviceärende Kontrakt IB Konton

Serviceärende

Ärende: Rapporterad: 2006-07-12 09:00:4

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WIZARD AKTIVERAD!

Skapa kontakt Aktivera wizard

- skriv in kontaktpersonens förnamn
- skriv in kontaktpersonens efternamn

Figure 32

This wizard can be of service to the user in many ways. When the user is a beginner they can use the wizard to learn Alpha. This will make sure that all the beginners will receive the same information no matter which office they are located in. By this the problems with consistency in TeliaSonera education will be solved. The wizard can also be switched on when an advanced user has to perform a new or seldom preformed task. A benefit from this is that the users will not disturb their colleges, they will also feel more confident with their work as they can manage on their own.

7 Result

Four interviews were performed in order to evaluate the prototype, these interviews can be found in Appendix B. The result will be presented below. Three of these interviews were made to validate the prototypes functionality. They were made with Eva Andersson (lead trainer), Maria Stråmo (key user, private segment), Göran Ekersund and Daniel Behm (key users, enterprise segment). Evaluation of the prototype was necessary in order to confirm the prototypes validity and to obtain a successful help function. The fourth interview has a different purpose. Its focus lies on the acceptance of Alpha. The interview was made with Marie Lundquist and Magnus Lundqvist (members of Alphas acceptance group).

7.1 Results from the prototype evaluation

Daniel and Göran find the prototype appealing, especially the history tab. They think a history function will lead to faster ways of finding help. We believe that users often get stuck on particular things several times, Daniel and Göran confirm our suspicions. Users find it hard to remember procedures that are seldom performed. Therefore they will only keep vague memories of which help sections to look in and much time is spent on finding the desired help. In those cases a history function would be really useful.

Eva liked the idea with putting the help closer to the application but she still wanted to keep her old structure. A lot of work is put into the current help function and it would be a shame to let it go to waist. However, most of the previous work could still be useful according to our opinion and the only thing that should change would be the presentation of it, not the content.

Users ask their colleges all the time and do not look for answers in the help, this is a problem. Eva agreed and says that she is trying to encourage the users to seek help on their own. She preferred showing them how to find help instead of giving them exact answers. This is a good start, but to motivate users to look for help they should be equipped with tools that support them. A good search function would make it easier to find help. Eva agreed that a good search function is needed and she has demanded one for a long time.

After observing the users work we could see that they had problems with the large amount of fields. It seemed hard to remember what they meant. We therefore suggested some small help text directly in the graphical user interface. However, we were unsure if this would be as big help as we thought, and we were therefore glad when Eva agreed and thought it would be a good idea. The short explaining text information was also well received by Daniel who said, “Often the problem with using help is that it takes time to find particular details and you can’t be sure to find it at all and you will therefore give up before even trying. It’s a big problem just finding help for simple fields and tabs, so making short explanations would make it worth reading the help instead of asking.” Göran continued and said “The navigation in today’s help is not simple. It would also be good if everything were available in the help. The current system is divided in different parts such as billing (“ta betalt”) and sell (“sälja”), words which may seem obvious to the author but users don’t agree. Today the help is considered intimidating and no one want to look or learn how to use it. The suggestion with the short help text is good and will probably be sufficient to ease the understanding”.

We also asked what Daniel and Göran thought of a wizard, Göran said “It would be great in the beginning. There are big problems with the education today, so sure, it would be very helpful with a wizard. But it will also be great to help the different departments work in a uniform manner. Today the lack of a uniform standard is a problem and a customer may receive different answers depending on which city who answer the call”. Eva was skeptic

about the wizard idea. She doubted that it was technically possible to implement as many tasks can be performed in different ways. Maria found the wizard function best suited for beginners and those who do a procedure seldom. She also thought it would be suiting for educational purposes. She thinks employing a wizard will make the education more consistent, not letting different routines be interpreted differently. She points out a very important problem and its solution; consistent education would solve the problems with departments on different locations giving conflicting information. Maria also had an interesting alternative to our suggested help function; she said “A system that is built on questions and answers would solve the problems with finding help, help wouldn’t be needed”. Again we agree but as this is not possible to implement in Alpha it lies outside the range of this report and we disregarded her idea. However, for future projects it would be good to keep this solution in mind. It would be a safe way to navigate users through their task with them focusing on the customers’ problems instead of a complex system.

Maria thought that a help system should offer everything, not just specific help about the application but also prices and routines. She also thought that routines should be easy to understand and search, they should follow a standard, and every routine should be alike. It was also interesting to see that she had not heard the roomers about an unchangeable system. She was free to demand anything without limiting her demands. As she is very involved with education she also emphasized how important it is to have an education that teaches the user how to search help. If the user knows how to learn he can always find solutions and ways to solve these. If he instead learns a number of fixed procedures he will stand clueless as soon as he has to do new things or when procedures changes. She said “There must be an attitude change to make people stop asking questions and search for help themselves” and emphasized that a supporting environment that encouraged this kind of thinking was important. Göran confirmed the problems with the attitude towards the help function when he said “The education of the help isn’t made thoroughly. The help system is mentioned in some short sentences, not more. Only a couple of questions are dedicated to the help system in the training material”.

Another important goal of our help function was to make it useful under limited time frames, the success of this goal was supported of Daniel who said that he thought that it was an easy way to find help even with a customer waiting. But Göran objected to this and said “it should only work if the system is updated continuously and the information is easy to read and relevant”.

