

How to develop an administration tool

-to fit first-time users who lack expertise knowledge



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Abstract

The purpose of this bachelor thesis is to develop an administration tool that will be used by a helpdesk in IKEA IT. The helpdesk members have a lot of responsibilities and have to perform various tasks on a daily basis, thus the goal is to develop an administration tool that has an interface which allows a helpdesk member to perform basic tasks without needing any prior education or experience of the tool. The first part of the thesis consists of a research with three different research methods:

- Survey and observation with helpdesk members
- Analysis of three different administration tools that currently are being used on a daily basis by the helpdesk
- Literature studies:

User Interfaces by Soren Lauesen

Don't make me think by Steven Krug

Information Architecture by Louis Rosenfeld, Peter Morville

Summarizing and examining the results of the researches provided the thesis with a wider knowledge base, which made it possible for us to develop the administration tool we had envisioned from the start.

From the results gathered from the research a workflow and prototypes were developed. With a combination of user-tests and surveys enough knowledge was acquired so that the prototypes could be processed until a prototype was approved.

There is currently only one person in IKEA handling all the administrative tasks in ALM and to relieve the workload of this person these administrative tasks will be handed over to a helpdesk in IKEA.

The administration tool will help to ease the future workload for the helpdesk by making it faster and easier to perform the administrative tasks in ALM. The amount of time it takes to handle requests has been decreased by approximately seven times compared to the existing method. This indicates that the mental model, developed by a first time user of the new administration tool, is both intuitive and logical.

The final user-test with the final product using the helpdesk members as the test-users proved the design and functionality of the new administration tool to have a good balance between complexity and simplicity.

Keywords: *User-interface, design, prototype, Administration tool, IKEA,*

Sammanfattning

Syftet med detta examensarbete är att utveckla ett administreringsverktyg, detta verktyg kommer att användas av en helpdesk på IKEA IT.

Medlemmarna i helpdesken har många uppgifter och ansvar som de dagligen måste ta tag i, därav är målet att utveckla ett sådant gränssnitt så att personalen i helpdesk kan utföra uppgifterna de blir tilldelade utan att behöva någon form av utbildning eller erfarenhet av verktyget. Den första delen av detta examensarbete bestod av tre olika undersökningsmetoder:

- Undersökning samt observation med helpdesk medlemmarna
- Analysering av tre olika administreringsverktyg som helpdesk dagligen använder i sitt arbete
- Granskning av Litteratur:
User Interfaces av Soren Lauesen
Don't make me think av Steven Krug
Information Architecture av Louis Rosenfeld, Peter Morville

Summering och granskning av resultaten från undersökningarna gav detta examensarbete en bredare kunskapsbas, vilket i sin tur gjorde möjligt för vidare arbete med design och utveckling av det nya administreringsverktyget.

Utifrån resultaten från undersökningarna skapades ett workflow och en prototyp. Med en kombination av användartest och undersökningar förvärvades tillräckligt mycket kunskap för att bearbeta prototypen tills en godkänd kunde levereras.

För närvarande är det en person på IKEA som hanterar de administrativa uppgifter i ALM och för att lindra arbetsbördan för denna person kommer dessa uppgifter att överlämnas till en helpdesk på IKEA.

Administreringsverktyget ska lindra framtida arbetsbörda för helpdesken genom att göra det snabbare och enklare att genomföra uppgifter i ALM. Tiden det tar att hantera en förfrågan har minskat med cirka sju gånger jämfört med den nuvarande metoden.

Testanvändarna klarade av sina uppgifter utan att ha någon träning eller utbildning av det nya administreringsverktyget. Ett fullt fungerande administreringsverktyg levererades till IKEA, redo att användas av IKEA ITs helpdesk.

Nyckelord: *Användargränssnitt, Design, prototyper, administrationisverktyg, IKEA*

Acknowledgement

This bachelor thesis derives from IKEA IT Test Center's wishes to develop a new Administration tool to be used by IKEA's Helpdesk.

The authors of this bachelor thesis have been located, on site, at IKEA IT's offices in Helsingborg. The work has been conducted in close collaboration with their personnel and consultants.

We would like to thank our mentors Fredrik Hjorth, Oscar Nilestam for their support, help and feedback throughout the whole project. We also want to give thanks to the entire IKEA Test Center team for giving us support and showing interest in our project. Especially, Olof Ernstsson for guidance and assistance during the development process.

Special thanks also goes to all of the IKEA helpdesk personnel whom participated in our surveys and observations and thus giving us the means to develop our product, Mats Andersson for giving input and advice. We also would like to give thanks to Anna Gamalielsson the manager for the TestCenter at IKEA IT and our mentor and examiner at LTH Lise Jensen for valuable discussions and guidance.

Marcus Engberg & Samir Chaabi

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1 Introduction

At IKEA IT, IKEA uses the tool HP Quality Center to manage all requirements, tests and defects in almost all projects regarding software. In this thesis a tool has been developed (ALM Administration Tool), designed to manage users and their privileges within certain projects at IKEA IT. At the moment there is an administration tool that is not fully satisfactory, the most basic functions do not work and the system lacks the possibilities to manage user restrictions. Because of this, small changes in the system can cause a huge amount of damage. IKEA IT is in a phase where IKEA are about to renew their systems and servers, which means that the existing administration tool is not compatible with their upgrades.

Because the existing administration tool does not support the ability to connect to the ALM server IKEA does not have an easy way of adding users to the database. When IKEA wishes to add a user to a specific role at the moment IKEA has to perform the following steps:

- Log in to the ALM servers website
- Add user from CDS to the database
- Add user to requested domain/project
- Log in to requested domain/project
- Add user to requested role

This process may take several hours depending on how many projects the user requests to be added to, the simplest task can take several minutes. The new administration tool must be able to perform the same tasks in matter of seconds.

1.1 IKEA

“IKEA offers a wide range of well-designed, functional home furnishing products at prices so low that as many people as possible will be able to afford them. This is the idea at the heart of everything IKEA does, from product development and purchases to how we sell our products in IKEA stores globally”[1]

For IKEA to reach this goal IKEA know that IKEA have to be more than “just” a furniture company. A less known fact is that IKEA have a large IT organization called IKEA IT with offices located around the world.

1.1.1 IKEA IT

This thesis took place at the TestCenter in IKEA ITs headquarter located in Helsingborg, Tretorn. The following is a short description of the TestCenter responsibilities:

“The responsibility for TestCenter is to support the organization with efficient test environments, test services and test tools delivered as a Center of Excellence.”[2]

IKEA IT has 934 employees around the world where 378 are located in Helsingborg, the rest of them are located in other offices such as in Dortmund, Älmhult, Wallau, Shanghai, Philadelphia etc.

IKEA IT are divided into smaller groups that do different kind of work, some of the groups are:

- Service & Information Management – Incorporates standard solution to the IKEA business
- Helpdesk – Supports the IKEA employees in any way desired
- Information Security – Responsible for the security of the information flow in IKEA.
- Contracting & Vendor management – Mange the IT-suppliers, responsible to negotiate the contracts.
- Human Resource – Workforce related issues/tasks

Although all the departments do not have the same tasks, they all work towards the same goal, to make IKEA grow. To describe IKEA IT in one sentence would be:

“The role of the IT Delivery organization is to deliver, operate and support the information technology to develop and support the growing IKEA.”[3]

IKEA IT thus support/develop all of the IT-systems used in the IKEA concern.

An example of this is:

- A customer wants to buy a bed and therefore asks an IKEA-employee at the warehouse for help
- The employee checks with the computer if the bed is in stock
- The customer gets a paper saying where the bed is located
- The computer checks if the supply is running low
- The computer sends a notification to order more

These are some examples managed by IKEA IT.

1.2 Purpose

The aim of this thesis is to develop a new administration tool designed to manage users and their privileges within projects at IKEA IT.

Currently there is only one person responsible for the Quality center (QC) Administration Tool and its system, this person is therefore the only one who has the privileges to perform changes in the projects. This person has neither time nor the resources to administer the system single handily; hence the idea that a Helpdesk located somewhere else can operate the new administration tool. The Helpdesk has many different tasks to perform and because of this, the new administration tool needs to have a GUI so simple that a helpdesk member can use it without having any prior experience or education of the tool. To protect the data in the system user restrictions need to be implemented.

1.3 Problems

The aim of this thesis is to solve the following problems:

- Make the new administration tool compatible with the new system, called Application Lifecycle Management (ALM).
- Connect the new administration tool to IKEA IT's personnel database, called Corporate Directory Services (CDS).
- The new administration tool must support the usage of Lightweight Directory Access Protocol (LDAP) [4], settings for accessing information in Quality Center Site Administration.
- Create the GUI for the new administration tool. The new administration tool must be logical and intuitive in its layout that first time users must be able to use the administration tool without having any problems understanding the functionality.

The way the existing administration system works right now is described in **Figure 1**. IKEA uses a tool called Quality Center (QC10), and at the moment the administration tool is linked to the databases CDS & QC10 (hence the green arrow, figure 1). IKEA are in the process of migrating all of their projects from QC10 to a new version called Application Life cycle Management (ALM). Therefore IKEA need the new administration tool to be linked to this new server. The existing tool does not link to ALM (hence the red arrow, figure 1) so one of the tasks is to make the new administration tool connect to the new ALM database. The other task is to develop a new interface for the administration tool.

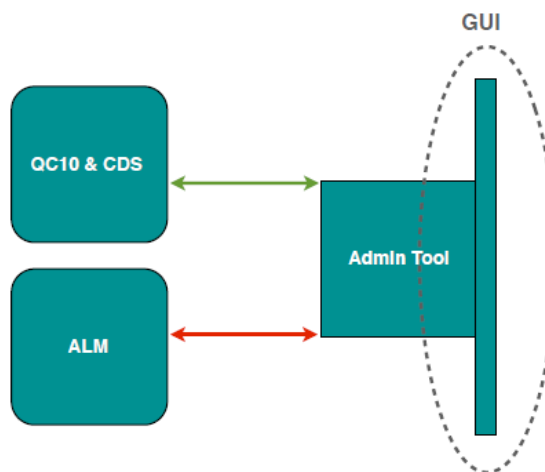


Figure 1: Basic idea of the new administration tool

1.4 ALM11

Application Lifecycle Management version 11 (ALM 11) is a web based-application developed by Hewlett Packard (HP). The tool's main area of use is to manage the lifecycle of an application, from the beginning (requirements) to the end (deployment). It is designed to simplify and organise the management of the application by giving the user control/overview of the process. A description of the tools can be seen in **Figure 2**.

The applications key modules will be presented below:

- **Dashboard** – Gives a overview of the application lifecycle and what has been achieved
- **Management** – Gives an overview of the libraries and releases in a project.
- **Requirements** – Describes how to manage requirements in the application lifecycle.
- **Testing** – Allows to plan the testing process, create test sets, perform manual and automated tests and shows the test results.
- **Defects** – Specifies how to report defects to a project and keep track of each defect until it's repaired

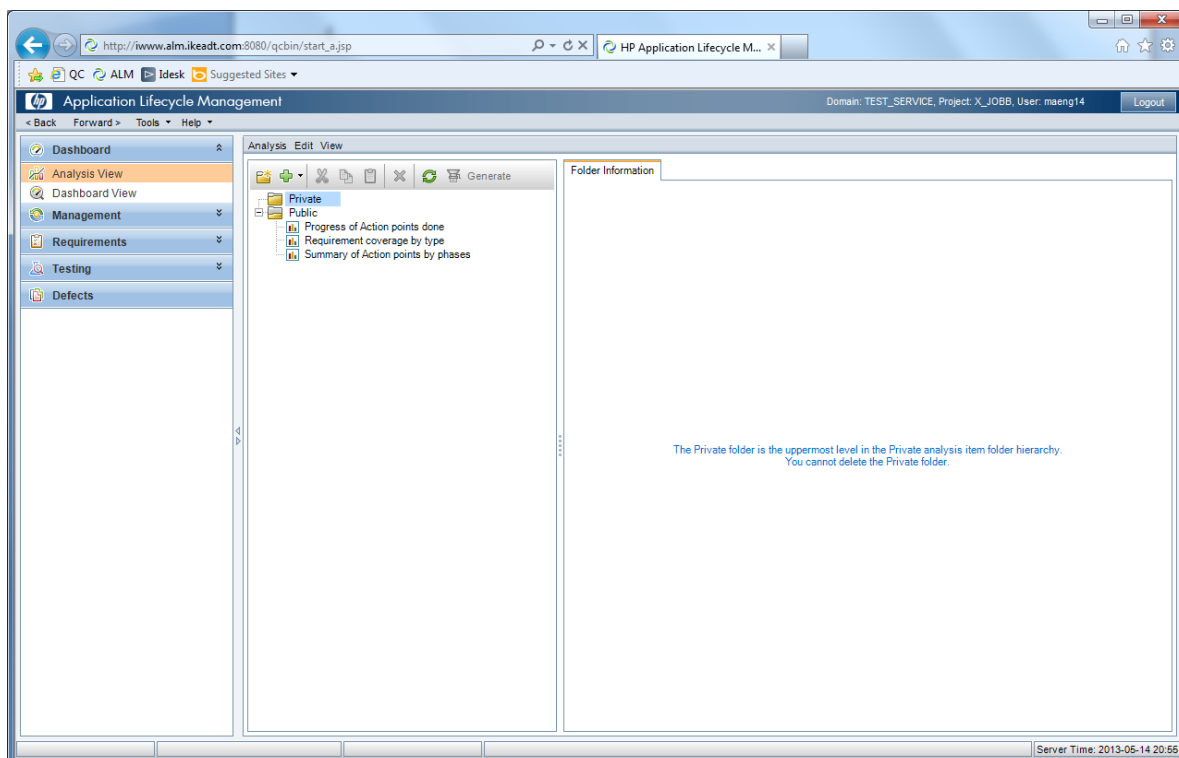


Figure 2: GUI of ALM

1.5 Requirements Specification

The requirements are, as it is for the majority of programs, the foundation of the new administration tool. The requirements specification has been a major part of the development/testing process. By comparing the requirements specification with the new administration tool it was possible to get the functionality requested by IKEA.

The requirements specification to the new administration tool given by IKEA is the exact same one as for the old administration tool. This means that the requirements specification has to be rewritten for it to apply to the new administration tool. A few modifications were made for it to fit the new administration tool. The supervisor reviewed and approved the requirements specification shown in the following chapter.

