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Trade in Sports - GUI Design Thesis

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Abstract

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A well-structured, easy to use website is a requirement for the successful business website. A good interface can make people believe that they are not using computer but interacting with their hands.

This master thesis project is about evaluation and improvement of the design of the business website, which helps people to invest in sport. The process will consider evaluating the current design and based on this a new Graphical User Interface will be implemented.

A user-centered approach is taken in consideration to improve and organize the content and to design the interface of the website that will make users easily understand how the system works and how they could benefit from it.

The report will depict a design process that is based on existing approaches.

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Chapter 1

Introduction

This chapter gives a brief overview about Trade in Sports Europe AB, its background and how it works. This part also describes the purpose of this thesis work and research questions that were considered during this project. The final part of this chapter depicts delimitations of the thesis work.

1.1 Background

Trade in Sports Europe AB is a Swedish financial web service start up in the growing sport investment industry.

Trade in Sports Europe AB is developing a pioneering online exchange system for the sport related profit share trading. The service enables individuals and companies to make investments in profit share schemes related to e.g., football players, golf players, horse racing to financially support favorite football teams and promising young athletes while having the chance to gain profits.

This thesis describes evaluation and reimplementations of the Graphical User Interface. It embraces all the exciting new technologies available to deliver compelling, interactive experiences, but at the same time to ensure that the design is universally accessible, intuitive, and usable for everyone and the code is clean and maintainable.

1.1.1 Company Background

The initiative for Trade in Sports Europe AB was taken in 2010 with the aim of developing an entirely new financial and investment services in the sports industry.

Despite a large and growing interest in sport and many players in the sports industry, it is difficult to develop their business because they lack ways of bringing it outside. This

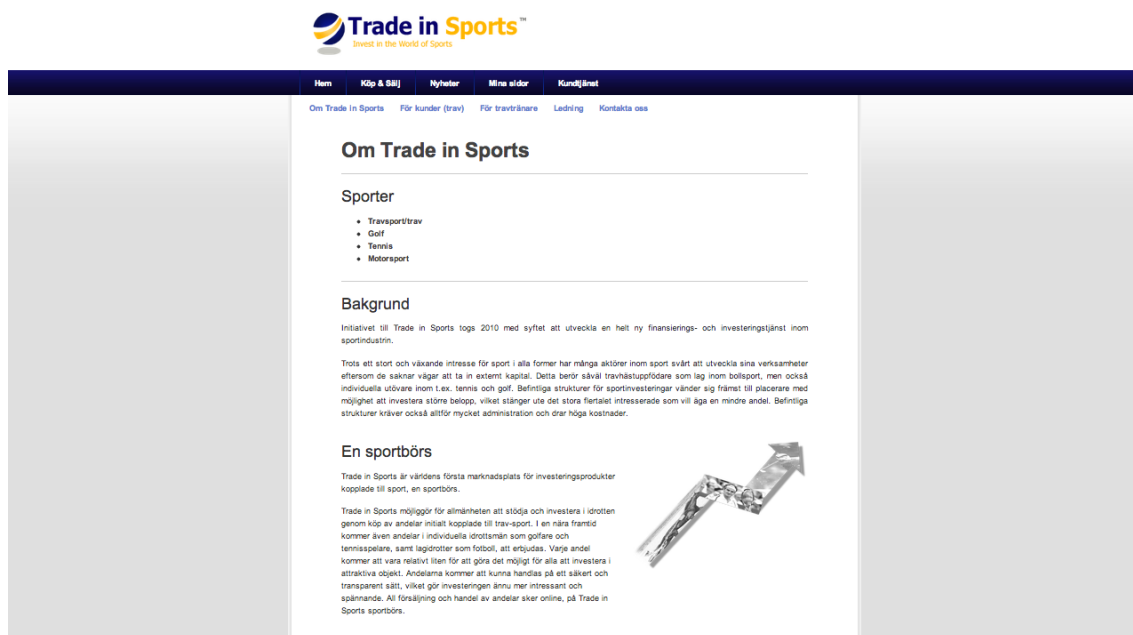


FIGURE 1.1: An example of one of the old design's pages

affects both teams (e.g., people who breed racehorses) and individuals in different fields (e.g., tennis, golf players).

Existing structures for the sport investments are aimed primarily at investors with the opportunity to invest larger amounts of money, which shuts out the vast majority of fans or small investors. Existing structures also require too much administration and are costly.

To face these problems Trade in Sports Europe AB was started and the website was created.

1.1.2 A Brief Overview How The Company Works

Trade in Sports Europe AB allows the public to support and invest in the sport by buying small shares through their website. By selling shares of future income such as sponsorship income or prize money, the company allows to invest before the sportsman succeeds and thereby gain revenues.

Each share is relatively small, which makes it possible for anyone to invest. By turning to the masses of sports fans, a broad investor can be built, which strengthens the business brand and creates better conditions for attracting new sponsors.

The shares can be traded in a safe and transparent way, which makes the investment even more interesting and exciting. All sales and trading of shares take place online, on the company's webpage.

Trade in Sports Europe AB wants to reach a wide audience and to bring sports industry

closer to people, which otherwise is not so simple, while interest in the sports by investor's increases. Trade in Sports Europe AB provides a verified legal structure and a trading system that limits the proficiency and manual administration for its partners / suppliers and customers.

This allows the sportsmen to develop their businesses in a cost effective way while the public is allowed to invest and support the sport through transparent goodwill investments.

1.2 Purpose

This project was concentrated on the redesign and enhancement of the Graphical User Interface for the business website so that new client could be attracted to use the service. This required to structure information in the optimal way to present it to customers, to renovate navigation and interaction with the webpage and based on these refinements new an augmented Graphical User Interface was implemented.

A number of studies were performed to get a better understanding of the business context, the content of the website and the users. The next stage was to evaluate the current Graphical User Interface and to find the required improvements. Then the prototype was presented to the thesis supervisor for approval.

The code was to be structured in a way so it is easy to maintain, change or restructure in future if some modifications are required as the company will grow and new features may be required to include.

The initial webpage contained a lot of unnecessary objects; it was hard to figure out how the service is functioning and what is the purpose of it. That's why a new fresh design was required in order to attract new visitors and influence the customers to come back and use the service again. The most important information was required to be available for the visitors immediately and presented in the way the customers could get the feeling what they should do next even if it is their first visit.