The suggestion to have a window bar at the bottom of the screen was not of interest for Eva, she said, “It should clutter the interface” We do not agree with this opinion. The windows are placed on top of each other and it is very easy to miss an underlying window. Of course opened windows can be viewed in the window curtain menu, but this demands an active action, and according to us it is hard to make anything too visible. Daniel on the other hand agreed with us and said “Having opened windows always visible makes it easier to change between them even though the education emphasized using the window menu. However, new users have problems switching windows”

Eva has been a good source to us and she has given us a lot of valuable tips. When we asked if she had any other opinions she pointed out that it was not possible to scroll in the windows with the mouse. This is really remarkable. Daniel pointed out another flaw when he said “Switching between windows within Alpha is a problem. No simple way exists, such as alt-tab which is used when switching between different programs. It would also be good to have an automatic formatting of the windows for example resizing windows so that four windows

would be visible at the same time without doing the frustrating work of resizing and moving them manually”

7.2 Results from the Interview with the establishment team

From the interview with the acceptance team we can conclude that TeliaSonera has made a very thorough job with their acceptance process. They had a team which focused on getting Alpha accepted among the users. Marie explained Alphas purpose and said “Alpha is a suit that we can grow in.” By that she means that Alpha makes way for easier development of future products. This was hard or even impossible to do in the old systems. The old systems did not easily communicate with each other and it was therefore hard to supply combined services derived from different systems. Marie continued “Alpha is an important step that we have to take no matter what. It might not be the best system for the users, it will not make their work easier, and it might even make it harder. But we have to stay focused on the big picture. Alpha is a standard system and we have to adjust to it. We have to rethink our way of working because otherwise the organization cannot evolve.” Alpha might be good for the management but users who fight with this program in their daily work might easily forget this picture as the program makes their job too hard. Marie said “We understand that getting a new system will probably make the users feel uncomfortable. The whole structure of the workplace will suddenly change. One user that was good at the old system might be bad at the new one resulting in change of balance making users feel negative towards the system.” They tried to solve this in many ways such as introducing key users, FAQ services and so on, but the question is, is that enough? It is important to have a thorough acceptance process, but it can not compensate for every flaw in the system. The users might accept some small flaws in order to see the big picture but he will not forget things that bug him every day. Marie pointed out that they tried to remind the user of the big goals every time users received new education. Repeating the message is good to gain acceptance.

Marie also talked about some positive events for the future “Alpha is adjusting towards increased usability. We have recently made some changes to make Alpha more suitable for customer service”. What we can see some improvements are indeed made, but it might be hard to regain acceptance.

8 Discussion

This chapter is divided in four parts and will discuss the standard system Alpha. It will talk about Alphas difficulties and how they can be handled. User evaluation is an important step towards solving these problems. It also discusses the prototype development and which benefit it gives Alpha.

8.1 TeliaSonera's standard system, Alpha

There are a lot to consider when implementing a standard system. There are many obvious advantages, but unfortunately many drawbacks as well. Standard systems bring advantages such as saving money by cutting development-costs. This is the idea behind a standard system. It is a general solution allowing a wide range of use. However, the downside of a general system is that it might be too general and will not suit any of the companies completely. An "untouched" standard system like this will probably not be that usable. To make a standard system a bit more usable the company has to customize the system. They have to hire someone to implement the customizations if such are needed. Extra functionality besides those supplied is expensive, not everything is possible making either. This is the tradeoff; usability verses money. To achieve a more usable standard system the company has to customize the application to suit their special needs and that means that the standard system's cost increases. However, the whole point with a standard system is to save money and if they customize the system completely the cost will probably be too high and they would be better off developing a system from scratch.

A conclusion is then; a standard system cannot be as usable as a tailored system. When implementing a standard system you are bound to make usability tradeoffs. However, this might be righteous. If the company has a flexible organization it is possible to adjust their work procedures to better adapt to the systems behavior. Small changes in the organization might be good, but if the system requires several fundamental changes it can be a problem.

As stated before, customer service operators at TeliaSonera are under high stress and are required to answer questions fast and proper to achieve their high goals. In this case asking the operators to adjust their work to a system will be displeasing. In the competition with the competitors is it really worth to sacrifice the operators thus sacrificing the biggest asset, the customers, in this way?

But the question is; is it really necessary? Is the only way, when dealing with a standard system, either to invest a lot of money or to get dissatisfied users? Is it really necessary to make this tradeoff? We actually think that this problem should not exist. The system developer should not be allowed to deliver an incomplete system. We believe it is possible to make a usable standard system. The simple flaws found during this project should be fixed even though the purchasing companies do not particularly demand it. The customers should not accept it and therefore not buy it. For example the ability to scroll and resize is something which all companies will find useful. The image we received at TeliaSonera was that Oracles products are somewhat unchangeable.

Alpha is a good system and is necessary for TeliaSonera in many ways. For example Alpha possesses an easier way to develop new products and services. TeliaSonera needs to stay on top since the competition gets tighter, to manage that they have to create ways to develop new interesting products to introduce on the fast changing market. So for now, Alpha does not

match the procedures that TeliaSonera uses, but it will in the future be a powerful weapon against their competition.

An advantage with Alpha is that it is suppose to work as one system with the complete customer information collected. The question about whether Alpha possesses an overview of the customer was asked in the survey. The users gave only average grades and claims that important information is still missing from Alpha. Today they use other systems as a complement. Worth remembering is that the implementation of Alpha is not yet complete and this can be a reason for the missing information. However, this opinion cannot be disregarded since this is an important argument to why TeliaSonera has employed Alpha.

Even if Alpha was introduced three years ago users still have access to the older systems that Alpha is supposed to replace. In the survey users state a long list of complementary systems used. Users often do their tasks in the old systems instead of Alpha since they feel that Alpha is unreliable and hard to use. They do not trust the system. Especially when there have been many occasions when orders⁴ that were placed fell through and users had to place them all over again. Worth mentioning is that the reason for this in many cases are administration errors. The interesting part is why they were done wrong. Is it lack of knowledge or can it be a lacking system? Probably it is a little bit of both. The system is complicated. As said before the image given is that usability is less prioritized. But a lot of times the system is not the problem. In this case we believe that the problem is the users' lack of knowledge. They can still operate in the old systems so whenever they bump into a problem they return to the old systems which means that they never have to learn the new system. This theory is supported by the fact that a new user, that does not know the old systems, accepts Alpha better. Another fact that underlines the "cheating" is something we saw during the passive observations. The users run Alpha all day but they did not do much in it, instead they use other systems. Our concern is then; would Alpha be better accepted if there were fewer chances to cheat with the old programs forcing them to learn and trust the new?