1.5.1 Requirements

1. Searching user

- 1.1. Searching by User ID – It should only be possible to search for users by User ID
- 1.2. Using enter when searching - When searching for user it should be possible to press enter to start the search
- 1.3. Support of LDAP – Connect to CDS through LDAP
- 1.4. User can only be added by using information from CDS
- 1.5. User in CDS
 - 1.5.1.1. The user's full name and email should appear in the text boxes in the "Search" group box
 - 1.5.1.2. If the User ID selected does not exist in the CDS an error message should appear
 - 1.5.1.3. Exists in ALM
 - 1.5.1.3.1.1. Results will be show in "Search Result" group box if user exists in ALM
 - 1.5.1.3.1.2. Results will be shown in "Search Result" group box if user does not exist in ALM
 - 1.5.1.3.1.3. The option to add user to ALM will be given if user does not exist in ALM
 - 1.5.1.3.1.4. The option to edit user in ALM will be given if user exists in ALM
 - 1.5.1.3.1.5. The option to delete user from ALM will be given if user exists in ALM
 - 1.5.1.3.1.6. Adding an existing user to a new domain
 - 1.5.1.3.1.7. Adding an existing user to a new project in domain
 - 1.5.1.3.1.8. Give a existing user a role in a new Domain/project
- 1.6. Clear button
 - 1.6.1.1. The clear button should clear all the information in the search group box
 - 1.6.1.2. The clear button should clear all the information in the "Search Result" group box

- 1.7. Search Button
 - 1.7.1.1. Searching for user – When searching for user the default cursor should turn into a wait cursor
 - 1.7.1.2. Search button will be focused when typing in user ID
2. Add Button
 - 2.1. Adds a user to a domain
 - 2.2. Adds a user to a project in a domain
 - 2.3. Gives a user a role in a domain/project
 - 2.4. It should only be possible to add the “Selected User”
3. Remove button
 - 3.1. Removes a user from a single role
4. Show Domains/Projects/Roles/Members
 - 4.1. The domains should always be listed in the “Domains list box” when the Administration Tool starts
 - 4.2. Lists projects in “Projects list box” by double clicking on a selected domain
 - 4.3. Lists projects in “Projects list box” by clicking on “ProceedButton1”
 - 4.4. Lists roles in “Role list box” by double clicking on a selected project
 - 4.5. Lists roles in “Role list box” by clicking on “ProceedButton2”
 - 4.6. Lists members in “Members list box” by double clicking on a role
 - 4.7. Lists members in “Members list box” by clicking on “ProceedButton3”
 - 4.8. The “Projects list box” should be cleared before listing new projects
 - 4.9. The “Roles list box” should be cleared before listing new roles
 - 4.10. The “Members list box” should be cleared before listing new members
5. Menu strip
 - 5.1. Contains an “Exit” button
 - 5.2. Contains an “Server Settings” button – Will make it possible for the user to choose the server configuration
 - 5.3. Contains an “Help” button – A small guide that will help user perform tasks
6. The Administration tool must be supported in ICC4
7. Error messages showing up must be informative

1.6 Scope

The existing administration tool has too many functions and some of these functions can be executed in several places. IKEA requested that the new administration tool would only support the most basic functions:

- Add new user
- Edit existing user
- Delete user from ALM

A specific function is only to be executed from one place within the tool. The option of having a help function in the new administration tool is not something that will be developed in this thesis.

2 Method

The main goal of this thesis is to create an Administration tool that will have a good balance between complexity and simplicity. There are a couple of steps that has to be taken to achieve this:

Information gathering:

- Surveys – Perform surveys of the existing Administration tool to get a better understanding of what the helpdesk personnel finds difficult and easy with existing administration tool.
- User test with helpdesk's existing administration tools – Perform user test on three of helpdesks most commonly used administration tools. This to get more inspiration for the new administration tool and get an idea of how the current administration tools look like.

Design:

- Hand-drawn mock-ups – A fast way to get an idea of how the new Administration tool will potentially look like.
- Tool-drawn mock-ups – To see if the hand-drawn mock-up is doable and to get a better understating of what the new Administration tool may look like.
- Create a workflow – To get a better understanding of how the user is going to use the new Administration tool

Development:

- Coding – To get functionality into the tool-drawn mock-up so that the new Administration tool can be tested.

Validation/Testing:

- Prototypes – Create and deliver prototypes to be able to test the new Administration tool.
- User-test – Perform user-tests to see if the new Administration tool is as easy as it can be according to our guidelines and to identify potential faults that have been made.

Since this thesis will deliver prototypes after each design an iterative process model proved to be the most appropriate one.

3 Process & Result

To get a good understanding of what IKEA IT were looking for in the new administration tool a number of surveys were executed with the Helpdesks located at their offices “Tretorn” and “Sockerbruket”, the reason for this is that the final product will be handed over to a Helpdesk.

The development language used in this thesis is a combination of Visual Basic .Net and SQL, the reason for using these languages is that the old system was built on these and it gave the authors of this thesis the opportunity to develop their skills further within programming.

All of the documentation has been written in English. I KEA IT requested this due to the fact that IKEA are an international business, and wanted the possibility to spread this thesis to their co-workers to take part of the results.

To make the process of the final report easier a project log were written every day, so that it could be easier to see which and why each choice had been made during the process of this thesis. IKEA ITs own project tool was used during the process to save all of our documentation, and perform test-cases of the tool.

3.1 Project process

To be able to deliver the best product possible it was decided that an iterative project model is the most adequate for this thesis. An iterative model has the advantages that it allows adjustments in the early stages, thus preventing the possibility of discovering errors and problems in the end where it can be too late or too costly to correct them. The disadvantages of using an iterative model can be that the members can get stuck on a certain issue, and thus making the project delayed and more expensive.

Working with an iterative development process and the dangers it brings this thesis has handled the following:

To prevent getting stuck, one must prioritize the tasks within the project and keep an open contact with the clients/users.

When using an iterative model for designing and developing it is important to remember Lauesen's third law of usability:[5]

“The more effort developers have spent making a prototype, the less they are willing to replace it”

Not thinking about Lauesen's third law of usability may result in the risk of delivering something the client did not request or something IKEA cannot use.

This project has been divided into three phases, where the phases are dependent on each other. A prototype will be delivered at the end of each phase, except for the last one where a fully functional product is to be delivered, see **figure 3** for example of process and **figure 4** and **5** for timeplan.

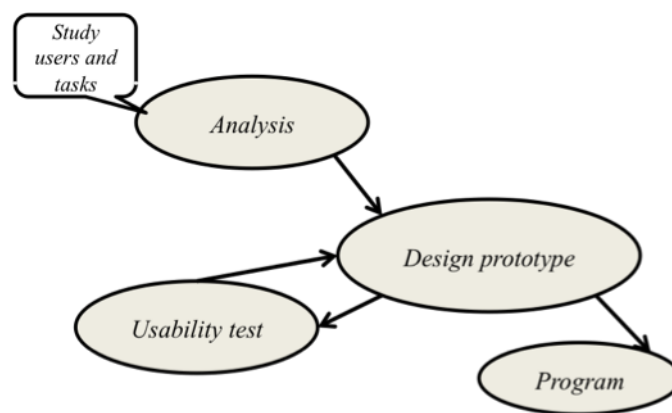


Figure 3: development process, iterative design

The phases of this thesis are as follows:

- Phase 1:
 - Survey preparation
 - Survey execution
 - Code and tool familiarization
 - Create a requirements specification
 - Create and deliver a GUI prototype

- Phase 2:
 - Implement the GUI so that it is fully functional but not connected to the actual database
 - Survey execution
 - Apply/implement any needed improvements
 - Deliver the implemented Administration tool

- Phase 3:
 - Implement the Administration tool so that it's fully functional and connected to the database
 - Perform test cases
 - If needed, perform minor changes
 - Deliver the final version Administration tool

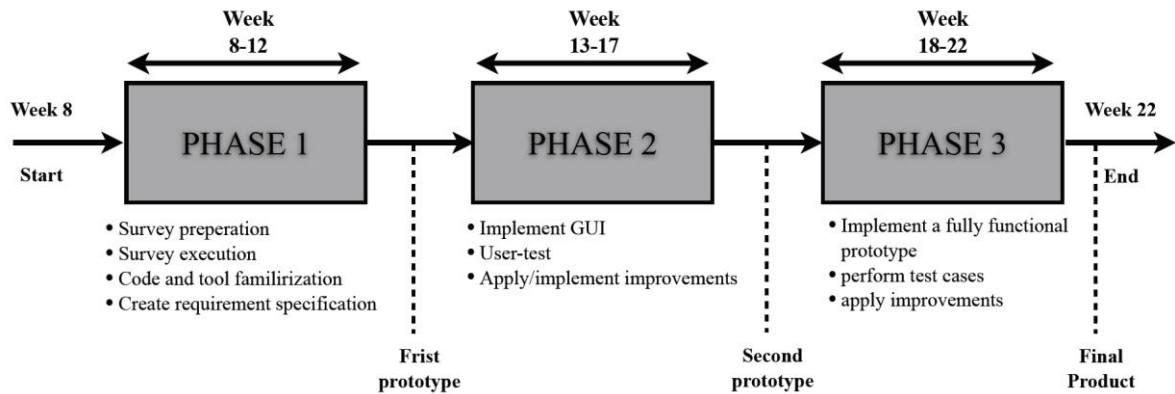


Figure 4: Detailed timeplan of the process

Figure 5 shows an outline of the major tasks performed in thesis, the red part marks the time spent on developing the functionality of the new administration tool.

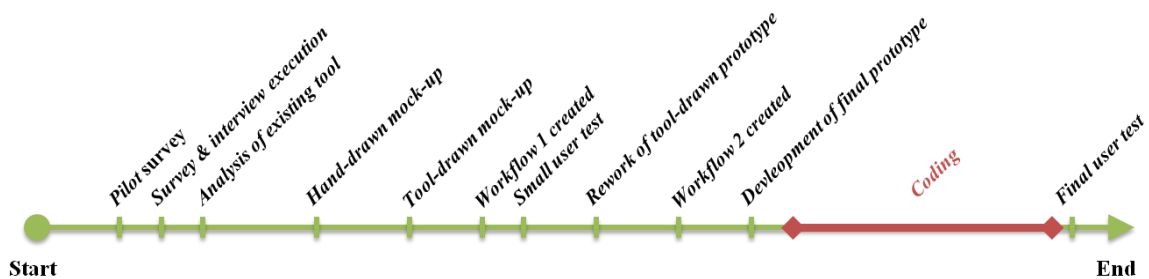


Figure 5: Timeline of the major tasks performed in this thesis

3.2 Research

The aim of the research was to achieve the following:

- To find out what kind of administration tool and GUI the helpdesk currently are used to working with.
- Identify weaknesses of the existing administration tool.
- Identify where a user focuses when engaging with an administration tool for the first time.
- Seek inspiration for the design phase of the new administration tool.

To identify the items above the research consisted of the following:

- A survey with a small interview
- An analysis of existing administration tools
- Information gathering from literature.

The helpdesk at IKEA Helsingborg consists of 23 employees, since it would be difficult to make an appointment with each one of the helpdesk members the test-users of the survey would be 20 helpdesk members. The benefit of using the helpdesk members is that once the new administration tool is completed, the same helpdesk members will use the final product.

3.2.1 Survey & Interview

The first step of the survey started with setting up a place where the survey would take place, and the computer on which the survey would be done by test-users. The survey took place at the helpdesk office where a computer was installed with the existing tool and survey installed and ready, see **Figure 6 [19]** for set-up.

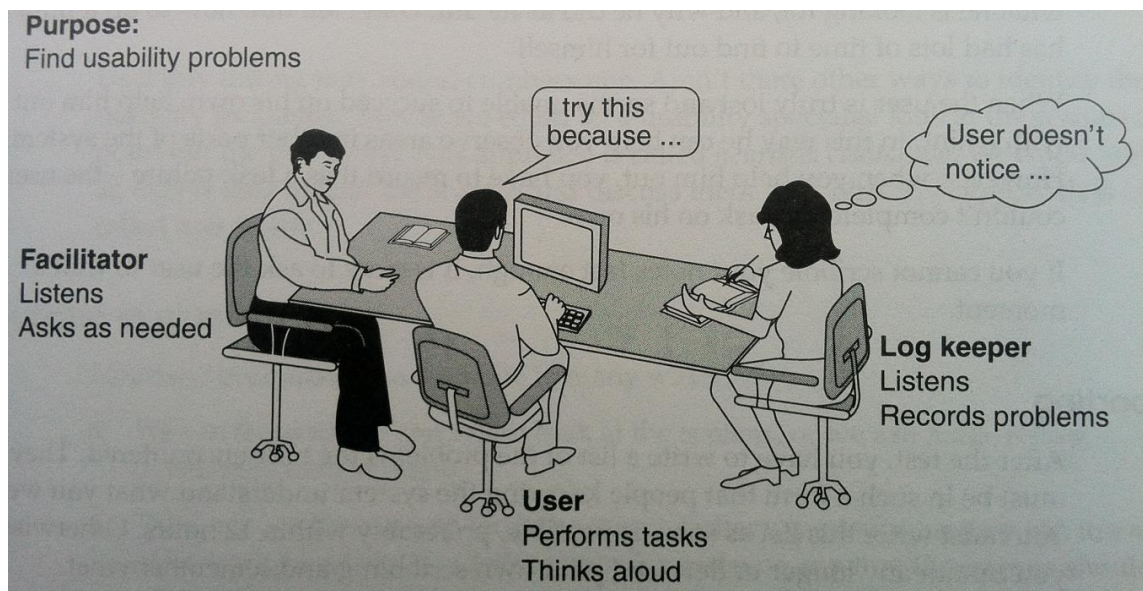


Figure 6: set-up for user-test

The next step was to execute a pilot survey, this was done to see if any changes had to be made in the layout of the questionnaire, see Appendix A for questionnaire.

After the pilot had been executed a few minor changes were made in the questionnaire, the decision of having specific roles during the survey were also made. Lauesen [11] says that when performing user-tests the test team must have specific roles. One would act as the facilitator and the other as a log-keeper. According to Lauesen the responsibilities for each role are as follows:

- “The **facilitator** has the main contact with the test-user, gives him the test tasks, asks him to think aloud, asks him what he is looking for, etc. The facilitator is also the leader of the test.”
- “The **log keeper** writes down what happens, where the user encountered problems, what the user believes about the system, etc. The log-keeper may cautiously interfere with the user, for instance to clarify

a problem or to hold the user back while the log keeper writes his notes. However, the log keeper must respect the facilitator's leading role during the test, otherwise it may end up in a mess."

To make the test-users more comfortable and more at ease the facilitator started the interview with a small introduction explaining the purpose of the survey and why the test-users had been chosen, see Appendix A for more details.

The survey consisted of three tasks which the test-users had to perform;

- Task 1 – the test-user had to follow a template to add a user to a project
 - *Add user to Quality Center:*

*Domain: COMMUNICATION
Project: IrwCommon
Accountable:
IKEA Business Analyst: smcaa
IKEA Developer: smcaa
IKEA project manager:
IKEA Test Manager: smcaa
IKEA Test Specialist:
IKEA Tester:
Other:*

- Task 2 – The test-users had to follow a template to remove a user from a role
 - *Delete "smcaa" from the role marked with "X":*

*Domain: COMMUNICATION
Project: IrwCommon
Accountable:
IKEA Business Analyst:
IKEA Developer:
IKEA Project Manager:
IKEA Test Manager: 'X'
IKEA Test Specialist:
IKEA Tester:
Other:*

- Task 3 – The test-user were given the following instructions:
 - *Delete the user "smcaa" from the entire databse*

After each task the test-user had to answer some questions about the tasks they just performed, see Appendix A for questionnaire. While the helpdesk members were executing the survey the log keeper observed the test-users and took notes of what they struggled with, the facilitator would assist to the extent that the survey goes smoothly and not intervene too much.

The last step of the survey was a small open interview, at this stage the test-user has performed all its tasks and he/she spoke freely about the existing administration tools pros and cons.

The focus of the survey was to:

- a) Identify general errors
- b) Document spontaneous reactions from the test-users
- c) Identify future improvements to be developed

3.2.1.1 Results survey & interview

Initially the goal of the survey was to use 20 test-users. However, after performing the fifth interview it was discovered that the test-users encountered the same high-hit (high-hit problems are problems that are frequently occurring during user-tests). issues with the tool and that there would be no point in performing the survey with all of the members from the helpdesk, the issues with the administration tool were too extensive in an all too early stage of the survey.

These are some of the issues the test-users experienced:

- Where do you start?
- What is the next step?

Three more subjects took part of the survey, their results were concurrent with the previous and the decision to stop where made.