1.3 Research Questions

In order to succeed in evaluation and implementation of the new graphical interface the questions and problems were formulated. These questions were used during the steps of evaluation and implementation.

Questions and problems that were taken into the consideration:

Question 1: How to evaluate and distinguish a good GUI?

Question 2: What main functionality should the GUI provide?

Question 3: What is the best way to structure and present the information to the users?

Question 4: How is it possible to attract new users as well as to satisfy customers?

These questions were used to find and resolve the most important problems of the current website.

In order to determine what should be changed and what users expect to see when visiting the website, a set of questionnaires was formulated and used during evaluation and implementation phases.

1.4 Delimitations

The current thesis work had the following constraints that were considered during all the phases of the thesis work:

- As the previous version of the website was implemented in PostgreSQL/Java on back-end and GWT/Java front-end (more about GWT is described in Section 2.4), so the new solution was implemented in a way that allows an easy integration with GWT and is easy to maintain or change in future.
- The evaluation and implementation phases were limited to 20 weeks and were to be finished in this timescale.
- As the time schedule was constrained the evaluation techniques that require less time were used.
- As the company is rather small and because it is working online a low number of human resources were available for the evaluation.

Chapter 2

Tools

This chapter gives a brief description of the tools that were used in this project.

2.1 HTML

HTML is the predominant markup language used to describe content, or data, on the World Wide Web. HTML5 is the latest version of that markup language, and it contains new features, improvements to existing features, and scripting-based APIs.

HTML5 embraces all valid elements from both HTML4 and XHTML 1.0. Moreover, this version of HTML works on just about every platform, is compatible with older browsers, and handles errors gracefully. HTML5 contains redefinitions of existing markup elements, and new elements (articles, sections, headers, footers).^[1]

2.2 CSS

CSS is a style language that describes how HTML markup is presented or styled. CSS3 is the latest version of the CSS specification. CSS3 includes almost everything that is included in CSS2.1. It also provides new features to solve a number of problems without the need for non-semantic markup, complex scripting, or extra images. New features in CSS3 include support for additional selectors, drop shadows, rounded corners, multiple backgrounds, animation, transparency, and much more.^[1]

2.3 JavaScript

JavaScript is a programming language that lets you to enhance your HTML with animation, interactivity, and dynamic visual effects. It makes web pages more helpful by supplying immediate feedback. It also allows creating fun, dynamic, and interactive interfaces. It also makes web pages respond instantly to actions like clicking a link, filling out a form, or merely moving the mouse around the screen. JavaScript has no or very small delays compared to server-side programming languages like PHP, which depends on communication between the web browser and the web server. JavaScript does not require continually loading and reloading web pages. JavaScript allows creating web pages that feel and act more like desktop programs than web pages[2].

When using JavaScript it is often required to handle the same tasks again and again: selecting an element, adding new content, hiding and showing content, modifying tags attributes, determining the value of form fields, and making programs react to different user interactions. These basic actions could be quite tangled especially if it is required that the program works in all major browsers[3]. Fortunately JavaScript libraries provide a way to take care of these time-consuming programming tasks. A JavaScript library is a collection of JavaScript code that provides simple solutions to many common JavaScript tasks. It is a collection of prewritten JavaScript functions that can be used on the webpage and allow to complete common tasks faster, using less code than JavaScript programming[2].

2.4 GWT

GWT is a development toolkit for building complex AJAX-based web applications using Java, which is then compiled to highly optimized JavaScript. GWT makes it possible to implement application frontend in Java, and then compile the source to highly optimized JavaScript that runs across all major browsers. It is possible to debug applications in an IDE as a "regular" Java application, by setting breakpoints, while simultaneously accessing the application in the browser as if it were generated JavaScript. It is done via a browser developer plugin, which creates a bridge between Java bytecode in the debugger and the browser's JavaScript. Once the code is ready to be deployed, the GWT Java code is compiled to JavaScript. A compiled application frontend consists of JavaScript, HTML and XML. This way of the compilation process provides efficiency, security, and browser compatibility. The compiled JavaScript is highly efficient and optimized and helps protecting against Cross-site scripting (XSS) attacks.[4]

Chapter 3

Methodology

This chapter is concentrated on the evaluation of Graphical User Interface before the implementation. It depicts evaluation techniques that were chosen for the thesis work, selection of participants and their interviewing.

3.1 Evaluation

This thesis work was based on evaluation and improvement of Graphical User Interface. The first step of this was to distinguish how users were to work with the system, what problems or questions may have appeared to them and what could have been enhanced in the design.

To begin with, an evaluation strategy[5] has been defined in order to depict what was required for the final results and delimitations as explained in Section 1.4. Next, the usability evaluation session[5] were performed during which the evaluation data were obtained. After that, the data were analyzed and recommendations with some prototypes were created. Then after the prototype met the usability requirement the implementation has started.

The evaluation process was repeated after each implementation and design changed in order to obtain the best results.

The evaluation began with questionnaires and then was conducted in two ways: User Observations[5] and Inspections of the User Interface[5].

3.1.1 User Observations

This evaluation technique is one of the most important as it requires to interact with users/customers of the system as well as website Administration and to observe how