As said before Alpha was developed to replace many of the systems used. However, today it seems like the list of systems is still increasing. This speaks against the main idea and therefore contributes to the systems bad reputation. It is already bad enough as the response times of the software is rather slow. The survey showed that most users prefer doing tasks while the customer waits on the phone. The problem with the response time disables this work procedure. Slow response times increases the pressure and stress and it is catastrophic, having a fast and trustworthy application is of highest priority. Slow response time in combination with the enormous amount of old system that, after all, still work better and faster, makes the overall impression of Alpha low. Thus, the user has problems fully accepting the software. Simply removing old systems might improve Alpha's reputation even without improvements of Alpha. However, usability issues in Alpha must still be attended to in order to get a fully usable application.

As the users were encouraged to give improvement suggestions of the application, long lists of wishes were expected. No such were found. One explanation was the users' lack of knowledge of what to improve. They are not aware of the possibilities and are therefore in a doubtful position to give suggestions. However, that might not be the explanation. The participants did not get any dedicated time assigned to finish the questioner, and therefore gave it low priority. When they were asked to hand them in, they filled them out in a rush not

⁴ An order is one or a list of bookings. These bookings can consist of many things for example a leas or moving of a leas, or a reservation for a technician.

to fall behind with their regular tasks. Lack of time to complete the questionnaire might therefore be a likeable cause. The few who answered mentioned the clearest visible issues, the slow response time and the inconsistent naming of fields.

8.2 Acceptance of Alpha

During the work on this project something occurred to us; to really cover the usability issue one cannot neglect the attitude towards the system in question. We realized that when making a system usable there is more than the systems feature that has to change. Acceptance of the system is also important.

There are a lot to consider when working with the acceptance of a standard system. Acceptance is very important since the standard system is not a perfect fit for the organization. It is unfortunately very easy to start of on the wrong foot with the users. Therefore it is important to involve the users in an early stage of the acceptance process.

So, have TeliaSonera fulfilled the acceptance factors? Well you can certainly say that they have. They have actually been very thorough. We can conclude that information has been given to the users, a lot and in a very early stage. The strategy they have used is a Push-strategy. The information has been pushed on to the users. This seems to be the right thing to do hence the size of the organization.

Something which TeliaSonera have been particular good at is to put the system in its context. They have been very clear about why they need to implement a system like Alpha and what it will do for the company. The system is thought of as a suit that they are supposed to grow in. By this they mean that it might not fit at once, but it will eventually. From what we can tell, the users seem to understand the message they try to send. However, users tend to forget it once in a while.

It is important that the buyer and the supplier make a reasonable presentation of the application, preventing the user from getting too high expectations. In TeliaSonera's case they had to market the system well among the users. It is not a system that will facilitate the users work at once. It will not even help them in the same way as the other systems. This was realized when we talked to some members of the establishment-team. They claim that the system has a higher purpose; it is a great system to reach TeliaSonera's goal to stay competitive. The users were a small sacrifice that they were willing to make in order to focus on the big picture. This is astonishing and we strongly question this tradeoff. However, some customizations are made to compensate the users.

Education is important. It is where the user receives understanding of the system. Education is a suitable channel for the company to once more preach the goals and purpose of the system. This opportunity has TeliaSonera taken advantage of. They repeat the purpose every time the user performs a new phase of the education. Even though the user might not pay much attention to the information about the purpose the user will still unconsciously understand and will slowly grasp and accept the message that TeliaSonera tries to send to them.

It is important to see the user as an asset in the acceptance process. This is something that we feel TeliaSonera have succeeded at. They have realized in an early stage that they need to get the user onboard otherwise the company will not prevail. There are a lot of facts that supports this theory. For example, the establishment-team focused on spreading the message and made sure that the user received the information. They had an FAQ which they constantly updated to fit the users needs. The group also conducted follow-ups on how well the message was

received. Unfortunately we never got a clear picture of what they revealed but the concluding impression was negative. Surprisingly they seemed to disregard these results.

Something which is very important when being in the acceptance process is to create a sense of the system's indispensability in order for the organization to work. This will motivate usage of the system. TeliaSonera motivates their users; the constantly flowing information makes it impossible to think this system is unnecessary. However, since TeliaSonera is unable to shut down the corresponding systems users think that the system is dispensable, the organization will work even without Alpha. So they are actually undermining themselves, ironically. When Alpha is implemented in the private segment it will be easier to shut down some of the systems and then the users really have to rely on Alpha. Hopefully the effect of this will be the users finally accepting the system and then the acceptance process will be complete. However, usability issues will still remain. The goal must always be to develop an application with good usability. Forcing users to accept the system does not solve the usability problems only the acceptance.

8.3 Alpha; considering the graphical user interface

Alpha, as it is today, is far from perfect. Usability seems to lack priority, at least for the moment. But what exactly is wrong? Has Alpha a good user interface? But first; what makes a good interface? A good interface is where balance between technology and the user needs exist. In Alpha's case it is clear that the technology is a priority. There are several examples where the user needs have been neglected. In the section below we can view these.

8.3.1 Usability heuristics

Ten usability heuristics have been mentioned in the theory section. Now Alpha will be discussed considering these heuristics.

The first heuristic is "visibility of system status". This is about keeping the user informed what is happening. Alpha does not fully support this according to our observations. There is a status bar, on the bottom of the application, which indicates actions such as saving and deleting. This is hardly visible. The information that is given is also quite irrelevant. It can tell when something is done wrong or when something is missing but often it cannot tell what it is. So unfortunately this heuristic is not fulfilled.

"Match between system and the real world" is the second heuristic which means that the system has to speak the user's language and not use unfamiliar terms. One of TeliaSonera's wishes was that Alpha had to be in Swedish. We feel that the problem with the unfamiliar terms derives from this decision. The English words in Alpha which include unfamiliar system terms are translated directly to Swedish. Weird words are unavoidable by this method. However, since the users working in customer service use the system frequently they reach an intermediate level quite fast and simple things as recalling words will be a problem mostly for beginners.