In the end the total of 8 test-users took part of the survey, 7 of which were able to complete the tasks with some guidance and 1 had to abort the survey due to the complexity of the tasks and problems understanding the existing administration tool.

The reason to create different roles was that after performing the first pilot interview the test-user were confused as to whom he should ask questions to and from whom he should take instructions from.

Creating different roles also helped with the information gathering part from the observations. It was decided that this survey would be a recurrent survey, where the test-users would retake the survey but with the final version of the new administration tool instead.

The first survey showed that the existing administration tool lacked logic in its lay-out and its labelling. The user did not understand where to start and how the tool had been planned. The following list summarized some of the faults the survey and interviews produced, for more details of the existing administration tool see Appendix B:

- More logical starting points, every subject had problems finding where to start performing their tasks within the tool.
- A better way of showing the domains/projects, the double-click function in projects is not logical (Search tree not simple enough).
- Decrease the amount of tabs, too much “ambient noise” for the users, the less noise the better the user experience.
- Inconsistent labelling, the names of some buttons must be changed to a better choice, e.g. when adding a new user the button should say: “add user” instead of “save”.
- The lay-out of the tool must be improved; some options were under the wrong tab, e.g. the delete user functions were under “creating users” and not under the “delete” tab.
- Some parts of the existing administration tool were in English, other parts in Swedish.
- Some search fields were case-sensitive while some were not.

The goal is to develop a tool that is consistent in its lay-out and has a good balance between complexity and simplicity; the new administration tool should be so logical and intuitive that a new user would not need to think when given a task to perform using the new administration tool. Krug’s first law of usability is, “*Don’t make me think!*”[13], Krug’s main point is that when you are creating a user-interface it is your job to get rid of question marks, the cognitive load must be kept a minimum.

3.2.2 Analysis of existing tools

The next step of the research was an analysis of existing administration tools, the test-users of this analysis would not be the helpdesk members since they would have experience working with these tools and would not look at each tool objectively. It was decided that the authors of this thesis would perform the analysis, for this analysis it was important that the person doing the analysis did not have any experience or knowledge of the tools being tested, since the reason of doing this analysis is to identify how each tool is perceived by a first time user.

To get a better understanding of how to design the future administration tool an analysis and test were performed on existing administration tools. The analysis began with choosing three different administration tools that the Helpdesk use on a daily basis. The administration tools chosen were:

- IKEA Management Utility (IMU)
 - IMU is an Administration tool used to handle all of the users and computers in IKEA. The IMU simplifies tasks such as creating/installing a new IKEA computer, installing programs on computers, giving accesses to different kinds of systems etc.
- Corporate Directory Services (CDS)
 - CDS is basically IKEAs employee database. In CDS it is possible to search/look up any employees and information about them. It is possible to give users different kind of roles such as manager, consultant, employee, administrator etc.
- Active Directory (AD)
 - *“Active Directory® is a directory service that stores information about objects on a network and makes this information available to users and network administrators.”*[14]

The reason for choosing these three administration tools is that they are different from each other in complexity and in purpose. Using different tools with different complexity will provide a wider knowledge of how an administration tool can be built.

After choosing the specific tools, a survey with three tasks was developed, the survey consisted of three tasks, e.g.:

- Add User Samir Chaabi (SMCAA) in the user group ClearUsers – ELM.
- Make User Samir Chaabi (SMCAA) change password the next time he logs in.
- Disable User Samir Chaabi(SMCAA)

After each task had been performed a list of pros and cons of each tool were made. The following chapter will demonstrate the complete list.

3.2.3 Results from analysis of existing administration tools

The analysis gave information on what sort of tool and GUI the helpdesk are used to. After each task a list was made with the pros and cons found with each tool, the following is the complete list:

IMU:

- **Pro:**
 - Different options of the search engine were smart and useful
 - Folder-system was very logical and easy to navigate
- **Con:**
 - Too complicated for a first time user
 - Lack of flow in the tool

CDS:

- **Pro:**
 - The GUI was very simple and easy to understand, even for a first-time user.
 - The flow of the tool made it easy to navigate and understand its starting points
- **Con:**
 - No specific faults with this specific tool were found

AD:

- **Pro:**
 - Easy to use despite being a complex administration tool
- **Con:**
 - Too many tabs

See appendix C for detailed view of each tool.

3.3 Workflow & Design

A workflow-scheme is a way of showing the processes involved in execution of certain processes within a task, it can also be used to set up the first stages of testing. By viewing the workflow, the user can see the functions which must be operational for the product to be fully functional.

The creation of the workflow used in this thesis started with listing all the functions the final product needed. This was done by examining the results from the research. By discussing future functionalities with IKEA it was decided that the product should focus on the most basic functions, which are as follows:

- Search user from CDS
- Save new user to ALM database
- Add project roles to user
- Delete user from projects
- Delete user from ALM

Each function is represented in the workflow, and each choice a user can make must be represented in the final product. The digital version of the workflow was made with bizagi [10] (a tool for making professional workflows). The workflow provided the base for the first layout of the design for the GUI, see Figure 7.

Once the workflow was completed the next step was to create a basic design with the workflow as the base.

The base consisted of how many functions the product were going to have, how many tabs it should have and under which tab each functions should operate.

After reviewing the results from the research and studying the workflow the decision was made to keep the design simple to avoid question marks. To avoid question marks within a tool the labelling must be up to standards, according to *Rosenfenfeld* and *Morwille* one should develop a consistent labelling system not labels.

*“In successful labelling systems, one characteristic is **consistency**”.* [15]

Rosenfeld and Morville further conclude:

“Because consistency means predictability and systems that are predictable are simply easier to learn.” [15]

In order for the new administration tool to be logical and intuitive it both the labelling system and the rest of the design must be predictable.

“This is especially important for first-time users” [15]

Once sufficient information and data had been gathered, the process of designing the user-interface began.

The user-interface design phase started with developing a prototype of the interface for the new administration tool. According to *User-Interface Design by Lauesen* [6] there are four types of prototypes one can develop, they are as follows:

- hand-drawn mock-ups, takes about 15-30 min
- Tool-drawn mock-up, takes about 30-60 min
- Screen prototype, takes about 1-4 hours
- Functional prototype, takes about 2-8 hours

According to Lauesen[6] the differences between these prototypes are not that big when it comes to detecting usability issues with the prototype. Lauesen says:

“The main difference between the prototypes is the time they take to make. If it takes a long time, developers are unwilling to change the prototype radically. The third law of usability is at work.”

Since there was going to be many changes to the first version, the first prototype developed in this thesis was a hand-drawn mock-up on whiteboard screens. When doing a hand-drawn mock-up one uses the pencil as the cursor, screens and windows can be opened by putting or removing screen pictures on the whiteboard. To add data one writes it in the fields, see **Figure 7** for result of the hand-drawn mock-up.

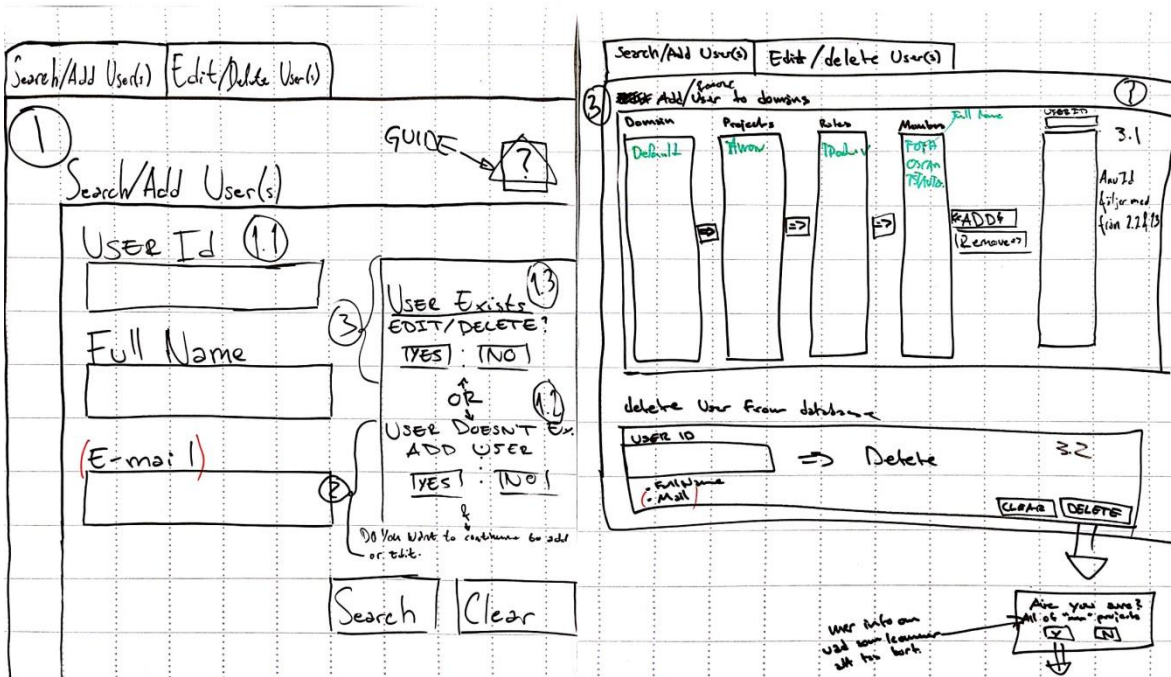


Figure 7: Result of hand-drawn mock-up.

Once a firm ground had been set with the hand-drawn mock-ups the next step was to transform these into tool-drawn mock-ups and screen prototypes.

At this stage a digital version was developed of the user-interface. The tool being used for making the digital version was Virtual basic, using the same tool in the mock-up phase as you would when developing the final interface makes it easier to create the final design, and this is in line with the guidelines for developing a tool-drawn mock-up [7]. The digital mock-up had very little functionality. Only the navigational functions were implemented, so that a user test could be performed with this prototype. The earlier a user-test can be performed the better the chance is to discover potential flaws in the design.

In the early stages of the process when testing of the first prototypes is done Lauesen says[12]: "...it is a good idea to test with just one or two user the first time. We will detect most of the high-hit problems and several low-hit problems."

When the first digital version had been created a small user test with two users was conducted. These users were shown the prototype and were given a presentation of its functionality and future ideas. The test was done to see if the design was going in the right direction, and to identify potential problems with the user-interface.

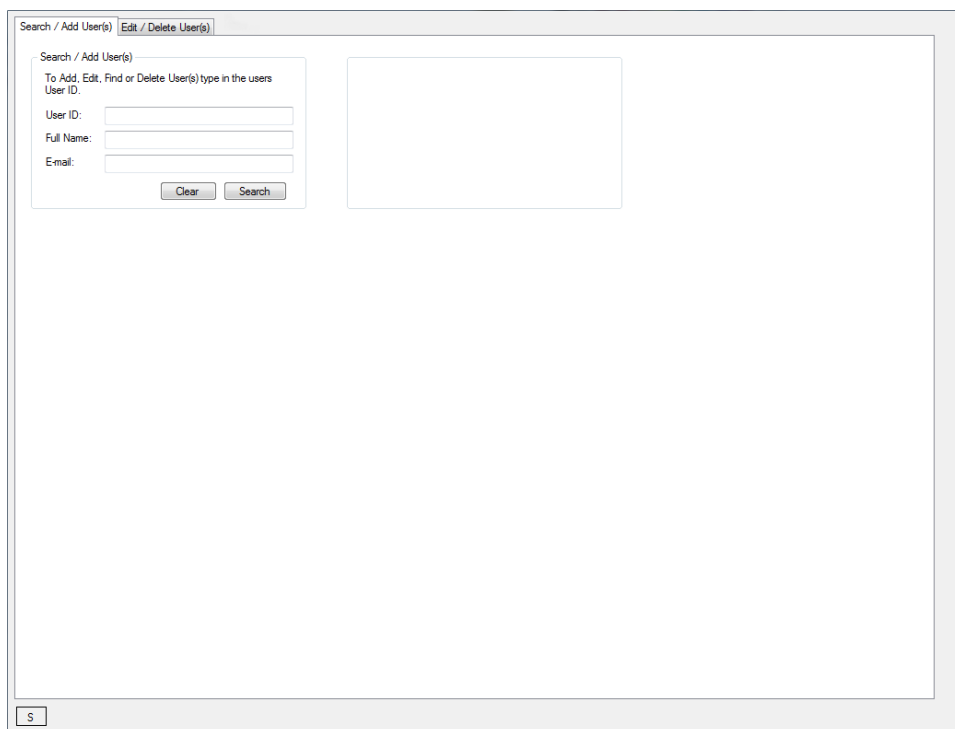
3.3.1 Workflow & Design result

“The user develops a mental model unconsciously, but often the model doesn’t match what the system actually does. This is the cause of many usability problems. A good user interface helps the user develop the right mental model. “, [8]

A mental model is a users’ understanding of how the system works. In order for the design to fulfil the requirements of this thesis, the mental model a user develops when using this tool must be appropriate to a first-time user without any experience with the tool. The aim of this thesis is to create a user-interface that gives a user a simple and logical mental model of the tool.

As mentioned before a small user-test was made with the first prototype, the tool-drawn mock-up prototype used 2 tabs, **Tab 1** shows the first window from the tool-drawn mock-up.

Tab1



The screenshot shows a web browser window with a title bar containing two tabs: "Search / Add User(s)" and "Edit / Delete User(s)". The main content area is divided into two sections. On the left, there is a search form titled "Search / Add User(s)". Below the title, it says "To Add, Edit, Find or Delete User(s) type in the users User ID:". There are three input fields labeled "User ID:", "Full Name:", and "Email:". Below these fields are two buttons: "Clear" and "Search". To the right of the search form is a large, empty rectangular box. In the bottom-left corner of the window, there is a small icon of a document with the letter 'S' on it.

In **Tab 1** which is named “Search / Add User(s)” the following functionalities are found:

- Search user from CDS
- Save new user to ALM database

In this tab a helpdesk member can search for existing users and add non-existing users to the ALM-database. The group-view to the right of the *search-view* acts as the *search result window* where the options a user faces shows when using this tool.

If the user does not exist in the ALM database they will get the following option: “*The user already exists, do you want to edit the user?*” If they choose yes then they will be directed to **Tab 2**, if they choose no nothing will happen and they can make a search for another user

Tab 2

In **Tab 2** named “Edit/Delete User(s)” the following functionalities are found:

- Add project roles to user
- Delete user from projects
- Delete user from ALM

The first top group-view named “Add/Remove User(s) to Domain/Roles” is where the tool's basic functionality is, here all of IKEA IT's domains will be listed and each domain's projects and so forth. The user will be able to add and remove a specific user from a specific role in a project. In the textbox named “User(s)” a helpdesk member can search for the specific user they wish to edit from the ALM database.

The bottom group-view is where the option to delete a user from the entire database exists, a message box will warn the user whether he/she is sure they want to delete the user and that this action cannot be undone.