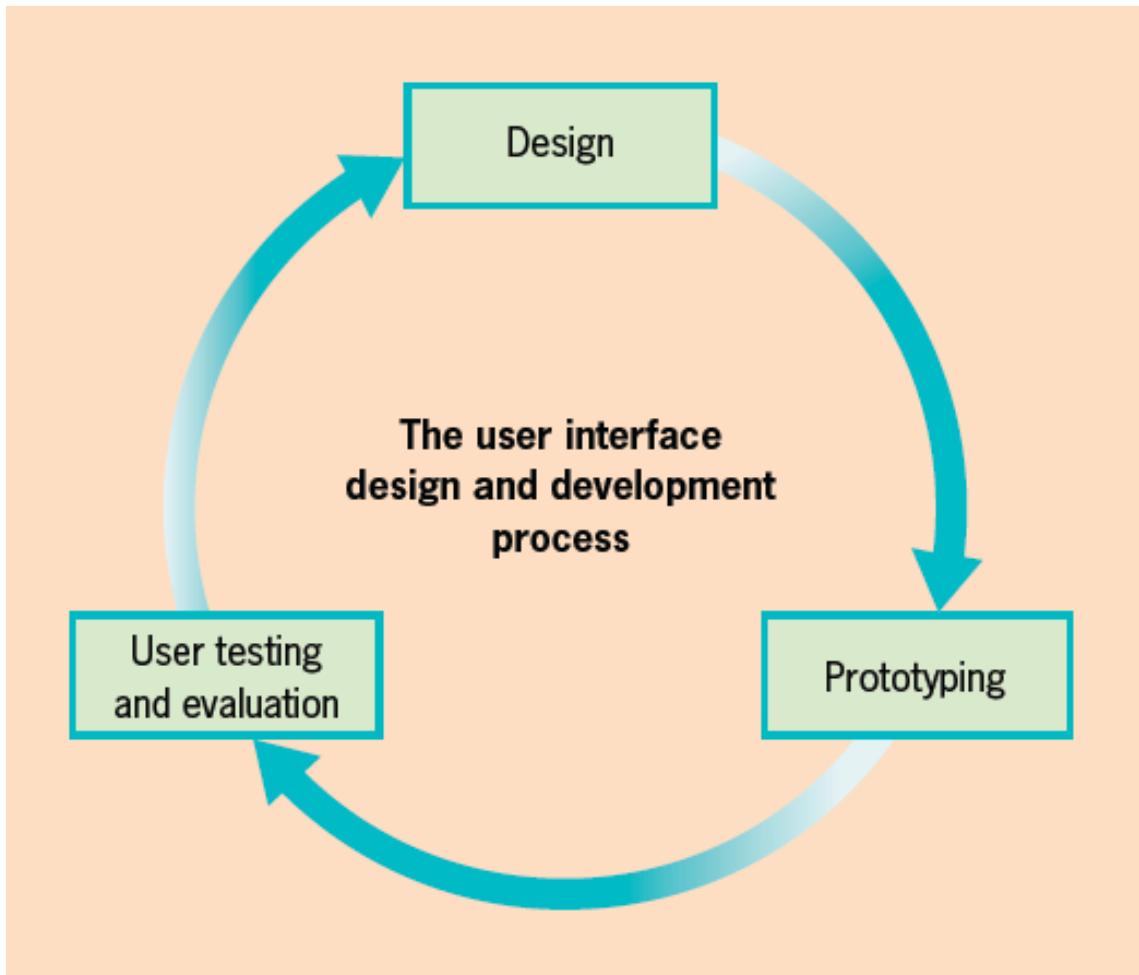


FIGURE 3.1: The iterative user interface design and evaluation process. (From Greenberg, 1996.)

they interact with the system, and the notes will be taken how the users interact, what problems/questions may appear.

3.1.2 Inspections of the User Interface

This evaluation technique requires inspecting the user interface of the page as if the person actually were a customer or potential user. This will allow predicting how the users will interact and detect usability problems or improve interface to make it more user friendly and intuitive.

3.2 Selection of the participants

In order to proceed with the evaluation the problems and improvements were to be discovered. For this a group of participants was selected. As was stated in the Section 1.4

the company is startup and is rather small as well as provides its services online, so it was possible to select only two groups of participants:

- 1) **Customers** — the most important users of the website. All the information and content is for the usage of the users. They should provide enough information for the user to get interested and understand the system in order to become customers.

Since the company is functioning online and the interaction with the customers is via email or phone, the site Administration conducted the interviews with questionnaires and the result were passed and used.

- 2) **Company personal** — they are the creators of the service and know the best how the website should function and what should be improved. They were interviewed after the customers and were deciding which changes were to be accepted and which were to be ignored as well as some other functionality that was added.

3.3 Interviews

Interviews with users, as was mentioned in Section 3.2, were conducted with help of the site Administration using questionnaires with open-ended questions. This approach was used because it helped to understand user predispositions and affectedness. This also helped to understand how the users interact with the website and what kind of problems they face while interacting with the website[6].

Interviews with the Administration of Trade in Sports Europe AB were conducted in their office in Stockholm. The questionnaires with open-ended questions were used as well in order to understand how the company works, where it is heading, what ideas for improvements did they have and more.

3.4 Questionnaires

For the interviews with both customers and Administration questionnaires with open-ended questions from Appendix A were used.

Chapter 4

Redesign And Implementation

This chapter describes how the results, obtained during the evaluation phase were used during the implementation and new solutions that were created.

4.1 Evaluation Results

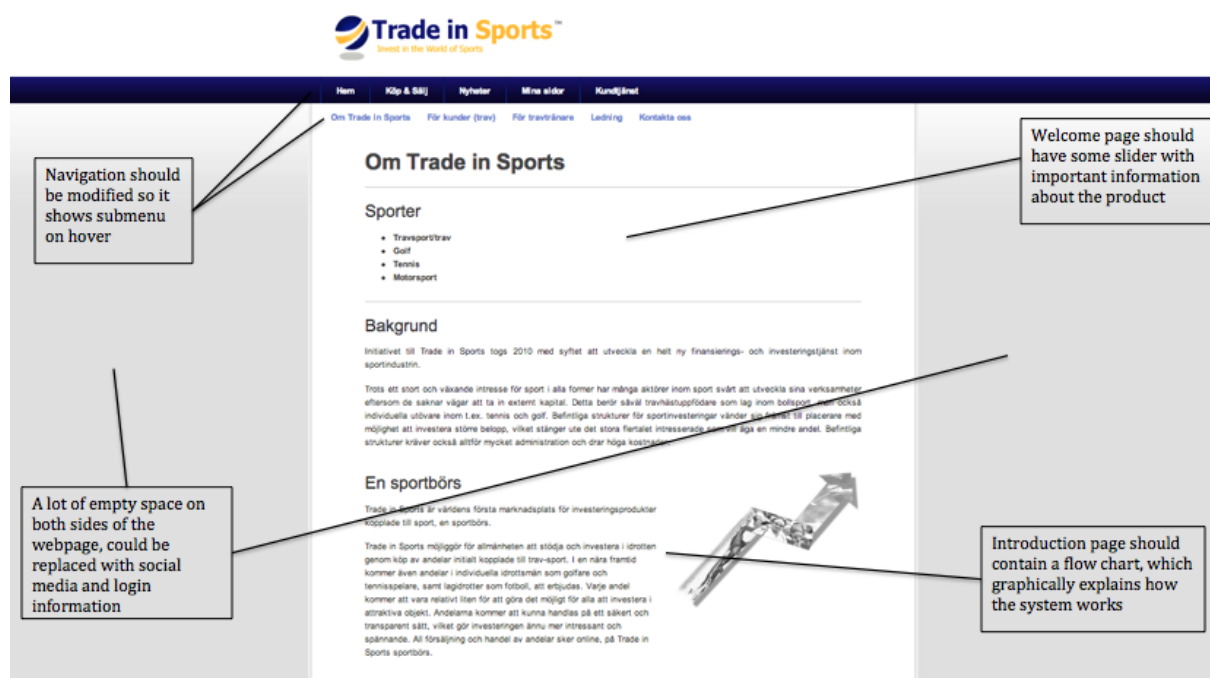


FIGURE 4.1: Elements to be improved on the website pages

After conducting evaluations from Sections 3.1.1 and 3.1.2 and interviews with the customers and Administration the problems and new features were gathered and the discussion with the Administration of Trade in Sports Europe AB was performed. During