"User control and freedom" is another important heuristic. It argues that the user has to be able to easily escape and go back from unexpected places and situations. This heuristic is a very important to fulfill in a system that is in use in a customer service. Customers usually change their minds and are not always sure what they want. According to our opinion Alpha sometimes supports this heuristic. It is possible to minimize windows which enable escaping without saving the changes. However, there are times when Alpha is unable to move further and the user is forced to give an input in order to continue.

The fourth heuristic is “consistency and standards” which means that the words and phrases used in the system has to be consistent; not letting the user wonder if the different words mean the same thing. Alpha lacks this concept. It is a large system which is developed by many programmers. With this in mind it is easy to understand Alpha's consistency problem. The words employed are not consistent, for example the fields prompting for customers' telephone-number is named at least four different things (“anläggning”, “extern referens”, “identitet”, “nummer”) depending on which view currently visible. This problem should not be difficult to correct and definitely not cost anything for TeliaSonera since it stands to reason that Oracle should deliver a complete system. And it is not complete with such a vital defect.

“Help users recognize, diagnose, and recover from errors” is the fifth heuristic. A pop-up window appears whenever an error occurs in Alpha, which is good. Unfortunately the text written in some of the pop-ups is text coming from debugging sessions. This is of course completely useless to a user. In some parts of the pop-ups there is readable text, this text can in most cases point out the error's character. It should exist more of these messages in Alpha, it should be a requirement.

“Error prevention” is the next heuristic. This heuristic is not met either. There are no indications to the user that he is going in the wrong direction. It is easy to make mistakes in Alpha; the only thing that possibly prevents the user from making those is the “value list”, where a proper parameter can be chosen from a list. Although there is nothing that tells the user what parameter to choose.

“Recognition rather than recall” is a heuristic that applies to the former example. As said before some fields in Alpha provide a “value list” that allows the user to choose a value. This is a classic example of recognition. A user recognizes a value easier than recalling it. Suggestions for evolving this concept are found in the help prototype. One suggestion is similar to the existing “value list”. Every field should contain an explanation to the meaning and purpose of the field. More about this can be found in the previous chapter, 6.1.

The eighth heuristics are “flexibility and efficiency of use”. This heuristic is about providing tools for advanced users, making their work more efficient, and at the same time they should be functional for beginners. These accelerators can be found in Alpha and appear in the form of short commands. However, sometimes different functions can apply to same short command and this is confusing. Other tools that count as accelerators are a few shortcuts to functions which can be found on top of the application. These are also visible to beginners but that is, as we see it, a benefit.

“An esthetic and minimalist design” means that irrelevant information should be hidden. This is particularly hard to consider when talking about a standard system; since it is a general solution that many companies employ it is almost impossible not to show irrelevant information. It gets even more impossible to consider in TeliaSonera because there are a lot of different departments in customer service, all dependent on slightly different information. The users are therefore bound to view irrelevant information. However, this issue can be avoided if you tie the displayed information to the different departments. Since the user-ids are tied to a specific department users will only view relevant information. This concept has also been covered in the improvement suggestion chapter, 5.

The last heuristic is “help and documentation”. It means that help should be provided to the user when needed, something that actually is provided in Alpha. However, it is not used by the users, at least not frequently. It does not matter how good or how well written the help is

or even how big effort it took making, if it is not used, it is useless either way. We decided to revise the help and develop a new way of providing it. More about this in chapter 6.1, The help system.

8.3.2 Navigating Alpha

Few opinions were given on the menu and toolbar questions, but the classical two camp groups are represented. Half prefers the menu and half the toolbar. However, the toolbar can be improved. The user could be given possibilities to customize the toolbar-interface to suit personal workflows. One can also make studies to see which tools “efficient users” uses and help new users work more efficient by guiding them to known efficient ways of making procedures, instead of letting every user struggle to find their own. Of course there must be space for personalized customization but learning good procedures from the start can be a good guide too.

8.3.3 Beginners and experts in Alpha

The people working in TeliaSonera’s customer service use the systems available quite frequently. They answer several calls a day and Alpha is used in some of those calls. Previous paragraphs have discussed Alpha and its lack of usability. But how do the users get by everyday using a lacking system. Well the answer is simple, they develop their own way of dealing with the systems defects learning how to disregard things and adjust their behavior. They do not pay attention to the “extra” information displayed and they know the functions of the buttons even though they have bad names and weird symbols. Because of the extensive use of these buttons users learn the consequences. The survey showed that users find frequently preformed tasks logical and tasks seldom preformed not logical. From that one can conclude that it may in many cases be people’s knowledge or attitude and not the system that is problematic. Just because the procedure is preformed often and therefore accepted by the user it does not mean that it is good or effective. The tasks can simply be familiar to users and therefore accepted even though they might take long time or be hard to find. Users accept them better because they know how to handle them. But when dealing with customer service it is of great importance to strive for effective procedures. However, when a new user starts using the system or when an old one has to do a task that they seldom perform, the lack of usability becomes an obvious problem. Is it possible to design a tool that can be of help to both a beginner and an expert without disturbing everyday tasks?

8.4 Help system

Help systems are easily neglected when making software. They are usually constructed as a TV-manual and who uses them?

The current help is constructed like a passive book, the only navigation help is “chapter” headlines. The image we received at TeliaSonera was that the current help is not used much. Users think it is hard to find answers in and the attitude towards the help is therefore bad. They rather ask their colleges. This was not clearly illustrated in the survey, however, it was something that we observed during the passive observation and during our stay at TeliaSonera. The new help function that was developed during this project works more like an active help system. It is not completely active but at least a bit more than the current help function. It has some knowledge about the user’s actions.

During the interviews with the key users we found an answer to the low usage of the current help function. The education material does not pay much attention to the help function, and

therefore the users do not know how to use it. During the education it is preferable to establish acceptance, something that at least is worth considering.

TeliaSonera has a problem with Alpha and the fact that it is a standard system. But what if there was a possibility to work around the issues with a standard system? We argue that there are ways. If a more active help system is constructed for the application it would be possible to bypass some of the issues with a standard system. If communication between the application and the help exists it renders possibilities for the help system to be aware of users' current actions. The help system is then able to guide the user in a way which gives the user a sense of personalized help. Thus, the user will feel that the system is friendly and the usability issues are bypassed. This kind of help system will also compensate for the people that lack some knowledge. Since the help system also will educate the user during their work the user will eventually learn.