This version's workflow is presented in **Figure 8**:

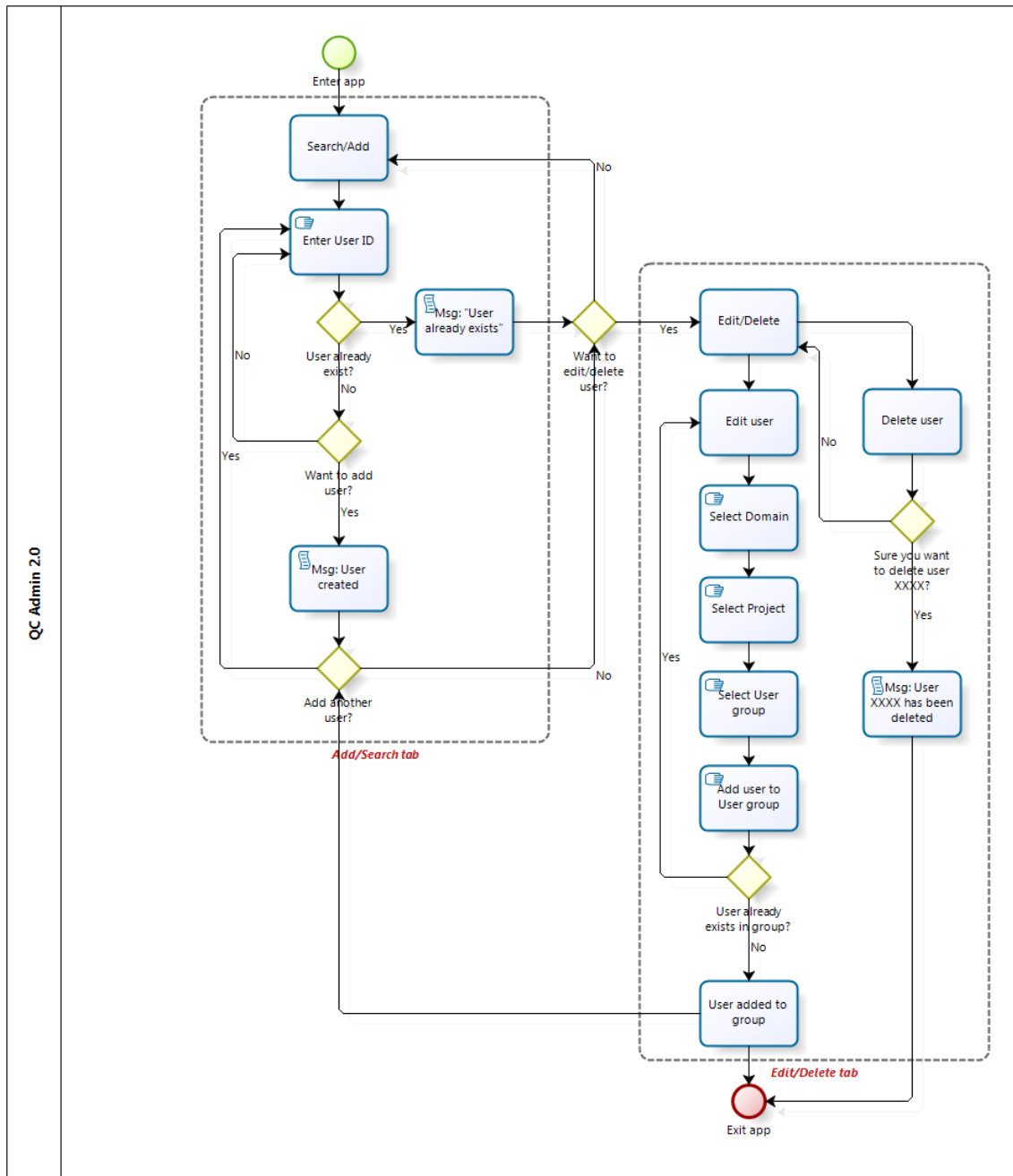


Figure 8: workflow of for the first design

Workflow demonstrating every choice and path a user can take in the tool.

After completing the user-test and the following revision of the workflow it was decided that the design was not as simple as it can be. The user-test showed the following faults:

- In **Tab1** the name of this tab (“Search / Add User(s)”) showed to be confusing the users
- In **Tab2** the group view concerning the delete user function takes unnecessary space of the tool for a function that is not going to be used as frequently as the other functions.
- In **Tab2** it was not sufficiently clear which user a helpdesk would be editing
- Using tabs to navigate the tool did not work.

To summarize, the test showed that this prototype did not help develop a simple and useful mental model for the users.

A new design and workflow were developed to address these shortcomings, this version would be the last one and the one which the development and coding would be based upon, see **Figure 9** for final design.

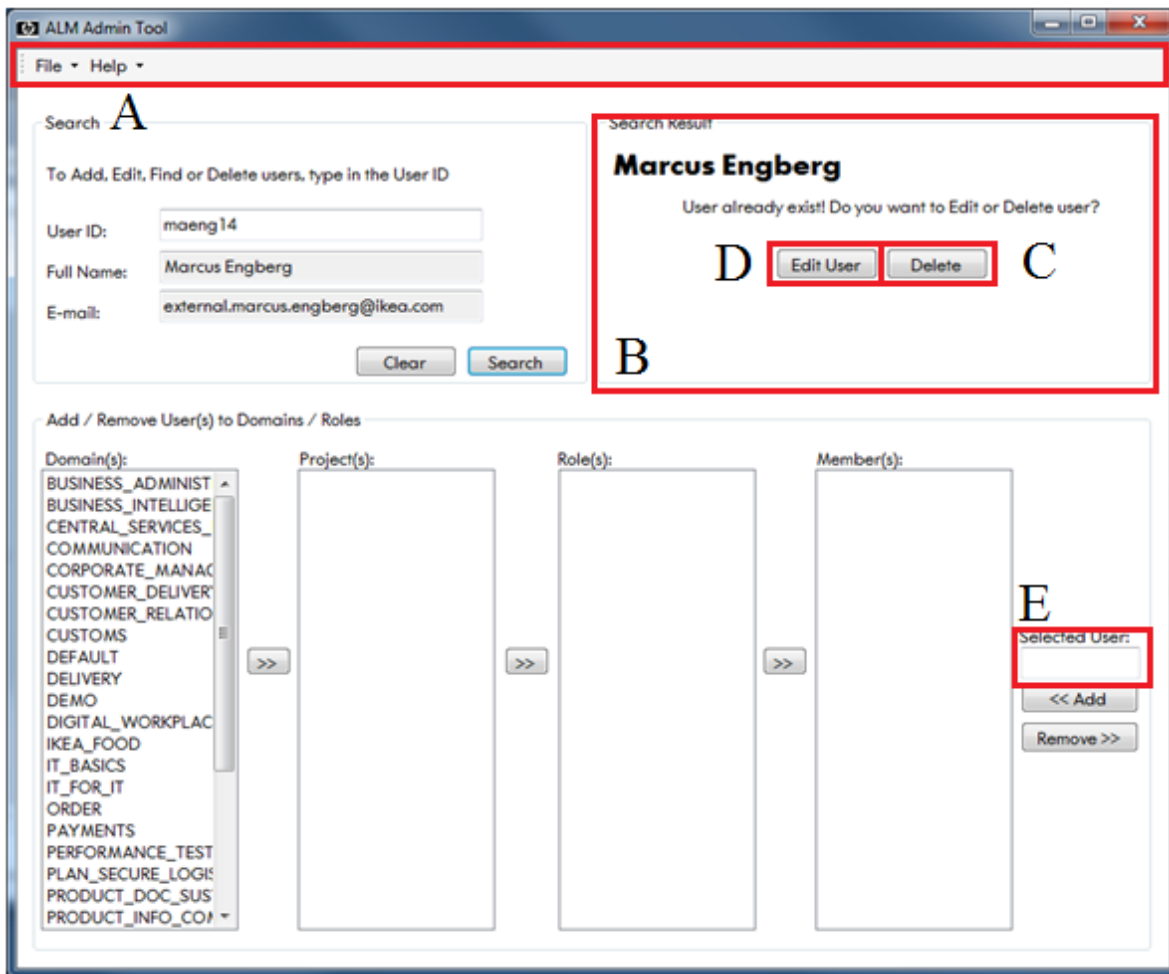


Figure 9: final prototype version of the new administration tool.

In the final prototype the tab function has been deleted, it has been replaced by a menu-strip (A in figure 9) to give the tool a more professional look. To help the user realise which user they are about to edit the selected users name will always be shown in the “Search Result” (B in figure 9) view.

Notice that the “Delete user” (C in figure 9) view has been minimised, if a user wishes to delete a user from the entire database they can do so by clicking that option in the “Search result” view. By hiding the delete user function in the background it made it possible to gather all the functionality in one window thus making the tool easier to understand.

If a helpdesk member wants to edit the selected user, they can click the “Edit User” (D in figure 9) option, then this user “User ID” will appear down to the right under the “Selected user” (E in figure 9) label.

The final versions wokflow can be seen in **Figure 10:**

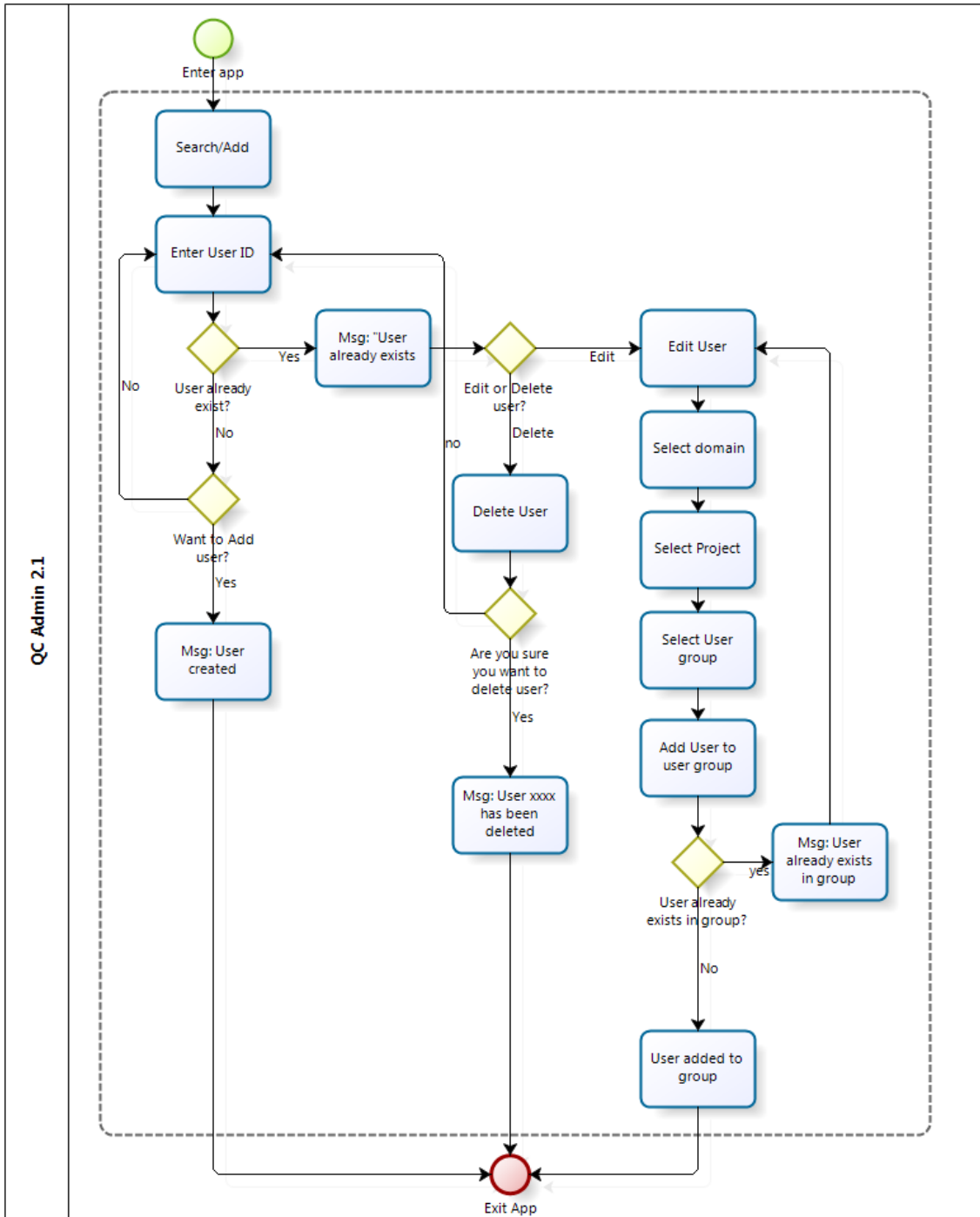


Figure 10: the final prototypes workflow

3.4 Development Process

The foundation to start developing in Visual Basic is to create the interface. Visual Basic works in the way that you have to create an interface that you implement to get a functional program.

The interface was created by using the already finished mock-up design which was reviewed and approved by the supervisor.

The new Administration tool has to support two main functions:

- Has to be able to connect to IKEA's user database (CDS) through Lightweight Directory Access Protocol (LDAP). LDAP is a way of communicating with a directory service. This has to be done because you have to be able to add any employee in IKEA into ALM and also because the user have to have the same password as in CDS.
- ALM has to have a connection to the new administration tool for the obvious reasons that it will be possible has to be able to add, edit and delete users in ALM.

The connection between the new administration tool and CDS was developed by using IKEAs own frameworks (IKEA.Framework.Core and IKEA.Framework.DomainModel), these are.dll files that have to be imported into the program. A framework is a class library that contains pre-coded solutions to a set of programming tasks such as network connectivity, database management etc. In the new Administration tool when you search for a user you will connect to the CDS through LDAP and get the full name and email of the user, this information will be used to either add/delete or edit the user in ALM.

To be able to perform this kind of task the Admin tool needs to be connected to ALM. This can be done in two ways:

- The old way called over-the-air programming (OTA), which was used by the existing Administration tool
- The new way called Representational State Transfer Application Programming Interface (REST API or only REST), which is the one that is going to be used for the new version.

There are numerous advantages to use REST over OTA, some of them are:

- Easier to use
 - With OTA you have to use SQL-queries to extract information, the information extracted will be stored in an object which will be parsed and listed. In REST all the information is stored in

different URLs, for example if you want to extract all the domains in ALM you only have to connect to the following URL: <http://iwww.alm.ikeadt.com:8080/qcbin/rest/domains> and you will get all of the domains listed alphabetically in a XML-document.

- Faster
 - With OTA you have to create a new connection to ALM every time you want to perform a task in ALM while with REST you only have to connect once to ALM to perform tasks.
- Will get updated unlike OTA

Whether the old or the new version is used you have to have an account to login to ALM, this account has to have administration rights in ALM. The account is used to get authenticated by ALM (logged in) so that it is possible to perform the tasks needed.

The account is created manually in the CDS and given all the admin rights needed in ALM.

When the connection/authentication to ALM has been made ALM “opens up” and you are allowed to perform tasks with the server.

REST has four main functions that you use to perform tasks in ALM, they are:

- *POST* – Used to create and entities
- *PUT* – Used to create or update entities
- *GET* – Used to read information
- *Delete* – Used to delete

By using these functions you should be able to extract and insert data into ALM. However, after having extracted approximately 85 % of the information needed for the final product a few problems occurred:

- It was discovered that it is not possible to extract the “roles” from ALM.

A “role” in ALM is something that the users in a project will be given depending on what role they have in the project e.g. developer, tester, project manager etc. The roles are a way to limit what a user can do/see in ALM.

Because it is not possible to extract the roles in ALM it is not possible to add the users to a specific “role” in a project. This is a small part of the Admin tool but without it the Admin tool will be useless.

- There is no way to check if a user exists in ALM in an acceptable amount of time.

When adding a user into ALM the user has to be located in CDS to extract all of the users' credentials. If the user exists in CDS the next step is to check if the user exists in ALM to be able to know if the user should be added to the system or the option of editing the user should be given. It was discovered that there is no way to look up if a user exist in ALM in an acceptable amount of time, which means that it would not be faster adding the user to ALM using the new administration tool . When using the "GET" function it was possible to get the users from a selected "Domain/Project" but not the users from the entire ALM database. That means, to check if a user exist you have to go through every single "Domain" and "Project" in ALM.