this meeting these problems and new features were discussed and given the limitations stated in Section 1.4 the following most important tasks were formulated to be improved and implemented:

- The main page as it is responsible for the whole website was to contain a slider with the information about the product and give some hints about the way the system works as well as it might contain introduction video to help users to get started.
- Navigation was to be simplified, as the current version was too cumbersome to use.
- The introduction page was to be used which was to contain a flow chart with the full system cycle to explain graphically to new visitors how the system works and how they can benefit from it.
- A nice way to integrate social media sharing was to be used to attract more users.

4.2 Redesign Phase

The Solution

The solution and the product lifecycle slightly differ between the horse sport, individual sport and team sport product. The example below illuminates the individual sport product.

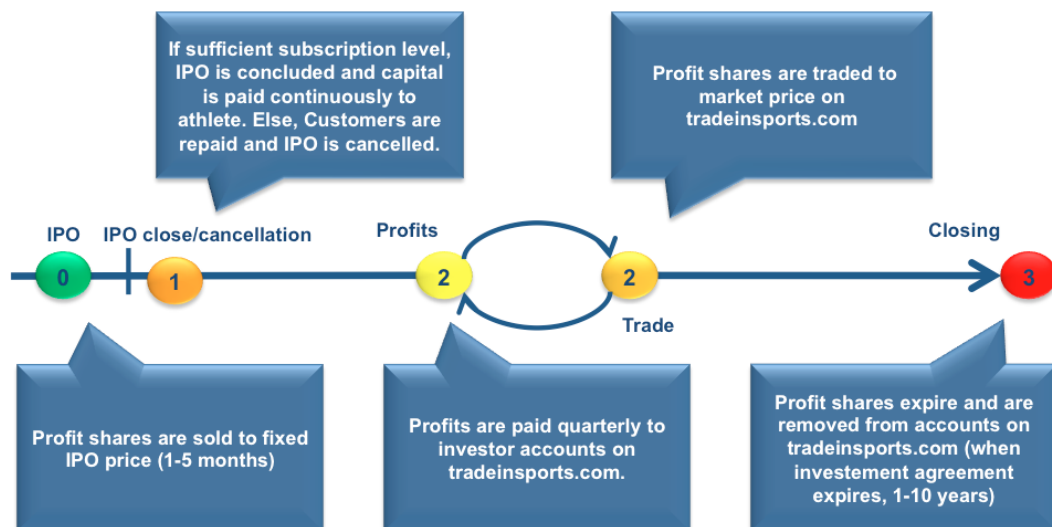


FIGURE 4.2: A prototypes of the flow chart that describes the whole lifecycle for the introduction page

After the interviews and depicting the main tasks, stated in the Section 4.1, simple prototypes of the flow charts were created for the introduction page, see Figures 4.2 and 4.3.

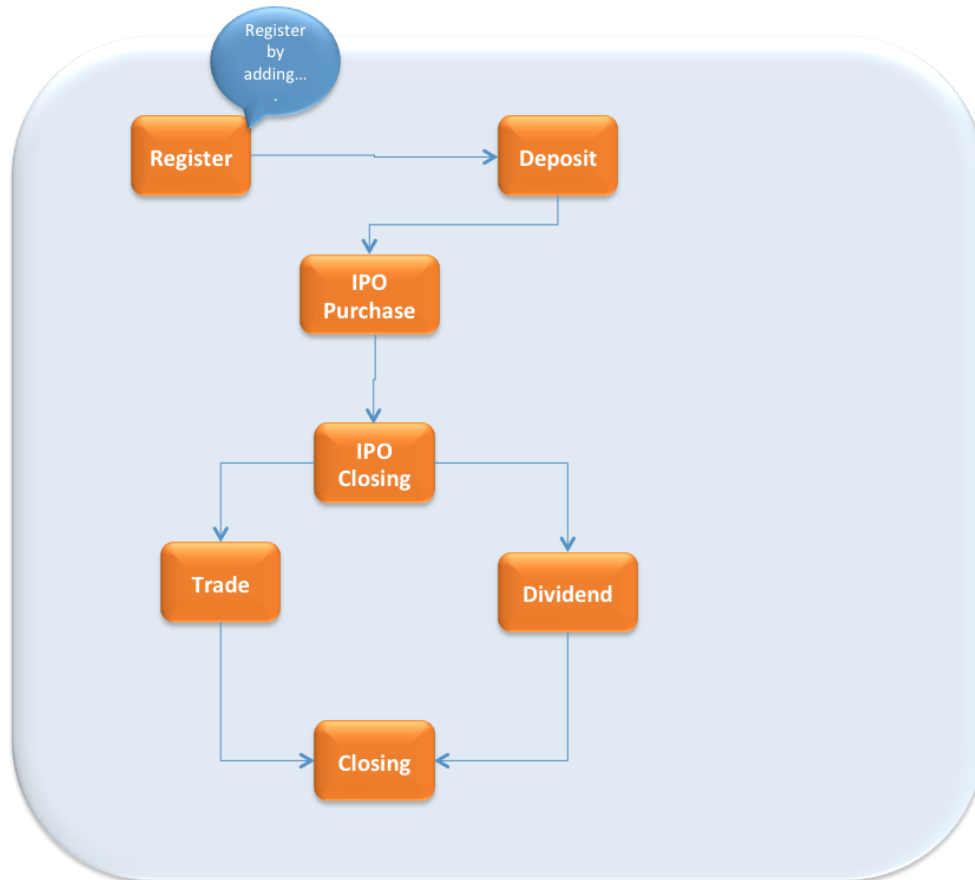


FIGURE 4.3: A prototype of the flow chart, created in HTML/CSS with a transparent background, for the introduction page

These prototypes were used to give the Administration the feeling how the flow chart will look like and to discuss all the required steps it should include.