Thus, the question from previous section, "Is it possible to design a tool that can be of help to both a beginner and experts without disturbing everyday tasks?" is answered yes; if implementing our partly active help system the goals will hopefully be reached.

8.4.1 Prototype development

It was quite clear what to change to make a better help function. Better ways to sort the information is necessary to both increase the acceptance and making the system more usable. As previous solutions have been to simply introduce new systems, it was important not to rewrite history this time. Yet another system would only be annoying. Therefore we decided to evolve the already existing help and move it closer to the application, making the transition between help and application seamless.

8.4.2 Prototype evaluation

It was quite interesting to make the interviews which aimed at evaluating the help system-prototype. Overall the results were positive. All participants wished for the idea to be realized, just asking when they could have this kind of help system. Even though the feedback was positive there are reasons for doubts. First of all, the participants were presented with only one new suggestion, and their old alternative was in another type of league. Maybe our solution is much better than the old versions, but still there might be other solution more suitable. There is also an issue regarding the cost. An implementation of this gratitude will probably be expensive. However, it might just be what TeliaSonera needs. The question is; is the benefit larger then the cost of implementation? This question is important to consider. Of course, we feel that the benefits are sufficient and that TeliaSonera would be better off with a solution like this, the interviewees obviously agree. The result of the cost calculations will have to decide whether it is remunerative or not. However, making this calculation is beyond this report.

The conclusion of the evaluation established that the help function possesses following benefits:

- Increased confidence among users
- Reduced distractions
- Increased usability
- Decreased phone-time

We believe that the result of this will be an efficient and satisfying user environment.

9 Conclusions

It is a lot to consider when implementing a standard system like Alpha. On one hand you have a really good system which saves a lot of money on development and maintenance, and on the other you have the usability issue which is a great concern for the users. If usability is lacking it will become hard to motivate users to use the presumed good and moneysaving system, we have a tradeoff.

In TeliaSonera's case we think it is possible to achieve a good usability by implementation of our proposed solution. First of all, we think Oracle should be able to deliver a system with a higher degree of functionality. They should also deliver a system that is carefully tested. For example, scrollable and scalable windows are a must in these types of applications. This should be a requirement from all customers and not too hard to implement. There is also a great need to have standard platforms which are easy to, if needed, customize. Anyhow this might just be a dream which never comes true. So we cannot rely on Oracle in order to solve TeliaSonera's problem. We have to work with the system as it is today.

The help function is one step towards the goal and another is implementing the list with the small improvements. We believe that with a good help function one can bypass the whole usability-issue of a standard system and still keep the benefit of saving money. This help system will be a replacement to some of the usability customizations made just for TeliaSonera without decreasing the users confidence. The user will still feel that the system is usable. As long as the user has a good chance of learning the procedures they can get used to anything. Since the users, working in customer service, are frequent users they will become good quite fast. And things rarely performed will have reminders instructing them what to do.

Acceptance of a new system is connected to a number of things. We think there are three main areas which are very important:

- Usability/quality of the new system
- A carefully performed acceptance process
- Seamless transition from the old systems to the new

If these areas are neglected it will have negative impact on how fast the new system will be accepted and thereby used. In worst case it may jeopardize the full implementation.

Our recommendation in general, based on what we have seen, is to:

- Demand consistency and usability from the developer.
- Achieve a fast and reliable system which operates independent, allowing determination of obsolete systems in order to avoid double work for the users.
- Secure that a positive spirit imbues the entire project.

9.1 Propositions for further studies

For further studies we propose deeper evaluation of Alpha. As our focus lied on customer service for enterprise segment, there are several parts of the system that has not been considered. For example there is a large invoice module which might need some attention.

The help system which has been made is also in need of further development. It is also important to make an estimation of the cost to be able to decide whether it is remunerative or not. If it is profitable a technical solution behind the functionality has to be constructed and carefully evaluated. However, this lies outside the range of this report and is a suiting area for further studies.

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APPENDIX A

Result of the usability survey

User experience and use of the software

Alpha is used 3-4/h a day by two users, four users uses it the most of the day while two uses it just an hour a day. One user adds, that he has alpha running the whole day but that he only uses it for every third customer

Five users have used the software for 2 years (nr 2, 3, 4, 5, 6), two 1 year (nr 1 and 7) and participant nr 8, 3 years.

Education and user level

The users estimated their education period to 1-2 weeks. Participant nr 3 says that it is hard to estimate the length of the education and says that “education is constantly ongoing”. Participant nr 5 says “5 days with a teacher, but ongoing self education.” further comments follows, “about a week but an hour now and then when something new comes up” (participant nr 6) “About 2 weeks totally, a day now and then when nothing coherent” (participant nr 7).

1, 2, 5, 7 mark their level with a 3. 3, 4, 6, 8 grade their level with a 4.

Work procedures and thoughts about the overall judgment of the applications logic

Participant nr 2 finds it illogical, and grades it 1. Four users (3, 4, 6, and 8) give it a 3. 7 and five gives it a 2. User nr 1 gives it a 4.

Participant nr 7 says “you have to learn how to do procedures, there is no logical order”

When talking about the clearness of the workflow in Alpha there is 2 camps; one that think it is clear and one think it is very unclear. Four people gives it a 2 (nr 2, 4, 5, 7) nr 3 grades it 5, (nr 6, 1) gives the grade 4 and nr 8, 3. Comment given by nr 6 says “you’ll learn with time”.

Does the workflow fit the natural conversation order?

1, 2, 5, 7 say yes, 7 with the reservation “in general”. 3, 6, 8 gives more developed answers and yields respectively “You must do everything in correct order, for example it isn’t possible to register a contact person while making a tender”. Nr 6 says “it sometimes feels a little bit too long having the customer waiting while doing the work because there is a lot of waiting” Nr 8 states “No, the pictures usually don’t come in the same order as the customer speaks”.

Judgment of the information Are you getting a clear picture of the customer and the information about them.