After having consulted with one of the employees at "Test Center" who has an exclusive amount of experience with ALM, it was established that the current version of REST is not meant to be used to administrate users in ALM; it is supposed to be used as a way to extract/insert data about test cases, requirements, releases, defects etc. It was also determined that there was no other way to solve these issues except for using the old way to extract/insert information, as mentioned before, called OTA.

This did not mean that all of the previous solutions that have been done using REST were useless, only that the new administration tool now consist of two ways of extracting information, the consequences is that some parts of the Admin tool will work slower (a task will take up to five seconds instead of less than one) than other parts.

3.5 Final product: ALM Admin Tool 1.0

An .msi file were created in order for the new administration tool to be installed on several computers. To give the new administration tool a professional feel a shortcut with a HP logo were developed, see **figure 11** for program.

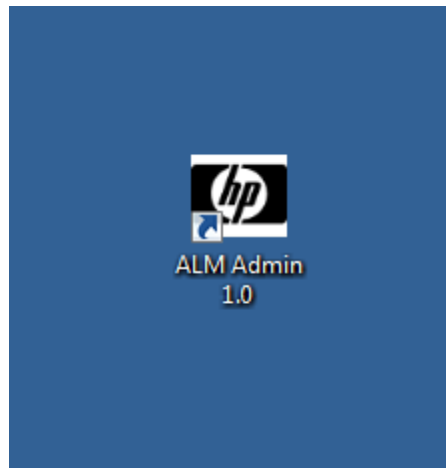


Figure 11: The new administration tool's program (shortcut)

While the tool is loading a splash screen will appear on the screen. A splash screen is used to let the users know that the tool is loading, once the tool has finished loading the splash screen disappears and the main window takes its place, see **figure 12** for splash screen.



Figure 12: The new administration tool's splash screen

The main window for the new administration tool can be seen in **figure 13**

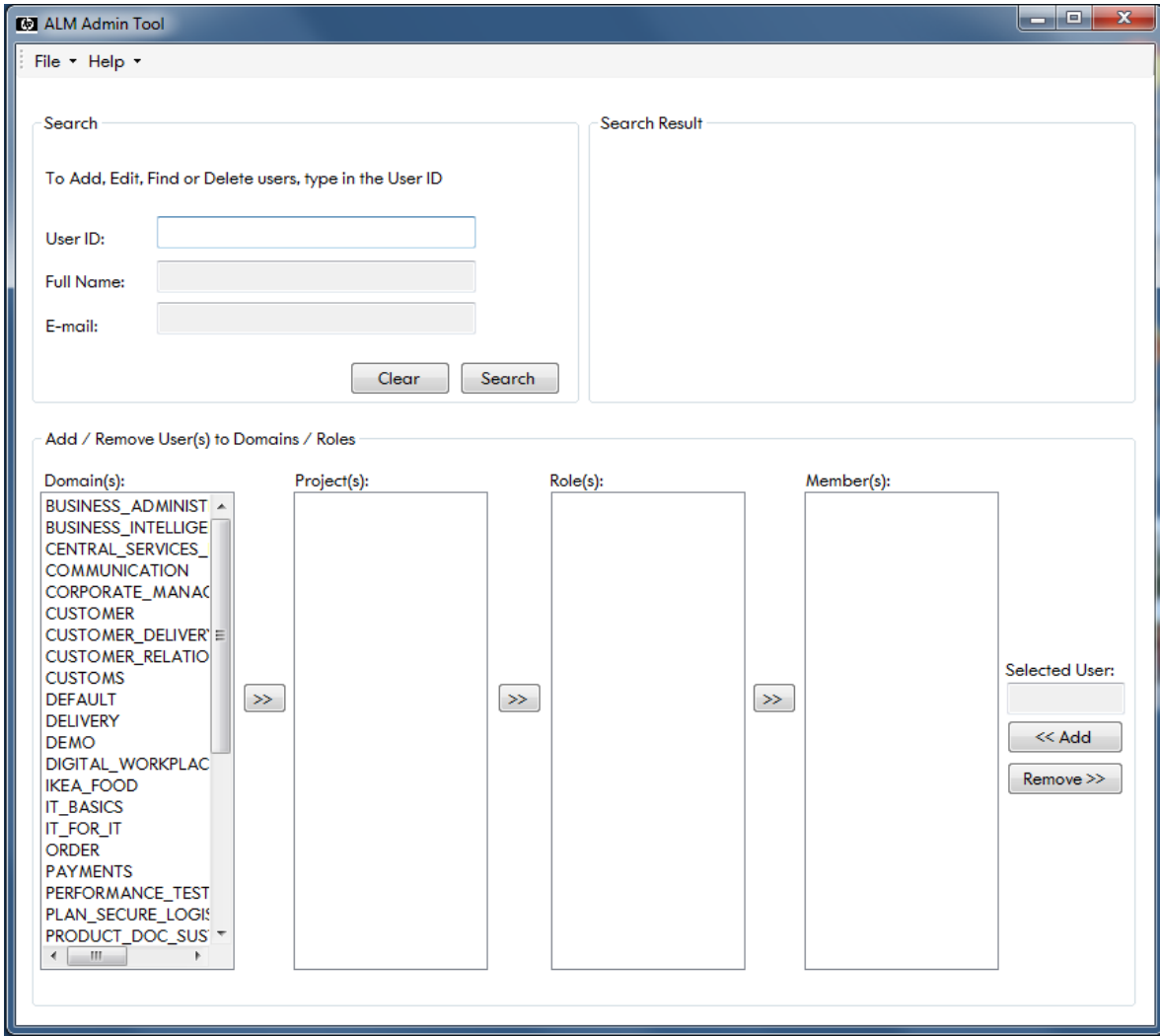


Figure 13: Main window

Figure 13 shows the window a user sees once the tool has been loaded. To get things started with the tool a user can start by searching for a specific user by entering their user-ID. By entering a users user-ID two things can happen, see **figure 14** for one of the two.

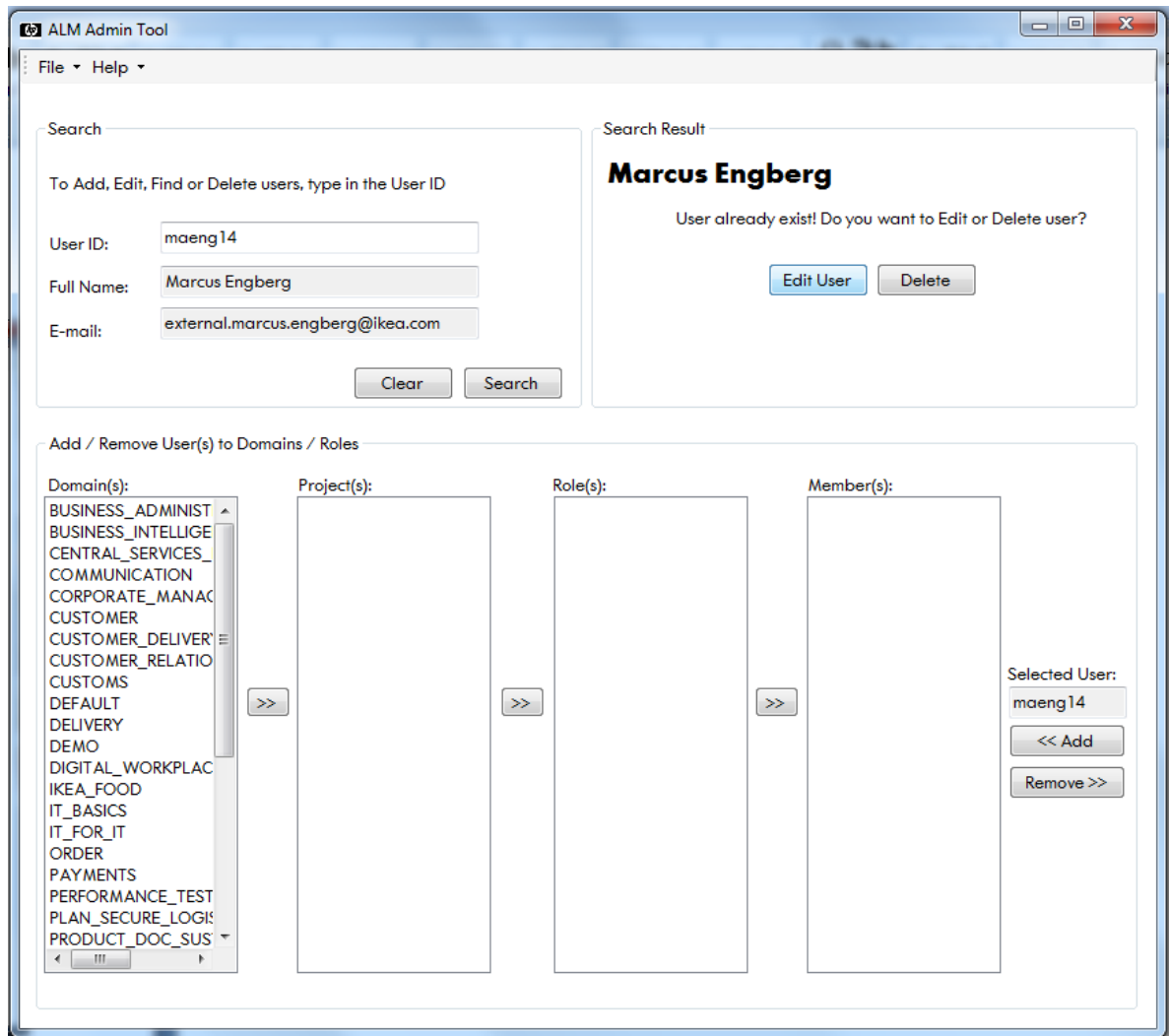


Figure 14: Search result, User exists in ALM

The second option can be seen in **figure 15**

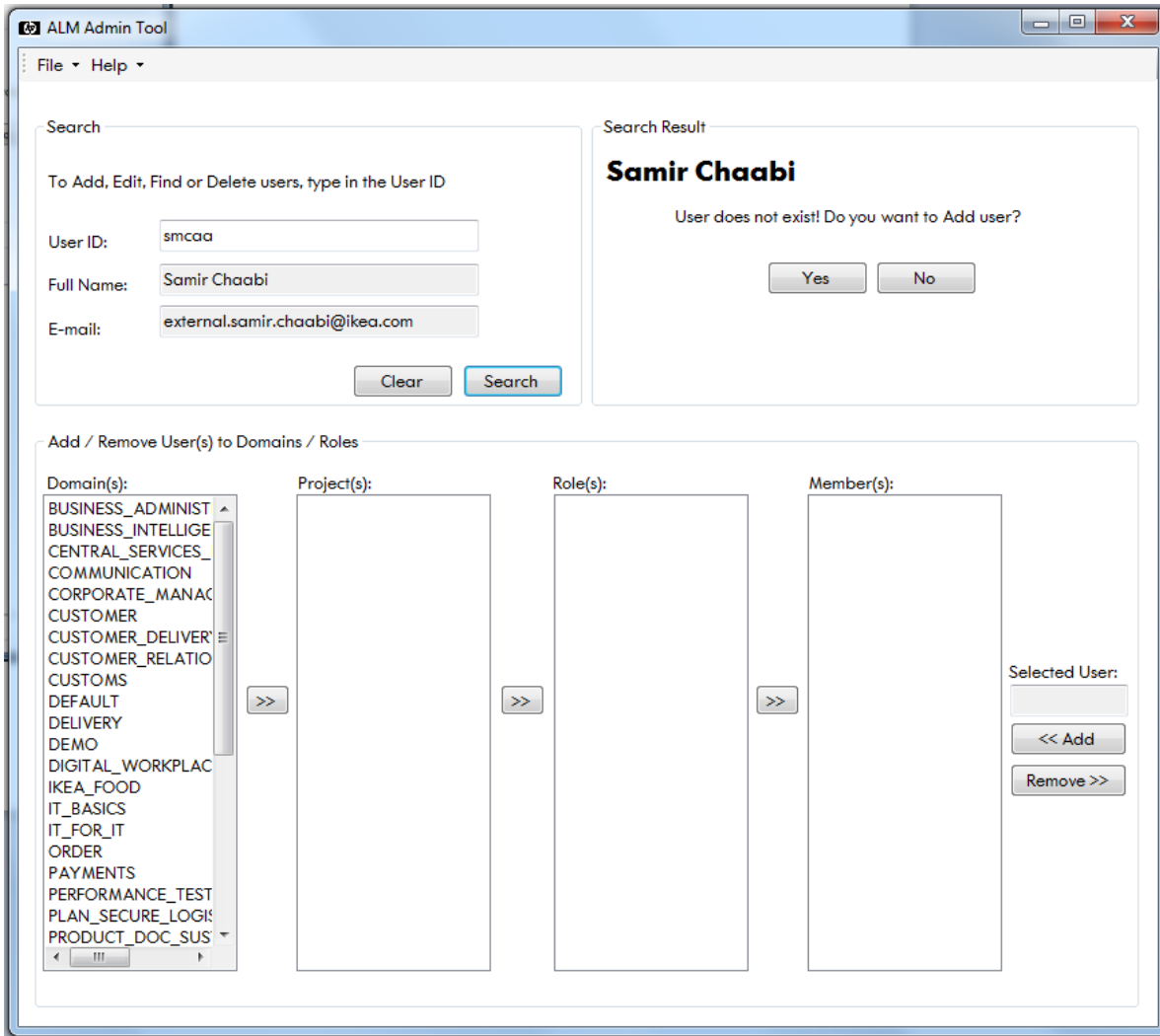


Figure 15: Search Result, User does not exist in ALM

If the user-ID does not exist in ALM a user can select the “Yes” button and the user-ID will be added to ALM. From here a user can select the specific roles the user-ID is to be added to, see figures below for selection of roles.