For the main page a simple demo slider was created, see Figure 4.4, in order to be presented to the Administration and get the feedback.

The navigation was implemented in few variants and was presented as well in order to evaluate the solutions and select the one that fits the best and satisfies the Administration (Figures 4.5, 4.6, 4.7 and 4.8).

4.3 Initial Design

After presenting the prototypes and initial implementations, stated in Section 4.2, an evaluation with the discussion followed.



FIGURE 4.4: First version of the slider for the main page



FIGURE 4.5: A basic version of the horizontal navigation with a blue gradient background

The following results and comments were made:

- The flow chart for the introduction page was to be created from the provided prototype where the boxes in Figure 4.3 were to be replaced with the simple illustrations and a bubble was to be displayed for one step of the flowchart at a time with a short text describing the step. Clean, strict and homogeneous illustrations were to be used (e.g., one color drawings).
- For the navigation it was decided upon a vertical dropdown menu with use of gradients and transparent elements.



FIGURE 4.6: A basic versions of the navigation with a grey gradient background, white text and a drop shadow



FIGURE 4.7: A basic versions of the navigation with a black gradient background, white text and a drop shadow, the text changes colour to blue on hover



FIGURE 4.8: A basic versions of the navigation with a dark-grey gradient background, light-grey text, the text changes colour to black on hover

- On the main page a subset of the flowcharts was to be used, with only steps (IPO) purchase, dividend and the buttons to (i) Get started (ii) Introduction (iii) introduction video.

- For the social media integration it was decided upon a simple, small and clean implementation of social media buttons. A simple box was to be created with a name "social media" in the header. "Add this" (addthis.com) plugin was to be used with the buttons and it was to be placed in a nice way in the box using vertical panels and html panels in the GTW code.

Chapter 5

Resulting Design

This chapter is concentrated on the resulting design and depicts each part of the solution. The integration of the implemented solution is also described in this chapter.

5.1 General Design

After a few more implementations and evaluations that were held to improve the interface (e.g., fonts, colour styles, style of pictures and new texts) as well as fixing bugs (mostly in Internet Explorer browsers) a final design for each task was implemented. Below is the detailed explanation how the resulting design for each part was obtained.

5.1.1 Main Page

This page required a slider that could raise an interest for the service for the new visitor as well as provide basic explanations about the functionality of the service.

For this purpose a slider was created, see Figure 5.1, using HTML, CSS and JavaScript / JQuery, described in Sections 2.1, 2.2 and 2.3.

The slider uses the latest technologies, like CSS Gradients and CSS3 3D Transforms[7], which makes 3D rotating effect when switching between the content in modern browser (e.g., Safari, Chrome, Firefox) and gracefully degrades to simple transition in browser that do not support CSS3 3D Transforms.

Slider contains a video hosted on YouTube that provides information and the key facts about the company. The switching between them is paused when hovering over the slider. Video is paused when moving to the next content.

The differences between the initial design and final one are the slider uses CSS3 3D Transforms and visually looks like a cube when switching between the content. The