All but nr 7 have given the grade 3, nr 7 gives a 2 and says” You can se that a customer has a permanent and a cellular subscription but you can’t se what type of subscription they have.

Can you find all information/functionality, if not what is missing?

Nr 2, “it should be easier to gain access to service cases”, nr 3 “It is many things missing in Alpha. All customers’ subscriptions aren’t converted to Alphas database, so we must check in different systems to gain an overall view of the customers. Nr 5, “I don’t know all functions so I can’t tell what’s missing. Nr 6, all information isn’t updated, for example if they have “TFA-contracts, small-company-package solutions etc. Nr 7 “Everything is available but hard to check”.

How does the help function support you?

Answerer given were nr 3 says “helps me fast”. Nr 1, 4 says, it takes time but I’ll find the help I want. Nr 1 state that he gets his help by online and colleges, nr 4 also gets help from colleges and helpwindow.5, 7 doesn’t find help. Nr 2 can’t find enough detailed help. 6, 7 8 doesn’t use the help. Nr 6 also state that he doesn’t use the help and says “I ask my colleges it’s complicated to search the help”, nr 8 also agrees and says “by talking to each other”

What do you think about the short commands?

2, 3, 4, 5, 6, uses short commands while 1, 7, 8 don’t. All persons using them feel that short commands make their work easier.

Do the short commands feel natural and easy to remember?

2, 4 and 5 thinks so. While 3, 8 say no.

Short commands seem to be used by some of the users. That user who uses them seems to think that they are very helpful and somewhat easy to remember.

Does the program support you in your conversation with the customer?

Nr 1, 3 grades is 3. 2, 4, 5, 7 and 8 gives the grade 2. Nr 7 says “sort of, but you must still use another system to gain an overall view. Nr 1 “Not yet, but maybe after gaining more experience “

What systems besides alpha do you use?

Nr 1, ism, front office, kb, tad ims. Nr 2, frontoffice, facit, tupp, webbmera, x-pris, koda, krita, sinn, arkinet, betty. Nr 3 ism, tad, kundbild, frontoffice, nr 4, ”many”, nr 5, front office, kundbild, tad, ism, facit, lokus, gsm, ahs. Nr 6. tad, kundbild, frontoffice, ism, vertygslådan. Nr 8, kundbild, frontoffice, tad. (The one with most experience uses fewest systems).

Do you think the response time is to long?

Nr 1, 3, 5, 6, 7, 8 gives the grade 1 (it’s a big problem). Nr 2, 3 gives the grade 2. Nr 1 says “It’s slow”. Nr 7, it’s slow normally, but sometimes even slower”

Is it your opinion that the response time in contrast to the conversation time is to long

Nr 1: 4. Nr 2, 3, 4, 5 and 6 give the grade 2. And nr 7, 8 grade 1.

Nr 7, “Alpha is so slow that the conversation takes twice as much time as before”

Nr 1, “short conversation-time and long process-time”. Long conversation time and short process time is liked by the rest. Nr 5 “both short conversation-time a short process-time.”

In the survey there were questions asked about the different tabs in the Alpha system, how often they use these and what they think about them.

- “Overview” (Översikt): Isn’t used that often. The users did not have that much to say about this tab.
- “Current info” (Aktuell info): Isn’t used that often either. They think that the visual appearance is ok.
- “Organization” (Organisation): Some of the users use this tab. The thing that is missed in this tab is “ca” (it tells the user about which department the customer belongs to) according to 3, 5 and 10. “If the customer is handled by the leas customer service” says 2.

- “Address / telephone number” (Adresser/telefonnummer): Isn’t used that often, only sometimes. Nr 10 says “It could be clearer which address is applied. It is confusing with all the addresses”.
- “Relation” (Relation): Isn’t used that much. On the question “is there information that is less important to you?” nr 10 says “it is easier to click on the first names and then you will get the contact person as well”.
- “Lead” (Lead): Is sometimes used depending on what the user area of expertise is. The users who use this tab think that the visual appearance appeal to them. On the question “are you satisfied with the tabs visual appearance?” Nr 1 and 4 say “everything is needed”. Users that don’t use the tab say: “haven’t used much lead since this latest version”. Nr 2 says “too many unnecessary fields that we are not using”.
- “Tender” (Offert): Is used a lot. No opinions were stated. The grades on the visual appearance lie between 3 and 4.
- “Order” (Order): Is used a lot. The users didn’t have much to say about this tab either. The grades on the visual appearance are 5, 3, 3, 4, and 4.
- “Message” (Meddelande): Isn’t used at all.
- “Service commission” (Serviceärende): Is used a lot. The survey showed that the users like this tab. Although they think that some of the fields are quite useless. Nr 2 says “same problems with too many fields without function”.
- “Contract” (Kontrakt): The user level on this tab is 5, 2, 4, 1, 2, and 3. The users think that this tab is ok but it doesn’t contain enough information.
- “Installed base” (IB): The user-level is given this numbers; 1, 4, 5, 4, 3, 1, 4. On the question about visual appearance this tab received 3, 3, 2, 4.
- “Accounts” (Konton): Is used quite often (3, 4, 4, 3, 4, 2, 4). The users didn’t have that many opinions about this tab. The visual appearance got the grades 3, 3, 2, 4.

The survey also contained questions about menus and toolbars. The users seem to be quite satisfied with the visual appearance of the menus and toolbars. The grades given were: 5, 3, 4, 3, 3, 4, and 4.

On the question **“Is it good to have general functions gathered this way?”** the users answered 5, 4, 4, 3, 4, 5, and 4. There were some request though about having the possibility to create own functions and shortcuts. The survey also showed that about half of the users use the toolbar and the other half prefers the dropdown menu.

“Do you use the tool field or do you prefer the curtain menu?” Four preferred tool fields and three preferred curtain menu.

“Is it natural to use the tool field or do you have the need to have them in the field?” Nr 4 says “you get used to anything”. Nr 6 says “in tabs”. Nr 7 says “uses only curtain menu”.

In the survey the users were asked the question; **“if you were given the opportunity to change Alpha, what would you like to change?”** There were not many of the users who had answered this question. But those who did answered that they wanted the program to be a lot faster. Some also thought that the names of the fields in the system are a bit unclear and doesn’t apply to the function that it stands for.