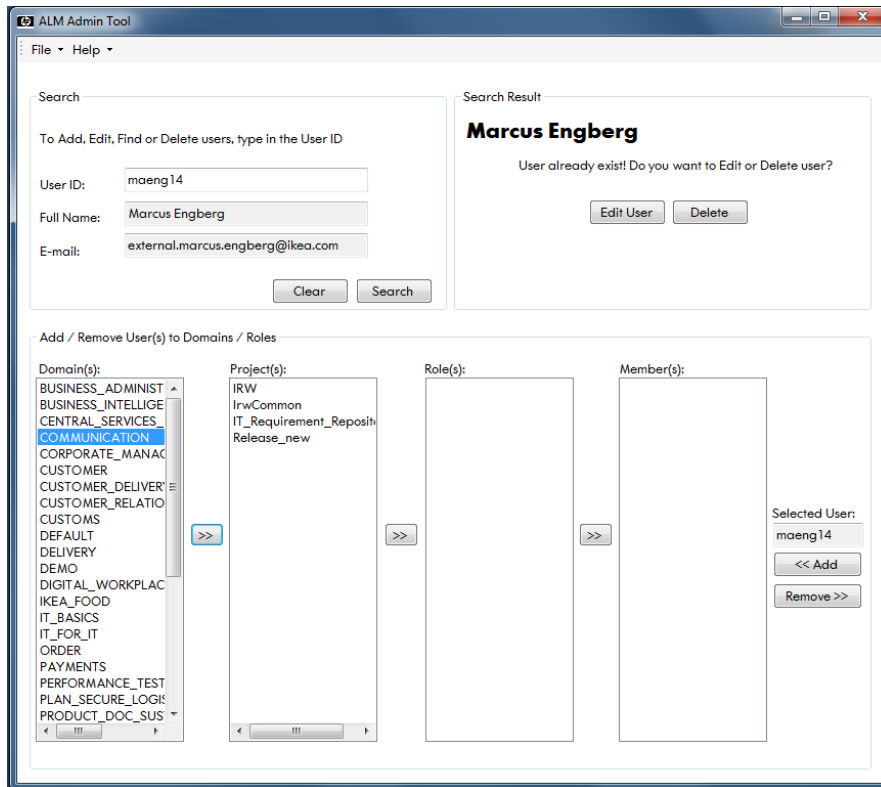


Figure 16: Select project from domain

It is at this stage the usage of REST API ends, to get the roles from a specific project the use of OTA were implemented instead. See chapter **Development process** for further details, see **figure 17** for view of selection of roles

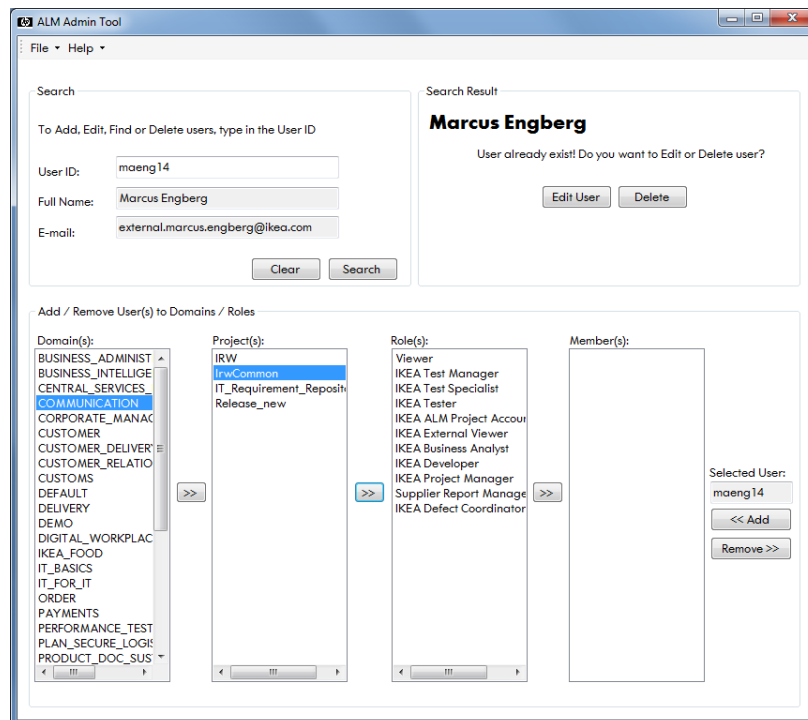


Figure 17: Select role from project

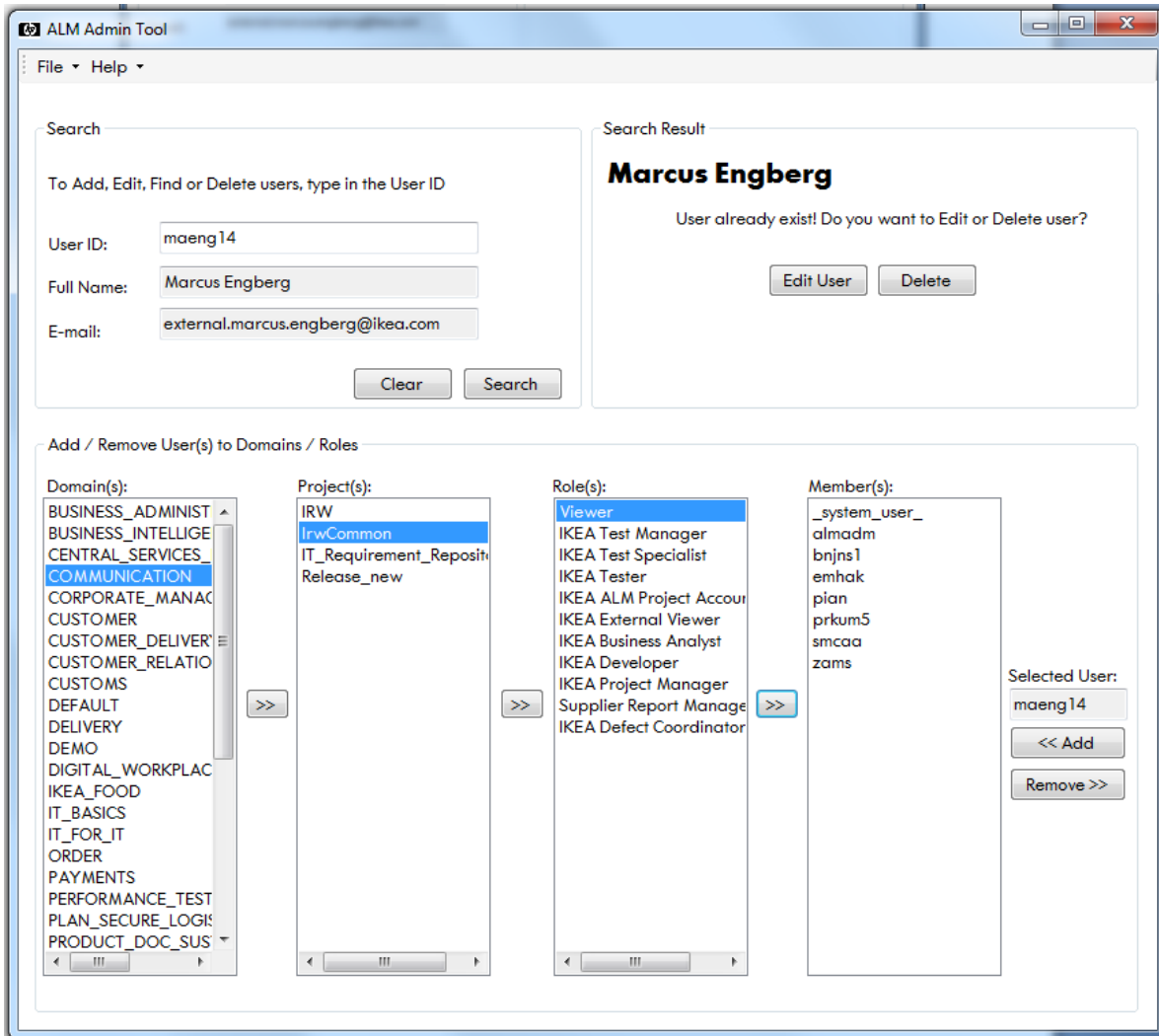


Figure 18: members from role

When a user is at this point they can choose to add a user to a specific role or remove any user from that role.

If IKEA in the future needs to upgrade their ALM server, the option of saving a new server URL has been implemented. See **figure 19** for server settings.

By building an .msi file from the visual basic project file the performance of the new administration tool were affected, it proved to speed up the performance. This is because when an .msi file is built some debug actions are stripped away from the final product, thus enhancing the performance.

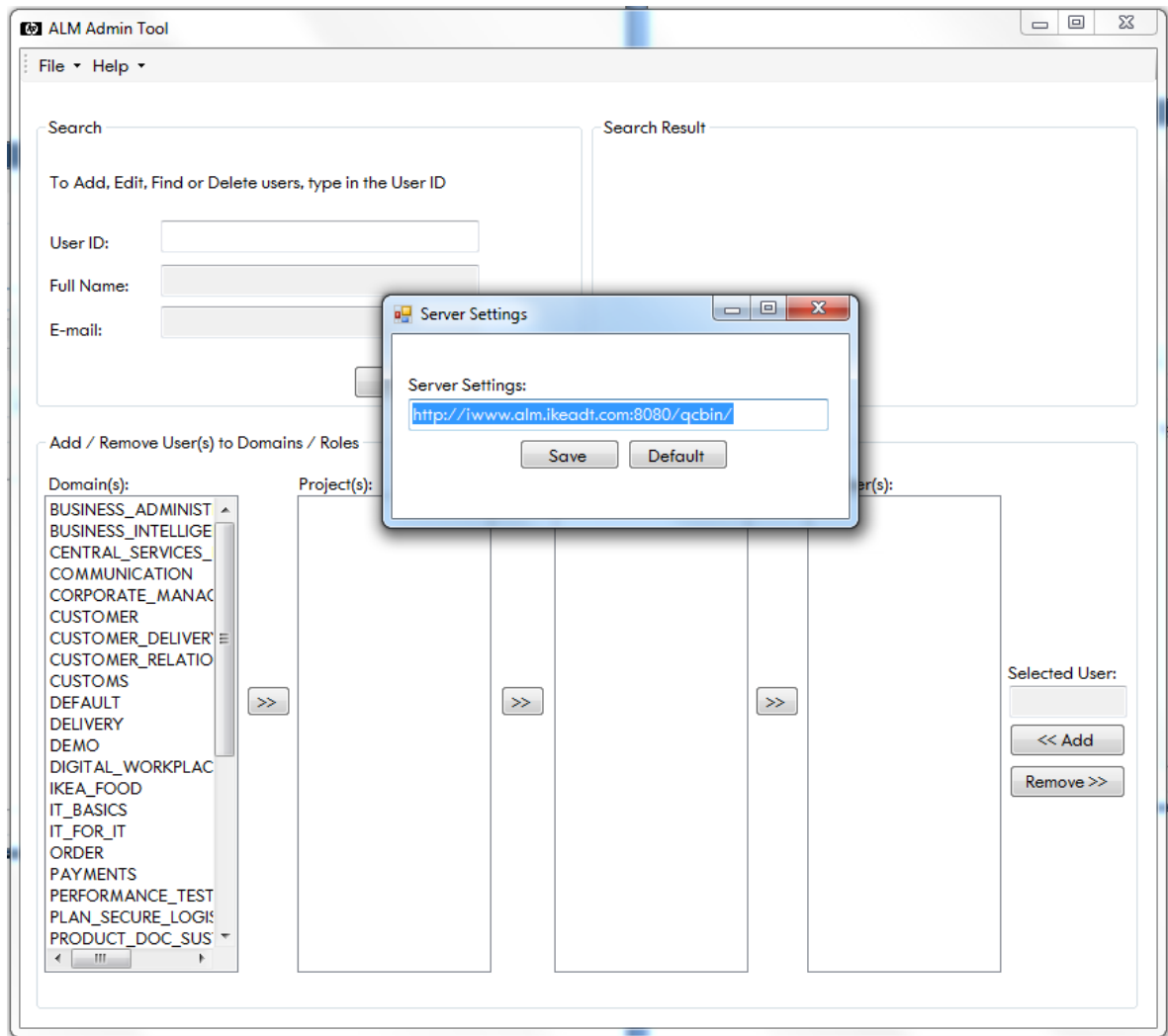


Figure 19: The settings window for saving a new server URL

3.6 Final user-test

Once a fully functional version of the new administration tool had been developed a final user-test was conducted. The aim of this user-test was to assert the usability and the following items:

- Test the functionality
- Identify bugs
- Assert a user's mental model of the tool
- General performance

How does one test the usability of a tool? According to *Lauesen* [16] Usability consists of six factors, they are as follows:

- a) Fit for use** (or functionality). The system can support the tasks the user has in real life
- b) Ease of learning**. How easy is the system to learn for various groups of users?
- c) Task efficiency**- how efficient is it for frequent user?
- d) Ease of remembering**. How easy is it to remember for the occasional user?
- e) Subjective satisfaction**. How satisfied is the user with the system?
- f) Understand ability**. How easy is it to understand what the system does?

The user-test must establish that the new administration tool fulfils these factors in order to call this thesis a success.

The test-users for this final user-test were some of the helpdesk members from the first survey. The numbers of test-users for this user-test were three helpdesk members. The reason for using three test-users instead of two as suggested for the previous user-test is because according to *Lauesen* [17]by

“Testing with a third user gives us added confidence about which problems are high hit. The new problems we detect with the third users are mainly low-hit problems.”

The first test-user for the final user-test was the one that did not complete the survey, the other two were randomly selected. The Authors believed that by doing the final-user test with the one that was not able to complete the tasks in the survey would be ultimate test of usability.

If this test-user was able to understand the new administration tool and complete the task, the success of this thesis would be achievable.

A small part of the final user-test consisted of a user review using a specialist. As recommended by Lauesen. [18]

The specialist used for this review was none other than the consultant, who developed the existing administration tool. During this review the specialist pointed out some functionality the new administration tool should have.

He pointed out that the function to ctrl-click to select several options to add a user to several roles at the same time is something users usually want. The specialist also said he was impressed with the design and lay-out of the new administration tool and that there should not be any major issues with the final user-test expected.

3.6.1 Final user-test: Method

The lay-out of this user-test was based on the lay-out from the survey. The only difference between the final user-test and the survey is that the user performed one task instead of three. The reason for using only one task is because the new administration tool focuses on the main functionality, it would not be meaningful using the other tasks from the survey. The steps in this user-test are the following:

- Step 1 – the test-user had to follow a template to add a user to a project

- *Add user to ALM:*

Domain: COMMUNICATION

Project: IrwCommon

Accountable:

IKEA Business Analyst: smcaa

IKEA Developer: smcaa

IKEA project manager:

IKEA Test Manager: smcaa

IKEA Test Specialist:

IKEA Tester:

Other:

- Step 2 – The test-users were asked general questions about the tools GUI and functionality, e.g.
 - Did you find anything unclear with the tool?
 - How satisfied were you with the tool as a whole?
 - How efficient did you find the tool?
 - Did you find anything confusing with the functionality?
 - What improvements would you propose?

3.6.2 Final user-test: Result

The results from the final user-test proved that the new administration tool had fulfilled the requirements of this thesis. Every test-user was able to complete the task without any guidance from the facilitator. These are some of the comments the test-users gave:

“The design is much easier to understand compared to the last one, the flow of the tool works great”

“The first impression of the tool provided a clear picture of the tools purpose”

“The labelling explained the purpose of the functionalities well”

The first test-user (the one who failed the survey) completed the task faster than the other test-users, this test-user described the new administration tool as:

“Difficult to do anything wrong, easy to do everything right”

“Hard to fail, easy to prevail”

The specialist review and the final user-test found the following improvements:

- **Ctrl-click**, as the specialist recommended every test-user requested this functionality. ctrl click - if a user is to be added to several roles within the same projects the possibility to choose several roles at the same time would be a good functionality.
- **Search button bug**, If the user-ID field for looking up user from CDS is empty and the “Search” button is clicked a wait cursor appears but nothing happens.
- **Duplication bug**, When a user had chosen the roles from a project and wanted to look at another projects’ roles then these roles were duplicated in the view.

These bugs were easily fixed, but the ctrl-click function proved to be more of a challenge. That function will be listed as a future development idea.

Using the existing method to add a user to AML as described in the introduction takes about 90 seconds, by using the new administration tool users are able to perform the same tasks under 10 seconds. See figures below for further statistics.