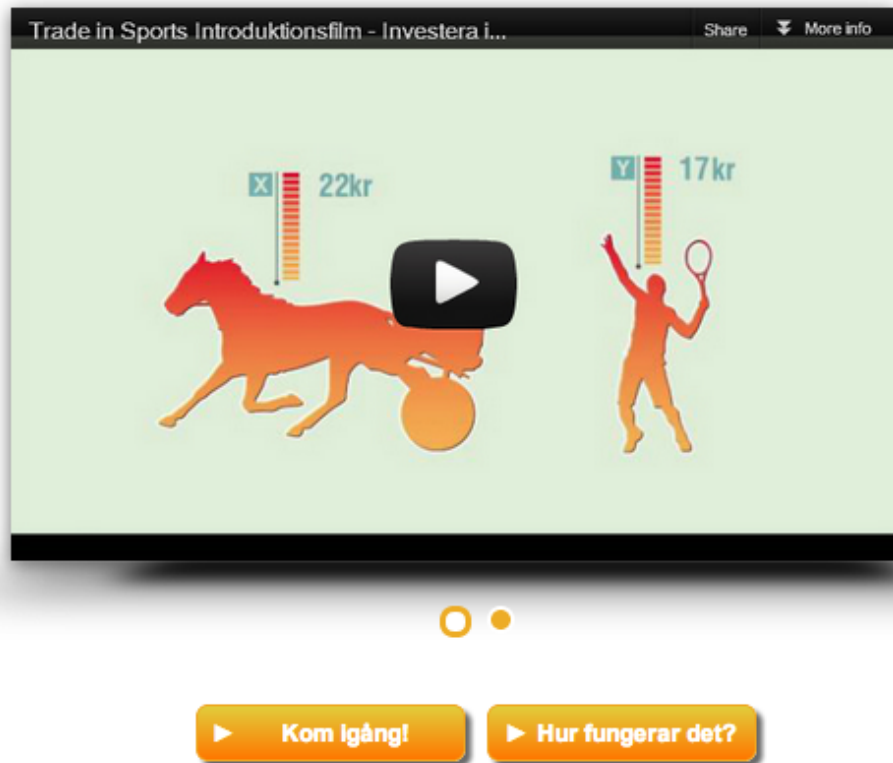


FIGURE 5.1: A slider for the main page

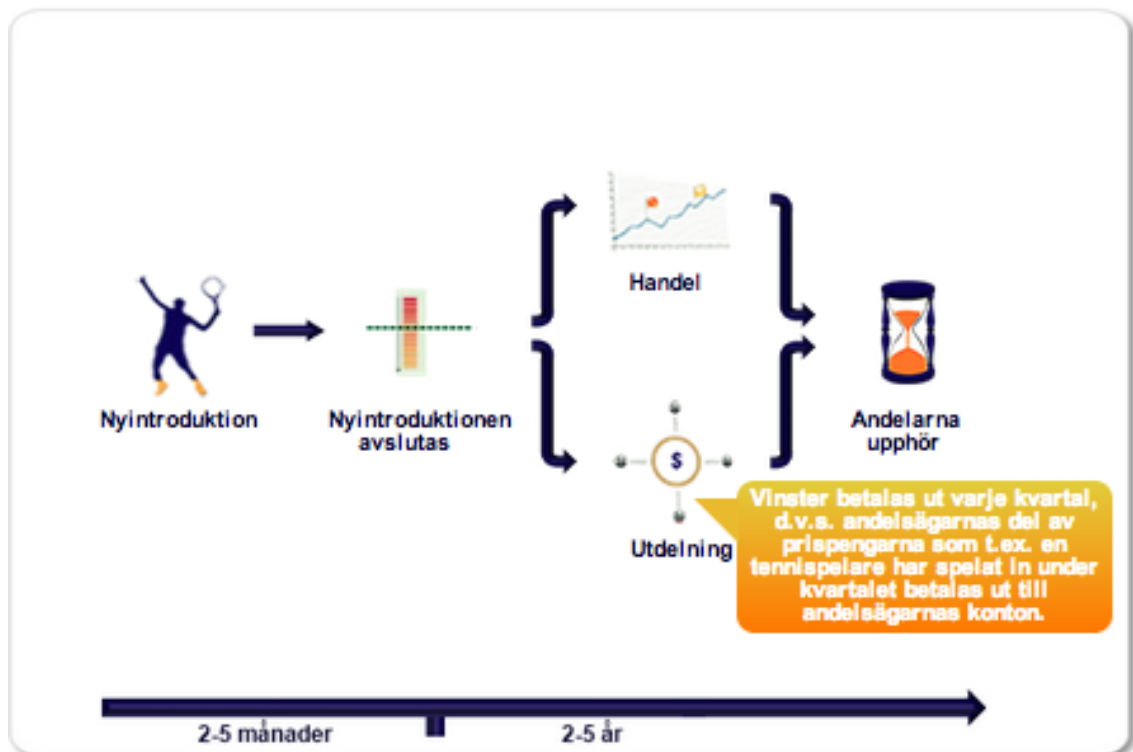
change about usage of the subset of the flowchart, stated in Section 4.3 was integrated as a part of the slider's content after the final evaluation and discussion with the Administration of Trade in Sports Europe AB.

5.1.2 Introduction Page

This page required a flowchart, which would explain the life cycle of the Trade in Sports Europe AB system.

A simple flowchart, see Figure 5.3, was created to complete this task. A flowchart loops through all the steps of system life with a timeline at the bottom. A bubble appears next to each step-picture describing it. If hovered the flowchart stops. The key points are depicted below the flowchart.

The flowchart incorporated all the features proposed in the prototype and was implemented with the same technologies as the slider on the main page, described in Section 5.1.1



Andelsprodukter

På Trade in Sports kan man köpa andelar i idrottstillgångar. Det innebär att man betalar en summa som går till att täcka en idrottares eller travhästs framtida tävlings- och träningskostnader under en förutbestämd tidsperiod (och i trav också till att köpa själva hästen). Om idrottaren eller hästen vinner pengar under ägandeperioden får man en andel av denna vinst i relation till sitt ägande.

- Andelsprodukterna medför inga löpande kostnader för innehavarna utan allt är inbakat i andelskostnaden.
- Att registrera konto är gratis, tar ca 3 minuter och gör det möjligt att investera mellan 100kr och 100.000kr i olika idrottstillgångar.
- Andelarna kommer framöver att kunna handlas över Trade in Sports sportbörs.

[▶ Kom igång!](#)
[▶ Se Intro-video](#)
[▶ Vanliga frågor](#)

FIGURE 5.2: A flowchart for the introduction page

5.1.3 Social Media

As was mentioned in Section 4.3 the social media box was created using "Add this" (addthis.com) plugin. The plugin was integrated inside a box which matched original style of the website. The buttons were situated in a grid 2*2 with the counter at the bottom.

The social media box was integrated in the same way as it was proposed after the interviews and discussion.

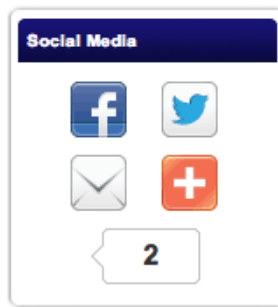


FIGURE 5.3: A social media box on the website

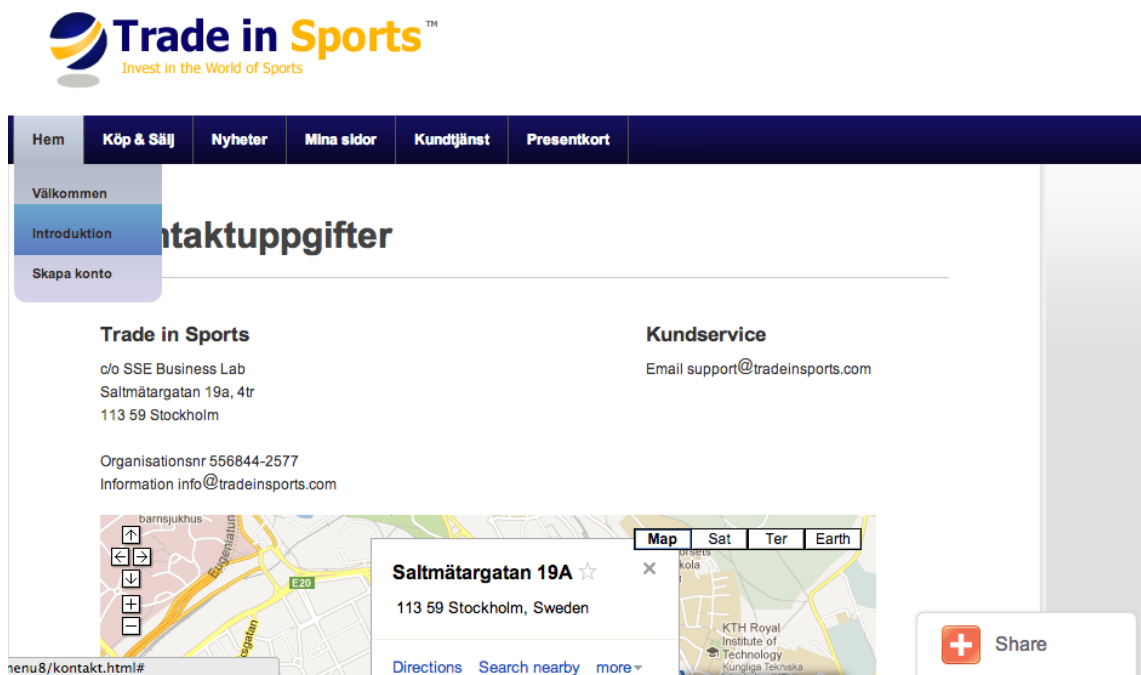


FIGURE 5.4: A navigation for the website

5.1.4 Navigation

The navigation of the website was converted into a dropdown menu with gradient styles. In this way it is much more easier to navigate the website and the submenu is moved to corresponding part of the main menu compared to the original one.