APPENDIX B

1 Interviews

1.1 *Prototype evaluation interviews*

The complete questions asked in the following three interviews can be found in Appendix C. Because of the informal form of this interview the answers are not completely concordant with the asked questions. Some answers were digressions from the subject and some questions did not receive any exact answers and will therefore be skipped in the following compilation.

1.1.1 **Prototype evaluation interview 1**

The interview was made with Eva Andersson. She works as a lead trainer for the billing department. Her job is to write the help sections available in Alpha, lead educations, and evaluate the system. In the evaluation of the help system with Eva Andersson following opinions regarding the suggested changes of the help were noted.

Would you consider using any help system?

“Yes, I think it’s necessary to use help, I also encourage my colleagues to look in the help instead of asking me. When they ask me I prefer to help them finding help instead of giving them answers”

Compared to the old help system, do you think you would use this one more?

Would you prefer this one?

“One of the most requested features within the help system is the search function, a feature which today is insufficient. Search will be a really big improvement. A good search function based on keywords has been demanded for a long time.”

The prototype also suggested a function for keeping a history of all searches. That idea was well received and was expanded further by Eva who suggested a “scrap book”. This meant that not only the last searches should be possible to save but also own “links”. This makes it possible to bookmark information that is of special interest.

Would the short explaining text information visible when clicking “tab headlines” and “fieldnames” be helpful?

She thought it was a good idea, “It would most certainly be of value for the users, at least it won’t be worse”. Her concerns were regarding the information quantity “Who is going to write all texts?”, “Must every field have an explanation?” Her idea was to select and assign explaining text to only some fields.

Do you consider this help more available?

Do you think that the functionality of the help function shown in the prototype would be of use to you?

The overall impression of moving help information closer to the user was: “Sure it can be of help, at least it wouldn’t be worse”. But she still wanted to keep the possibility to open the help without running Alpha. The possibility to use shortcuts to every command was also of great importance.

In a customer conversation would this help system support you?

“Sure it can be helpful, it will at least not be worse”

Do you think the affinity between the help system and the application increased?

She both wanted to move the help closer to the user but still wanted to keep the main structure of the old help system.

Do you think it would help to have a status bar that shows which windows are opened?

Having a window bar at the bottom of the screen was not of interest, she said, “It should clutter the interface. The status field on the other hand is not visible enough and it should be given a more eye-catching appearance. Today the user will miss all information in the status field if Alpha is not run in a maximized view”.

What do you think about a wizard system, a forcing dialog sequence, do you think it would be good in educational purpose?

She was skeptic about the wizard idea; the concerns were “many tasks can be performed in different ways, should a wizard really work in those cases which don’t have a straight flow.” Her suggestion was “use the method of questions and answers” (questions and answers is an interaction model that prompts the user for questions that they have to answer. Based on the answers different operation is performed). That method is on the other hand very similar to the wizard system and fills the same functionality.

Other opinions

Another concern which arose was about the system in general, “Why isn’t it possible to scroll in windows with the mouse?”

1.1.2 Prototype evaluation interview 2

Maria Stråmo, interviewee number two, has no experience working with Alpha, but is a key user for the private segment. She has experience with user education and is responsible for spreading new information and work routines to her colleagues. A prototype of the help system was shown to her; thoughts and opinions were then collected. Because of her uncolored opinion of Alpha she might be able to give an impartial view.

Would you consider using any help system?

“In a help system everything should be available not just specific help about the application but also prices and routines. To make routines easy to understand and search they should follow a standard, every routine should be alike. They should also be short and in bullet form.”

“In general there are problems with help information that is spread over many places. For example there is the “Product guide”⁵, procedure descriptions⁶ and even more links in the web based toolbox⁷ but also information spread through email, TeliaSonera’s website and each applications help system. It’s hard to know where to look and it takes time to actually find the help.”

⁵ Product guide (produktguiden) is a webpage within TeliaSonera’s intranet that describes the products in detail. It also links to the information that can be sent to customers for example a contract or product information.

⁶ Procedure description (rutinbeskrivningar) is links within TeliaSonera's intranet. These links contains information on how orders with different products are placed.

⁷ The toolbox is another webpage within TeliaSonera’s intranet. The toolbox is a help-tool for the user. It contains links to all kinds of useful information, for example it links to Product guide and procedure description. It also contains links to the systems used by customer service, for example Alpha.

Would you prefer this one?

“A system that is built on questions and answers would solve the problems with finding help, help wouldn’t be needed. But if the system should work as it does today and the help information would be the supporting factor, it’s of great importance for the trainer to emphasize the need and functionality of the help while educating users. Many problems today originate from the attitude towards help systems and not against the specific help. If an educator says, ‘the help is bad and you’ll never find anything’, most certainly the user won’t use it. But if instead the help’s importance is mentioned and the focus lies on learning how to search help it will most likely be more used”

In a customer conversation would this help system support you?

“Yes, it must be ok to take time for searching help while speaking with a customer”, “having a good help will make searching possible. There must be an attitude change to make people stop asking questions and search for help themselves”.

Would the short explaining text information visible when clicking “tab headlines” and “fieldnames” be helpful?

“It’s often the small things that are hard to remember and takes time to find. If it is faster to find the help by your self instead of this kind of help will prevent many questions”

Do you think the affinity between the help system and the application increased?

“It’s good with just one system”

What do you think about a wizard system, a forcing dialog sequence, do you think it would be good in educational purpose?

“Maybe a good solution for beginners who actually know how to do stuff but still want to check with someone, making sure they aren’t making a mistake. It can also be of help for those who make a procedure seldom. But average users will probably not need it. What it would be great for, on the other hand, is education. Today the educations consistency is not good; having a uniform education will make people do their work in a proper manner not making room for local interpretation of routines. Today many procedures are interpreted differently depending on who reads them. This should not be possible.”

1.1.3 Prototype evaluation interview 3

Göran Ekersund and Daniel Behm are currently key users for Alpha. They have extensive experience with education of colleagues. Their work is also to act as a helping hand in their colleagues’ daily work. The prototype was shown to them and the following opinions were given.