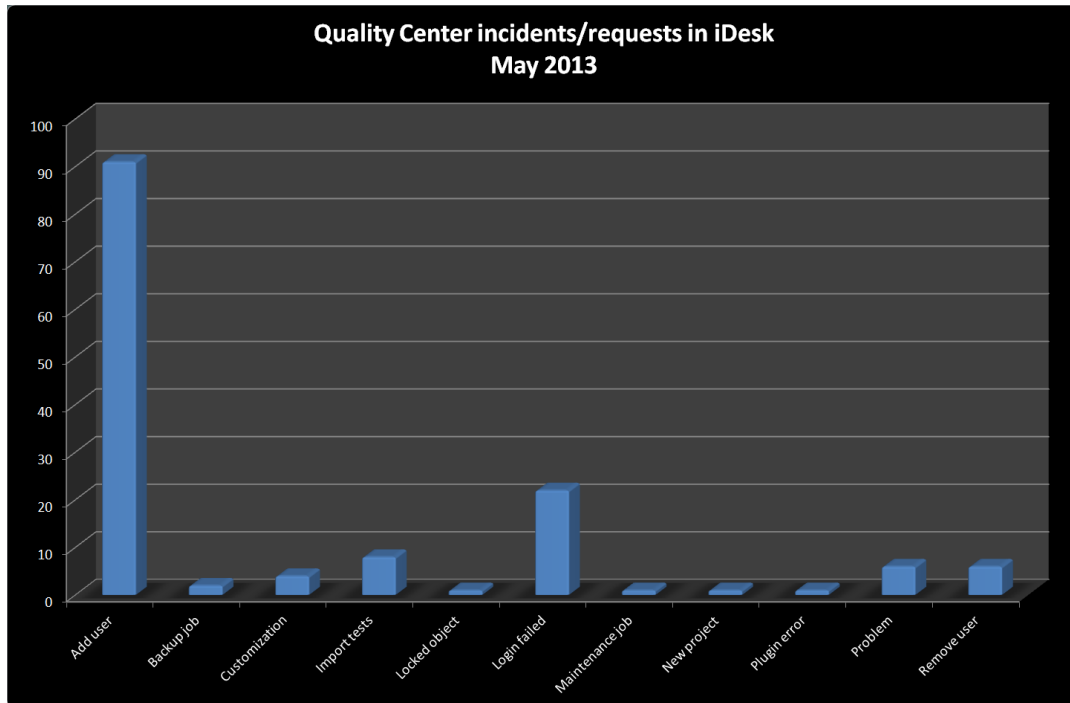


Figure 20: General tasks performed

Figure 20 illustrates the general tasks a helpdesk member can perform, note that the bar illustrating “add user” is the most prominent one. This shows that most of the tasks being handled in idesk are to edit a user, the purpose of the new administration tool is to handle these kind of requests.

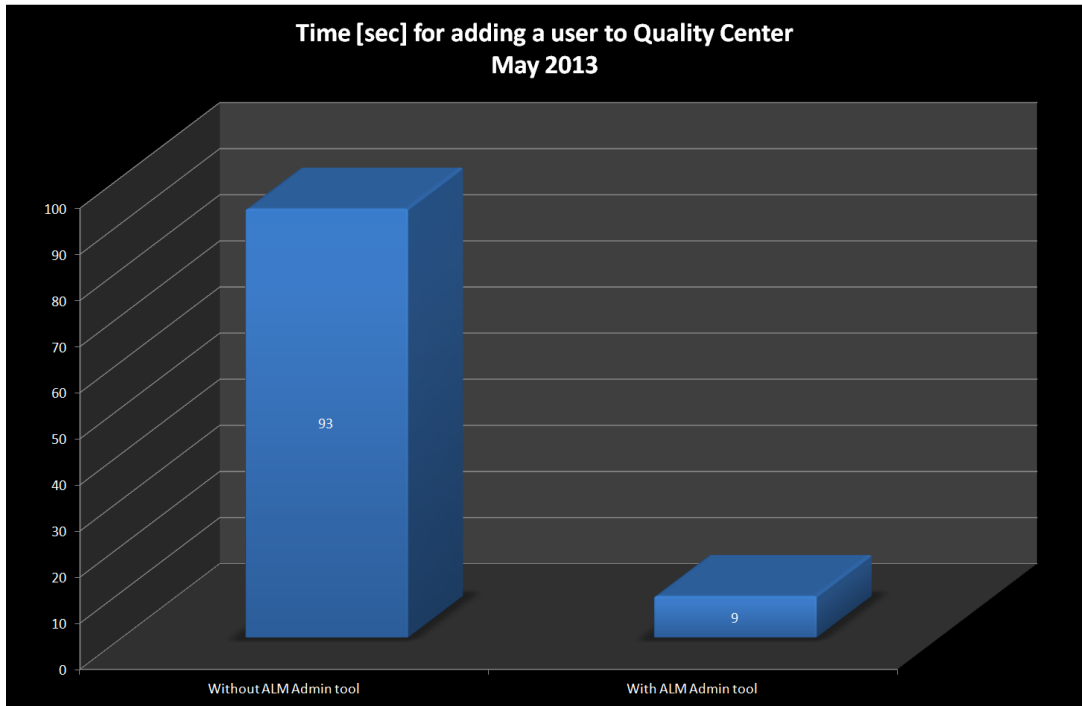


Figure 21: Time for adding users

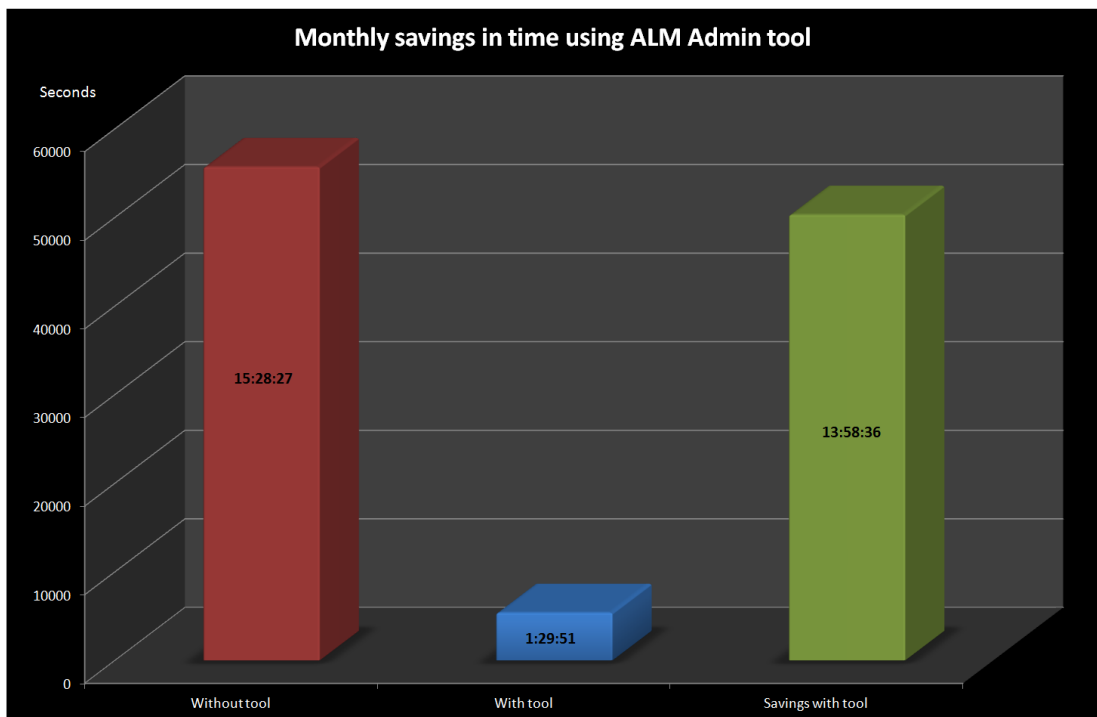


Figure 22: Monthly savings

To summarize, the results from the final user-test proved that the new administration tool asserts the six factors for usability.

3.7 Summary

This project has been divided into three phases where a prototype will be delivered at the end of every phase, based on this an iterative project model was chosen for this project.

The research proved that the existing administration tool with its current design and lay-out needed improvements in every aspect of its design. The labelling and the flow of the tool were not suitable for any type of first-time user. By performing surveys and open interviews along with an analysis of the existing administration tools you got a better understanding of what needed to be improved /changed when creating the new administration tool.

With the knowledge acquired from the surveys, interviews and analysis of the current administration tools hand-drawn mock-ups were created to get a better idea of how the new administration tool will look like. A tool-drawn mock-up was then created in Visual Studio based on the hand-drawn mock-up to be able to be able to deliver a prototype.

A small user-test was made with the first prototype which showed that it was still a bit confusing and that the interface could be down sized.

With the knowledge acquired from the user-test a new prototype was delivered which was reviewed and approved by the supervisor.

The new prototype was fully implemented with a connection to the CDS and ALM.

The final step was to execute a final user-test to test the new administration tools usability and performance, this test showed that new administration tool fulfils each factor for usability.

4 Conclusion

The original question was:

How to develop an administration tool to fit first-time users who lack expertise knowledge?

Timetable, research, prototypes, workflows, development and user-tests. By following the steps as described in this thesis a fully functional administration tool has been developed and delivered to IKEA IT.

The new administration tool will help IKEA IT save time and money by decreasing the workload of the person in TestCenter handling all the ALM requests and to relieve the future work-load of the helpdesk at IKEA IT. The amount of time it takes to handle requests has been decreased by approximately seven times compared to the existing method. This shows that mental model a user develops when facing the new administration tool for the first time is as intuitive and logical as planned.

Actions performed in this thesis that has assisted in providing the final product:

- Creating a solid/realistic timetable
 - Starting the research in time
 - Taking your time with the research and design before the coding, saves time & effort.
 - Researching the method for coding early on.
- Seeking assistance from IKEA resources
- Taking time with the research and design before the coding saved both time and effort.

The best way to describe the new administration tool (ALM admin tool 1.0) would be by referencing to comments made by the helpdesk from the final user-test, here exemplified by three quotes:

“The design is much easier to understand compared to the last one, the flow of the tool works great”

“The first impression of the tool provided a clear picture of the tools purpose”

“Hard to fail, easy to prevail”

4.1 Future Development

Almost everything in IT is at a constant phase of developing/updating and this new administration tool is no exception. To make it as easy as possible for future developers to update/make changes to the new administration tool the following measures were taken:

- Documented code – The code for the new administration tool have been very well documented.
- Server settings – The option to change server URL have been given, this can be useful for the a couple of reasons, e.g.:
 - IKEA updates their servers.
 - ALM is down and a temporary server has been setup.
 - If there is a new version of ALM that have got a new server URL.

There are also a few things that have not been implemented in the new administration tool due to lack of time and possibility to do it.

- ***Ctrl-click function*** – The “Ctrl-click function” is a way of selecting several roles at a time when adding a user. As the final user-test results showed all of the test-users thought that it would be a great addition to the new administration tool.
- ***REST*** - As mentioned before, REST was not able to perform all of the tasks required by the new administration tool. When the new version of REST is available to IKEA it should be implemented where OTA is currently implemented.
- ***Selected domain/project/role*** – When selecting a domain/project/role it should be marked somehow as selected in the list box.
- ***Edit user*** – It should be more obvious that the selected user ID appears in the selected user list box.

5 Glossary

<u>Terms</u>	<u>Description</u>
Pro	Positive attributes
Con	Negative attributes
ALM	Application Lifecycle Management, see chapter 1.4
CDS	Corporate Directory Services, see appendix B
AD	Active directory, see appendix B
User-test	A test with the purpose to evaluate a prototype by testing it on users
Test-user	The participants of a user-test
Workflow	A map showing the functions and options of a system/tool
Tool	A program with a purpose
GUI	Graphical User Interface, what a user sees and interacts with when using a tool
Labelling	The process of choosing names for buttons, windows, tabs etc.
High-hit	Something that is discovered many times
Low-hit	Something that is discovered few times
Helpdesk	A department in IKEA IT that handles support
ICC4	A modified Windows OS to fit IKEA

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7 Appendix A

Test Case QC Administration Tool - IKEA IT

Link:

<http://www.surveymesh.se/s/survey/anon?id=c5875862-669a-4acb-9d9e-b007f92ecf73>

Intro

We're currently working on developing a new administration tool for "Application Life-cycle Management" (ALM). The purpose of this survey is to get a better understanding of what people are struggling with while using a tool like this. We are going to develop a new administration tool, so we are going to need a lot of feedback and tips on what to improve. The survey will be divided into four phases where the user has to complete a task and then answer a few simple questions about the task. The reason for using helpdesk personnel is because you are the ones whom are going to use the final product once it has been finished. If the user gets stuck, the user may be guided to the minimum so that the survey can go on.

Lay-out

The first task where the test-user has to add a user to Quality Center, he/she is faced with the following task:

Add user to Quality Center:

Domain: COMMUNICATION

Project: IrwCommon

Accountable:

IKEA Business Analyst: smcaa

IKEA Developer: smcaa

IKEA Project Manager:

IKEA Test Manager: smcaa

IKEA Test Specialist:

IKEA Tester:

Other:

This is official request the helpdesk gets when they has to perform any tasks within the tool, they are given a domain and a project within the domain and the user ID of whom they are about to edit.

1 Task 1

Add user to Quality Center:

Domain: DEFAULT
Project: AWoW
Accountable:
Business Analyst: smcaa
Developer: smcaa
Project Manager:
Test Manager: smcaa
Test Specialist:
Tester:
Other:

1.1 Question 1 *
How challenging did you find the task?

Impossible Very easy

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1.2 Question 2
Did you find anything challenging with the task?
If yes, please specify.

[Nästa sida](#)

2 Task 2

Delete "smcaa" from the role marked with "X":

Domain: DEFAULT
Project: AWoW
Accountable:
Business Analyst:
Developer:
Project Manager:
Test Manager: "X"
Test Specialist:
Tester:
Other:

2.1 Question 3 *

How challenging did you find the task?

Impossible Very easy

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.2 Question 4

Did you find anything challenging with the task?
If yes, please specify.

[Föregående sida](#)

[Nästa sida](#)

3 Task 3

Delete the user "smcaa" from the entire database.

3.1 Question 5 *

How challenging did you find the task?

Impossible Very easy

1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.2 Question 6

Did you find anything challenging with the task?
If yes, please specify.

[Föregående sida](#)

[Nästa sida](#)

4 Task 4

General questions:

4.1 Question 7 *

How challenging did you find it to navigate the tool?

Impossible

1



2



3



4



5



6



Very easy

7



4.2 Question 8 *

Please provide at least one pro and one con about the tool.

Föregående sida

Spara

8 Appendix B

QC Administration Tool

Figure 1, 2 and 3 show the first three tabs, the only tabs that are fully functional, of the existing Administration tool. Figure 1 shows the start page of the existing Administration tool, which has approximately the same functions as the new Administration tool. The issue with this is that it can be hard to know where to start because of the many different buttons and group boxes. According to Steve Krug; *“When you’re creating a site, your job is to get rid of the question marks”* [9] which is exactly what this thesis is about. There are also a lot of functions that are not necessary and only takes up a lot of space, a few examples are:

- In the “New User” group box you only need “Full Name” and “E-mail” to add a user in ALM.
- You do not need all users in QC in a list when the existing Administration tool starts. This will only delay the start up.
- There is no need to see which Domains/Projects a user belongs to

There is also hidden function on the first page which will appear when a user has been added to QC, this function makes it possible to add the selected user into a Domain/Project with a certain role.

Figure 2 show the second tab in the existing Administration tool. There are basically the same functions here as you have in the first tab except for that the interface has changed a bit and it is not possible to add users into QC.

Figure 3 show the third tab in the existing Administration tool. On this page it is meant to remove users from Domains/Projects, this function almost exist in the second tab except that you only remove the roles.