There was a discussion which type of the navigation should be used on the website - a vertical menu, as on Figure 4.5, or a dropdown one, as on the Figure 5.4. The choice was made in a favour of the last one, as it was the most popular one for the majority of Trade in Sports Europe AB Administration.

5.2 Integration

The integration of the implemented solutions, stated in Section 5.1, was faced with the problem that neither the slider nor the flowchart were working correctly when integrated in the GWT using "html panel". After doing some research the cause of the problem was found to be in JQuery as it was not working with GWT and required a special version of JQuery, called gwtquery [8]. However using gwtquery it was required to fully re-implement all the solutions which was not possible due to the delimitations stated in the Section 1.4. So another solution was found[9] — to embed the implemented solutions from the Section 5.1 by hosting them on http server and use an iframe in the GWT code pointing at the hosted solutions. This allowed to sparing the time and getting the working solution in GWT fast.

Below are depicted how the solutions are working and look embedded on the website.

5.2.1 Main Page

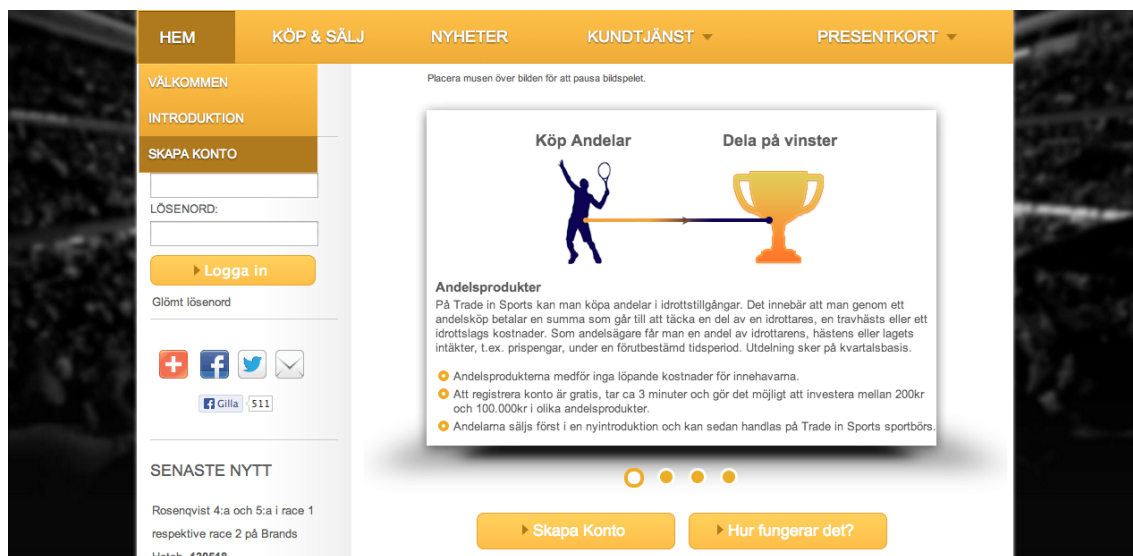


FIGURE 5.5: A new main page with integrated solutions

A new design for the webpage was created and embedded with the latest solutions as it could be seen on the Figure 5.5.

- The dropdown menu from the Section 5.1.4 was changed in colours to match the style of the new design.
- The social media was integrated without the social media box, as it did not match the new styles. The social media icons are now situated in one row with the counter below.

- The content slider is situated in the center of the main page in order to attract users / customers and give them a basic understanding of the service.
- The buttons below the slider are clearly visible and allow new users to create accounts in a fast way as well as redirect to the introduction page that explains how the service works.

5.2.2 Introduction Page

A new introduction page basically contains the same design as the main page, described in the Section 5.2.1 except some changes in the content.



FIGURE 5.6: A top of the new introduction page with integrated solutions



FIGURE 5.7: A flowchart on the new introduction page with integrated solutions

- The central part of the Introduction page contains a full description of the system's life cycle as could be seen on the Figure 5.6.
- Below the description is embedded a flowchart, depicted in the Section 5.1.2. The flowchart visually illustrates what is described in the text above it.
- The buttons below the flowchart allow to create a new account when the users become familiar with the system, to watch introduction video with the detailed explanation of what could be seen in the flowchart or if they have some questions to check "Frequently asked questions" section of the website if there is already an answer to their question.

Chapter 6

Evaluation of the Resulting Solution

This chapter describes opinions of Trade in Sports Europe AB Administration and customers about the final design. It provides their opinions and remarks for each part of the solution.

6.1 Final Design Opinions

After the implementation and integration of the final solution were completed, a meeting was held where demos were presented in order to collect opinions about the final result and to get the understanding whether Trade in Sports Europe AB Administration and users were satisfied with the results. The customers were demoed by the Administration. The opinions and comments were highlighted during this meeting. Below are described the opinions of general design as well as of each part of the solution separately.

6.1.1 General Design

Trade in Sports Europe AB Administration

General design of the solution was met very positively as the discussions and demos for the solutions were held every one-two weeks. All the remarks and wishes, mentioned during these meeting, were considered for the final design.

Customers

Mostly the general design was met positively as it provided an easy access to the most

important information, a good way to navigate the website and a quick way to share information. The comments about each part of the solution are presented below.

6.1.2 Main Page

Trade in Sports Europe AB Administration

The main page contains a slider. The Administration of Trade in Sports Europe AB approved it as it embraced all the company's requests, discussed during the meetings and evaluations. The slider used the latest technologies, described in the Section 5.1.1. It provided 3D rotating effect for the modern browsers (e.g., Safari, Chrome and Firefox) and possibility to integrate a video and other html content. The company was pleased that the slider was visually appealing and was easy to integrate, use and switch between 3D and simple transition effects. It was also mentioned that the slider matched the style of the Main Page perfectly.