Do you think that the functionality of the help function shown in the prototype would be of use to you?

“History should make it simpler and faster to find help, often you get stuck on a particular thing several times“ says Göran.

“It is of great importance to help the user sort out the relevant help information. It get’s easier the more the material is sorted“ says Göran.

In a customer conversation would this help system support you?

“It feels like an easier way even with the customer waiting” says Daniel.

“Of course it would only work if the system is updated continuously and the information is easy to read and relevant” says Göran.

Would the short explaining text information visible when clicking “tab headlines” and “fieldnames” be helpful?

“Having a short helping text would be great, often the problem with using help is that it takes time to find particular details and you can’t be sure to find it at all and you will therefore give up before even trying. It’s a big problem just finding help for simple fields and tabs, so making short explanations would make it worth reading the help instead of asking. This would probably be useful even to expert/intermediate users” says Daniel.

“The navigation in today’s help is not simple. It would also be good if everything were available in the help. The current system is divided in different parts such as billing (“ta betalt”) and sell (“sälja”), words which may seem obvious to the author but users don’t agree. Today the help is considered intimidating and no one want to look or learn how to use it. The suggestion with the short help text is good and will probably be sufficient to ease the understanding” says Göran.

Do you think it would help to have a status bar that shows which windows are opened?

“Having opened windows always visible makes it easier to change between them even though the education emphasized using the window menu. However, new users have problems handling windows” says Daniel.

What do you think about a wizard system, a forcing dialog sequence, do you think it would be good in educational purpose?

“It would be great in the beginning. There are big problems with the education today, so sure, it would be very helpful with a wizard. But it will also be great to help the different departments work in a uniform manner. Today the lack of a uniform standard is a problem and a customer may receive different answers depending on which city who answer the call” says Göran.

“The education of the help isn’t made thoroughly. The help system is mentioned in some short sentences, not more. Only a couple of questions are dedicated to the help system in the training material” says Göran

Other opinions

“Switching between windows within Alpha is a problem. No simple way exists, such as alt-tab which is used when switching between different programs. It would also be good to have an automatic formatting of the windows for example resizing windows so that four windows would be visible at the same time without doing the frustrating work of resizing and moving them manually” says Daniel.

1.2 Interview with the establishment team

An interview with Marie Lundquist and Magnus Lundqvist was made. They are part of the establishment team that TeliaSonera created to increase the acceptance for Alpha.

The interview started by asking the question; **what have been made to make the users understand Alpha’s purpose?** The answer to this question was very extensive. Marie started by explaining how they worked and how they spread information to the users.

“During the acceptance process we worked very closely with the development-group. We could then frequently adjust the information and also give feedback. We started by informing the directors, then we moved on to the next level and worked our way through the organization until we reached the users. It was very important to get the people high up in the organization to understand the message. Making users believe in the systems purpose made it easier for them to spread the message further.”

Marie also talked about the message which they spread: “Alpha is a suit that we can grow in. It is an important step that we have to take no matter what. It might not be the best system for the users, it will not make their work easier, and it might even make it harder. But we have to stay focused on the big picture. Alpha is a standard system and we have to adjust to it. We have to rethink our way of working because otherwise the organization cannot evolve.”

“We understand that getting a new system will probably make the users feel uncomfortable. The whole structure of the workplace will suddenly change. One user that was good at the old system might be bad at the new one resulting in change of balance making, this user feels negative towards the system.” This problem is something that they had to deal with. Magnus and Marie mean that this information would make the inferior user feel more satisfied with the system.

“We also instated key users that had meetings every third week, giving and receiving information”, Marie said. She means that these users would then go on educating the other users and giving them a positive view of the system. These users would be used to give feedback to the establishment team. It tells what questions were asked among the users and therefore what answers were requested in the FAQ⁸.

“When a user receives his education about the Alpha he will obtain information about Alpha’s purpose and why it is good for TeliaSonera. Every time he will go through a new part of education he will get the same information over and over again.” Marie means that they used the education as an opportunity to talk about why Alpha is so good.

Later on in the process the team gave more presentations to follow-up, not letting the users forget the message. They had regular meetings with the leaders and newsletters about Alphas were constantly flowing.

Magnus talked about some setbacks that they had during the process, “In the middle of implementing Alpha TeliaSonera made some organization changes. There were some assignments that changed for the operators. We were facing a decision; either we continue the education like before or adjust the education at once. If the education had continued like before users would have learned routines which would be obsolete a few weeks later. We chose to adjust the education to the new assignments at once”

The team also made follow-ups to study how well the message was received. Magnus said: “We made evaluations on two occasions.” But what exactly these evaluations resulted in was unclear to us. Our impression was that they did not go so well.

The team also experienced some other problems. They were constantly fighting other issues of Alpha for attention. There were a lot of technical issues which were prioritized and the acceptance issues had to come second.

⁸ FAQ is short for Frequently Asked Questions. Used to as an information source for the user.

Magnus worked a bit more towards customer service and had therefore some interesting things to say about the acceptance process at his department. “Not all customers are converted to the system; this means that we cannot terminate the other systems until those customers are transferred to Alpha. So until Alpha is implemented in the private sector the users have to become accustomed to having a lot of systems. We realize that the total acceptance cannot increase until the other systems are shut down.”

Marie talked about how things are today and how it is developing in the future. “Alpha is adjusting towards increased usability. We have recently made some changes to make Alpha more suitable for customer service.”

APPENDIX C

Questions from the prototype evaluation interviews

Would you consider using any help system?

Compared to the old help system, do you think you would use this one more?

Would you prefer this one?

Do you consider this help more available?

Would this kind of change of the help system be to use for you?

In a customer conversation would this help system support you?

Would the short explaining text information visible when “tab headlines” and “fieldnames” is clicked be helpful?

Do you think the affinity between the help system and the application increased?

Do you think it would help to have a status bar which makes it visible which windows are opened?

What do you think about a wizard system, a forcing dialog sequence, do you think it would be good in educational purpose?