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Rykanova Olga

WEBSITE REDESIGN: IMPROVING USER EXPERIENCE AND
USER INTERFACE ON THE HAVUSPORT WEBSITE

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Sirkkalantie 12A
FI-80110 JOENSUU
FINLAND
Tel. +358 50 441 2229
Centre for Creative Industries

Author
Olga Rykanova

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Website redesign: improving user experience and user interface on the Havusport website

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Abstract

The goal of this practice-based thesis is to follow the process of creating a user interface for an online service of a company called Havusport and to improve the usability and the appearance of the product, as well as to update the information structure. In addition, the goals include redesigning the current features and implementing new ones.

This project consists of studying the core principles of user experience and user interface design by conducting a research survey aimed at gathering background information about the existing group of users. The next step includes a content review of the existing website in order to define a plan for the new content. After the content review, the new information architecture based on the results is designed. In the end, user interface layouts are finalized for the production phase.

A custom working process for designing a user interface was developed. This process can be used as a basic framework for any project, involving almost any user-centered design practice.

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1 INTRODUCTION

The main goal of this thesis is to cover the basic principles of user interface (UI) and user experience (UX) design through the process of creating a user interface for a software company, called Havusport. The request for this assignment rose from the company's need to add new features to its website and to improve its usability, along with modifying the information structure and designing a new look. This project has been proposed by Jiri Jormakka and Juuso Oinonen, the co-founders of Havusport Oy. This Finnish software company provides an online service that collects and analyzes sports data.

The major problem of the existing interface is the complexity, as well as the lack of consistency between elements and lots of "visual noise". Also, it concerns the poor structure of web pages, limitations in functionality, inconsistent styles and overall unsuccessful design solution. Therefore, the company was not completely satisfied about the number of customers using its product and the negative feedback received from users.

This thesis includes a basic theoretical part, required by this project, together with a practical part about the actual user interface development. It also covers the main subjects about collaboration with users during the design planning phase, as well as the advantages of their feedback, which helps perceiving the user experience from their point of view. This evaluation is applied in practice during the development.

The inspiration and will to dedicate the thesis to this topic was found from the author's interest in user interface and user experience design. Before starting the working process, a survey was conducted in areas of the target group. Also, the company's business goals and expectations for potential results were investigated, defined, determined and researched. Interviewing users helped to define the core task, which lies in the creation of a user-friendly interface for the existing website of the company. As a result, it will enable the company to satisfy

its customers better, and moreover to meet user requirements and to receive satisfactory feedback concerning the whole service.

2 FRAMEWORK

2.1 Methodological choices of the project

The custom theoretical framework is developed specifically for successful completion of this project. It is aimed at investigating the working process and learning its basic components by studying and analyzing the applicable literature.

For successful building of an appropriate knowledge base that would support the practical process, it is planned to observe the components of user experience and user interface design. Moreover, it is important to compare and correlate these essential disciplines, since it will help to appraise the interdependence between the disciplines and to determine their relevance for the product of the company. Figure 1 represents the aspects that need to be researched in order to gain essential background knowledge.

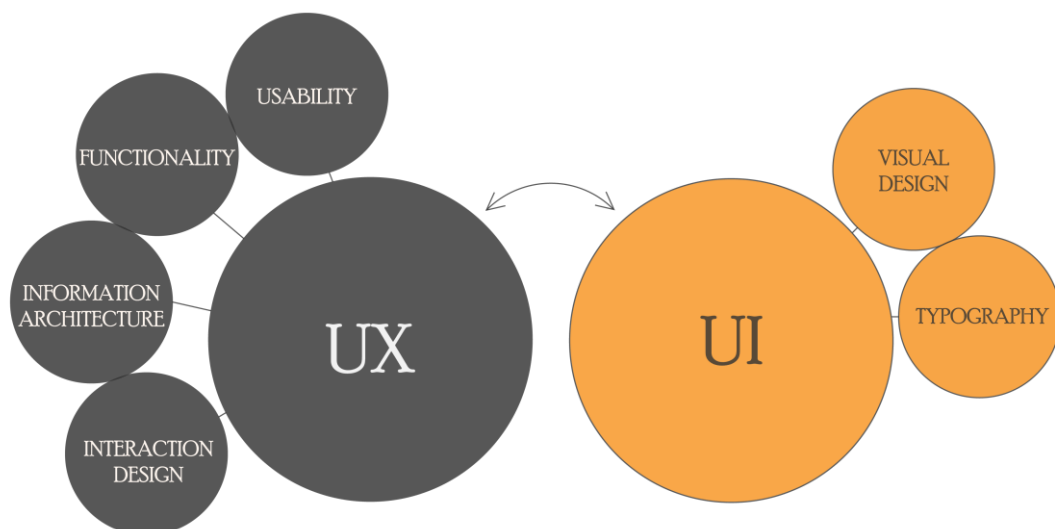


Figure 1. The theoretical framework of the project.