Customers

Most of the customers liked 3D content slider on the main page as it match a style of the page and helped to highlight the most interesting information. There were also users who thought that 3D effect should be removed and a simple slider should be used, as 3D effect was not present in all the browsers.

6.1.3 Introduction Page

Trade in Sports Europe AB Administration

A flowchart for the Introduction Page was also met quite positively as it depicted the life cycle of Trade in Sports Europe AB in a short, visually appealing way and was easy to integrate and use on the company's website. The flowchart took into consideration all the thought provided in the Section 4.3 and matched the style of the page.

Customers

Most of the users were very satisfied with the flowchart as it showed the whole lifecycle of the company so it was easy to understand how the company works and how they can benefit from it. Other opinions were that some of the pictures should be replaced as they were not so clear for the new users, for example a tennis player as "Ny introduction" could be interpreted in different ways, which is confusing.

6.1.4 Social Media

Trade in Sports Europe AB Administration

Social Media box was also accepted, as it was implemented in a clean, simple way with a style that matched original design of Trade in Sports Europe AB webpage. However, there was a comment that it may require some colour and style changes as the design of the main page could be changed in the future so the box and placement was changed for the new design as described in the Section [5.2.1](#).

Customers

Social Media box was accepted by most of the users however there were some opinions that it should not be a box but one line with all the icons.

6.1.5 Navigation

Trade in Sports Europe AB Administration

Navigation was also liked as it was selected from the provided few prototypes and took into considerations all the remarks mentioned during the discussions and evaluations. There were some uncertainties about the colours in the navigation but they could be easily changed when required so the company was pleased and accepted this solution as well.

Customers

Navigation was also accepted but there were some comment about styles (colour of the text and background should be changed to match the style of the current web page and make the labels more readable).

Chapter 7

Conclusions

This chapter summarizes all the phases of the thesis work and provides some recommendations for the future.

7.1 Summary

With people's growing interests for small investments in sport, Trade in Sports Europe AB system will inevitably develop rapidly in future. Small shares investments that allow supporting your favourite sportsmen as well as increasing your profit. That is why customers require a service that is easy to use. Therefore, how to provide users with commodious and easy to start service in a condition of high concentration of information was the subject of this research paper.

The project began with investigation of the purpose of the service and analysis how Trade in Sports Europe AB system works and then system evaluation was performed in order to determine which parts and functions of the system were to be improved.

After each implementation system was evaluated and the discussion with Trade in Sports Europe AB Administration was held to determine the progress and to see the results and required changes. In conclusion, the implemented solutions were integrated into the system using GWT.

This thesis project was mainly concentrated on the following steps:

- Investigation of the company's background and how the system works by interviewing Trade in Sports Europe AB Administration.
- Studying and analyzing related technologies used in the system development - HTML, CSS, JavaScript, GWT, described in the Sections [2.1](#), [2.2](#), [2.3](#) and [2.4](#).

- Creating questionnaires to interview the customers and Administration and proceed with the interviews.
- Based on theoretical, practical experience and the evaluation results, the prototypes were created for the Trade in Sports Europe AB Administration evaluation.
- The implementation was done based on the proposed prototypes and evaluation results.
- Integration of the final implementation with GWT.

After the complete implementation and evaluation of the GUI, answers to the research questions were formulation.

Question 1: How to evaluate and distinguish a good GUI?

By using User Observation [3.1.1](#) and Inspections of the User interface [3.1.2](#) evaluation techniques a good GUI can be determined. These techniques allow to assess a GUI by interacting with the system, communicating with users and website Administration and taking into the consideration good/bad parts of the GUI. If these techniques are used a good GUI is easily distinguished.

Question 2: What main functionality should the GUI provide?

A GUI should be intuitive to use and provide an easy access and navigation through the most important information. The main page should contain a clear description of the product and its purpose and the social media should be visible and accessible to user from the any part of the GUI.

Question 3: What is the best way to structure and present the information to the users?

The information should be presented to the user in a clear and easy way. Less text and more pictures that provide a clear description of the product will allow attracting users to use the GUI and get started with the product immediately. Navigation with the links to pages with more detailed information about the product should be available to the customer.

Question 4: How is it possible to attract new users as well as to satisfy customers?

A good structured system that is easy and interesting to work with, information presented in a way that clearly states how the customer can benefit from the system, a clever integration of the social media that allows to tell

others about the system and a good customer support will allow to attract new users as well as to satisfy customers.

7.2 Recommendations and Future Work

After completing this thesis a relatively deep understanding of the sport investment system was obtained as well as current situation of the Trade in Sports Europe AB system and how it is functioning through evaluation and implementation processes.

Due to the delimitations, stated in the Section 1.4, the current system could still be improved. The following recommendations for the future, stated below, could be proceeded in future:

- Convert the current user interface to use the Responsive Web Design[7]. This will make the user interface to work on any screen resolution and will improve the usability for all the users as well as will make the system maintainable.
- Concentrate on mobile devices as the future moves in this direction and a lot of users are currently using Tablets and mobile devices to surf the web. Current version of the Trade in Sports Europe AB user interface is not optimized for these devices that will spoil user experience.
- Use Grunt[10], the JavaScript test runner, in the system that will allow integrating many useful plugins (e.g., to minimize the code, run JSHint) in order to automate the work currently done manually.
- Use test framework like QUnit[11] to run the test on the JavaScript code before the release.
- As was seen during the implementation there is a lot of unused CSS scattered among the pages of Trade in Sports Europe AB system, that is why it is highly recommended to use Helium[12] in order to detect unused styles and optimize the code.

Appendix A

Questionnaires

Customers:

- What would you like to be changed in the menu of items on the main page of the website?
- How often do you visit / use the Trade in Sports Europe AB website?
- What makes you to continue using this website?
- What would you like to see improved on this site?
- What would you change or add to current version of the website?
- In a normal week, how much time do you spend interacting with this website?
- How did you hear about this site for the first time?
- What information do you expect to see on the main page of the website?
- What information do you expect to see on the introduction page of the website?

Administration of the website:

- What do you expect to be changed on the current version of the website?
- In your opinion what is the most important information for the user to be presented on the main page?
- How do you find the interaction with the website navigation?
- What features would you expect to be added?
- How do you find the current information presented to the users on the website?

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