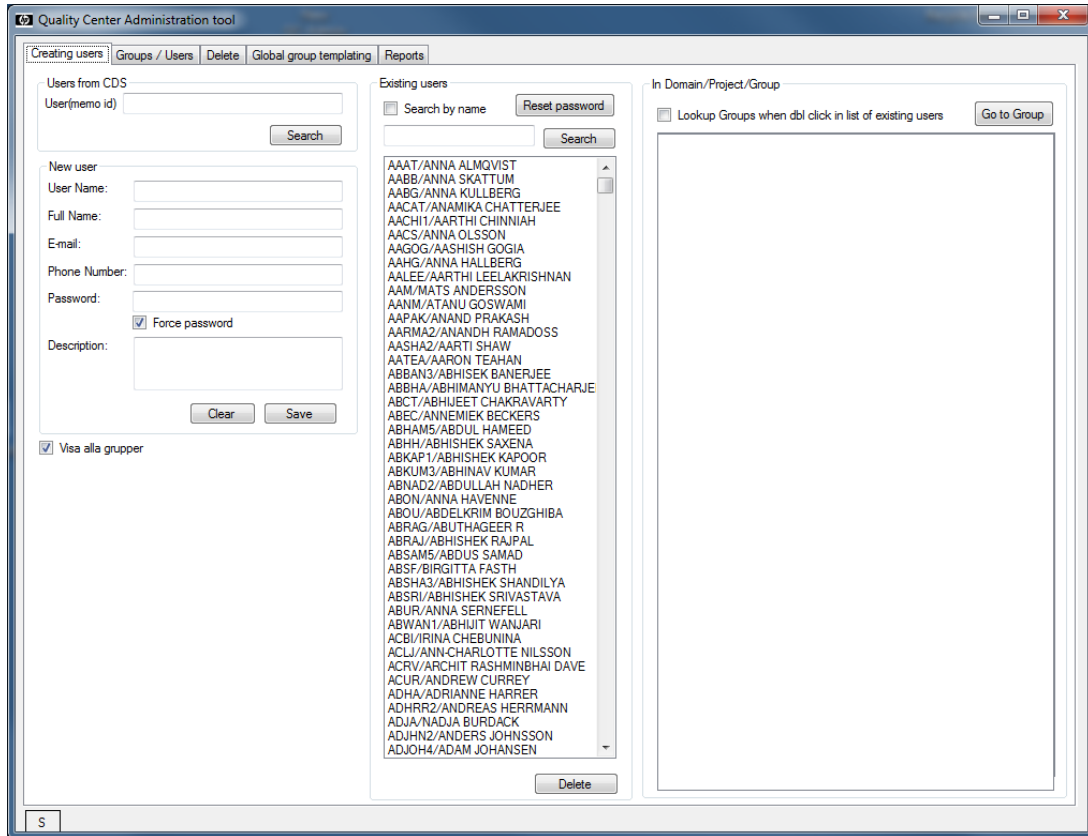


Figure 1: First page from existing administration tool

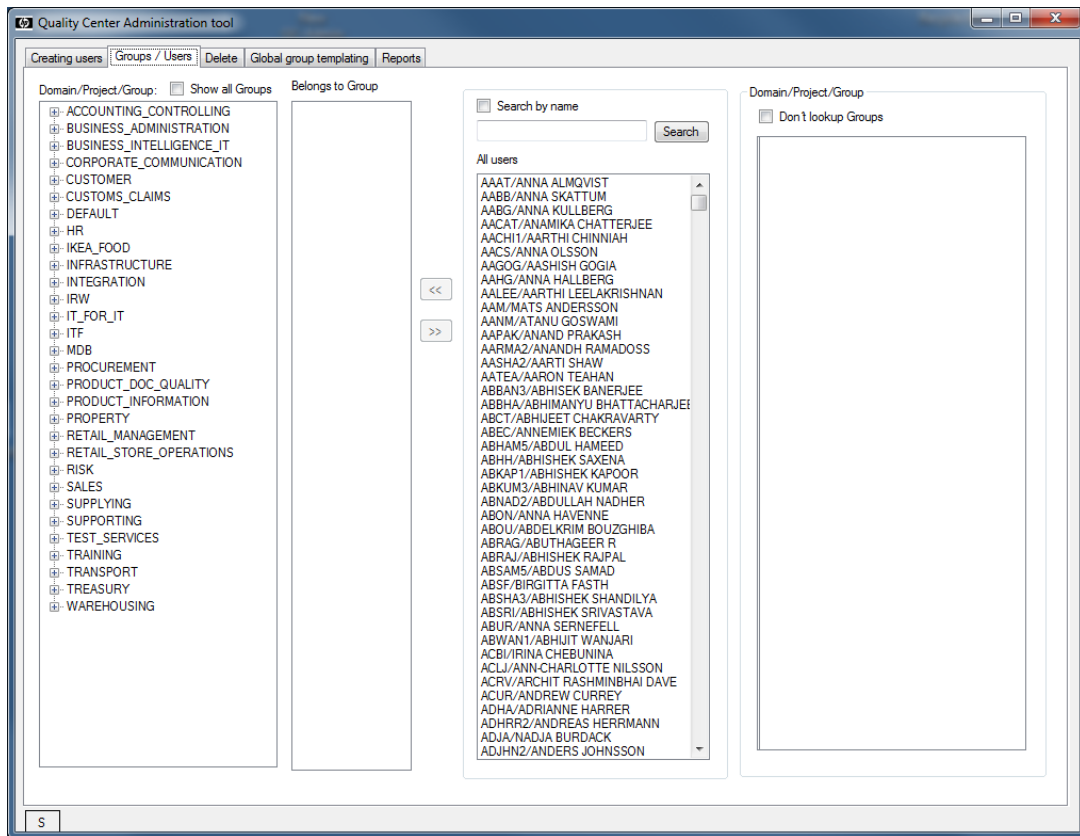


Figure 2: Second page from existing administration tool

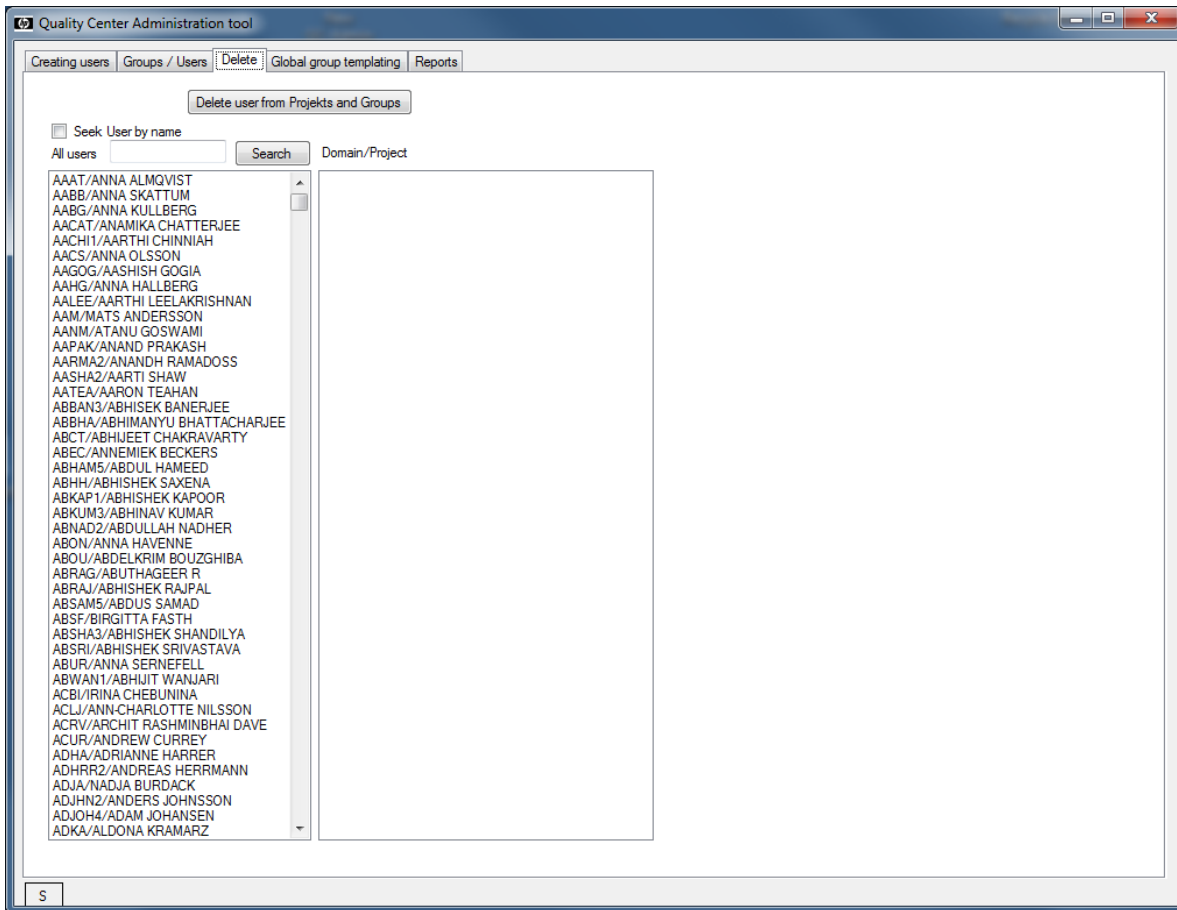


Figure 3: Third page from existing administration tool

9 Appendix C

The CDS and IMU are both connected to the Active Directory (AD) and get all of their information from AD.

The following figures shows the existing administration tools used for the analysis

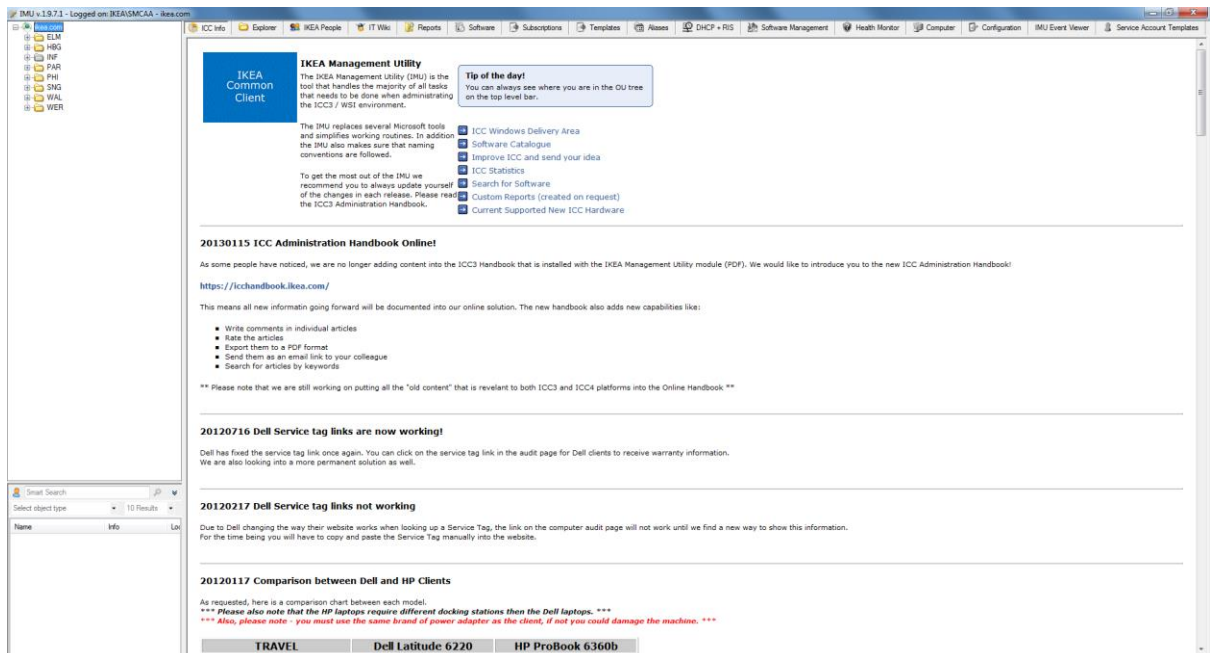


Figure 1: A view of IKEA Management Utility (IMU)

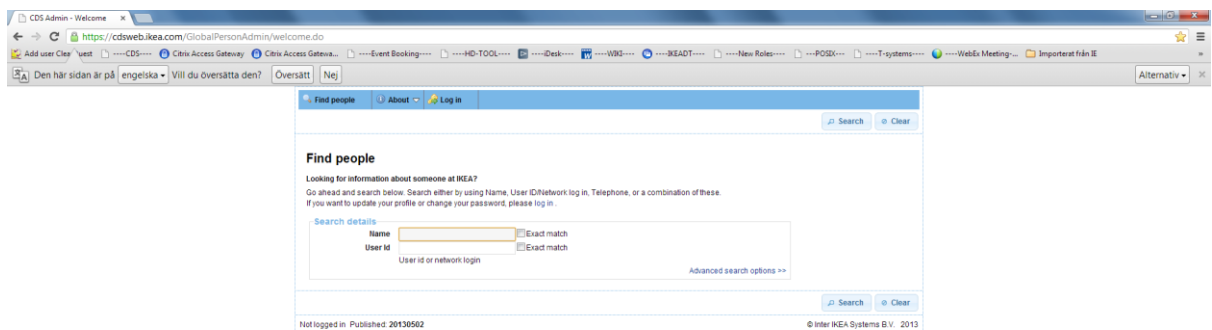


Figure 2: view of Corporate Directory Services (CDS)

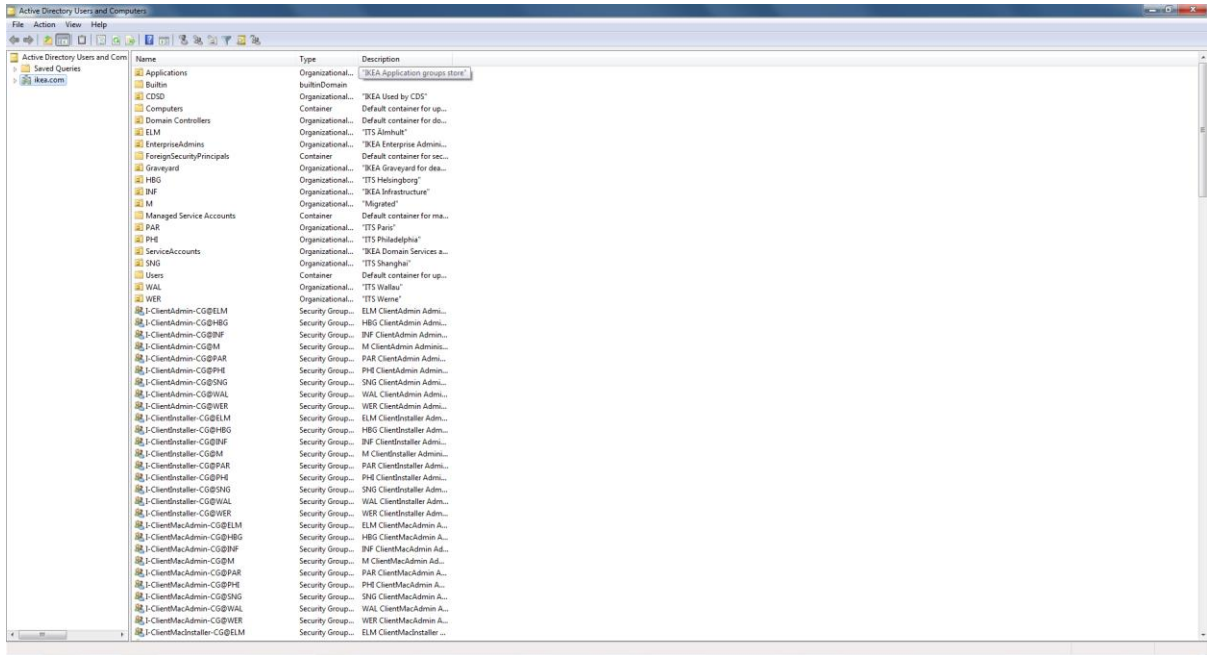


Figure 3: view of Active Directory (AD)