The previously mentioned data to be gathered within the use of qualitative research methods, such as creating user persona stories and a user experience survey that comprises interviews and questionnaires.

2.2 Working process plan

To establish a goal of the project, it is rather significant to investigate the client's needs. This step is the initial stage that helps to get the work started. Defining requirements include a discussion with the client concerning his preferences (colors, styles and fonts), desired features and overall vision of the product design in perspective. Besides, it is important to learn more about the user's preferences, which are completely different from the client's goals. Once balancing them, understanding the expected results and defining resources (time, costs and scope) would be easier. Finally, it is necessary to select the tools required for the project implementation and to determine any technical constraints that will specify the working conditions and terms of implementation.

Once the project is completed, it is necessary to plan the upcoming working process. Figure 2 represents the stages of the project implementation.



Figure 2. Working process.

The theoretical part includes collecting vital information for starting the practice of which I had no prior experience. This begins with learning some basic principles of UI and UX design and defining key factors to concentrate on when

designing user interfaces. A **review of the existing website** is about determining the problems with the original website. This stage helps to comprehend the desired outcomes of the working process. A **survey** aims at gathering the key data to support the practical phase of the project. It reveals the significant disadvantages of the existing user interface and the functionality of the website. Furthermore, it helps to form an approximate estimation of the overall product from the user's perspective, which definitely contributes to a clear problem statement and finding solutions. The creation of **user personas** stories is one of the key processes of designing a website. This imperative stage helps to outline a plan of entire layout for a user interface. The **content review** phase aims at defining what to keep, what to revise or what needs to be completely cut, as well as creating new website content. **Information architecture** comprises sitemapping and wireframing. Sitemapping helps to organize new content in a proper way. It usually involves planning a navigation bar or menu, categories and topics. The best way to implement this is to sketch a website structure on whiteboards, carefully thinking through every page layout. Wireframing means a rough visualization of potential web pages by building them in design software. It helps to figure out where to place every element on a page as well as to speed up the design process. It helps to receive immediate feedback and avoid larger changes later on. Eventually, it saves time during the entire design process. The **designing phase** includes selecting color schemes and font sets, as well as creating realistic-looking layouts of webpages using design software. User and client **feedback** is rather important when the designing phase is completed. The advantage of user feedback is obvious. Although it is always opinionated and subjective, giving a fresh look helps to improve an overall design solution, since it discloses problems that are hidden from a designer's eye. Client feedback is an essential instrument that helps to compare the final product regarding the initial requirements and to complete required modifications, if needed.

3 USER EXPERIENCE AND USER INTERFACE IN THEORY

In our time, the modern comprehension of design is quite broad. The actual definition of design comprises the range of notions and varies from printing to technologies and industry. However, the rapid development of high technologies led to the rise of new design roles, like UX and UI designer. (Co.Design 2014.)

The concepts of user experience and user interface design are not that easy to explain in a few sentences. Since these are rather contemporary disciplines, the question of their meaning might be confusing for a number of people. Here upon, in this thesis I am going to determine the phenomena of UX and UI as well as identify their differences. The comparison of UX and UI allows proving the interdependence between these two concepts.

3.1 User experience design

The user experience discipline consists of interaction design, information architecture, functionality and usability. The UX discipline does not only refer to web design. It might be explained as the process of creating things in a way that gives a satisfactory experience when using a product. User experience design is present everywhere. The interaction between users and products is always well-planned. Good user experience design happens when we make decisions that completely meet the requirements and understand the needs of both the customers and business (Klein 2015).

The process of planning user experience requires collaboration between many different kinds of creative people whose primary objective is pinning down a problem. Normally the UX designers are working on this task. They are

shadowing users' actions and asking simple questions to understand user behavioral patterns. Based on these they come up with possible problems and solutions of how to answer them.

User experience design is responsible for such things as research, usability testing, content, development and prototyping. It is a very social activity with an analytical component focused on improving the quality of a product. It defines the whole experience between products and users.

The foundation of user experience design can be defined by information architecture, which is responsible for the organization of content. (Northcott 2015).

3.1.1 Information architecture

People often use the definition of information architecture (IA) to mean the menus on websites, but this is only a part of it. IA refers to the website's appearance, content and actions. In order to support usability and findability, information architecture is defined as the art and science of organizing the content on different online resources. (Information Architecture Institute 2010.)

In other words, information architecture is meant to assist users in knowing their virtual environment and to find what they are searching for. The final purpose of information architects is to form a structure/design that is reaching the balance between a business' and users' needs (Peep Laja 2012).

The infallible success of information architecture is based on proper content organization and quick orientation to a website. Moreover, it has to be maintained by a group of proficient information architects, which is equally important. The combination of these conditions is the key point of good user experience design.

In the book *Information Architecture for the World Wide Web* Lou Rosenfeld and Peter Morville described the three main components of IA (1998). According to

them, they are content, context and users (Figure 3). Each of these needs to be explained in detail.

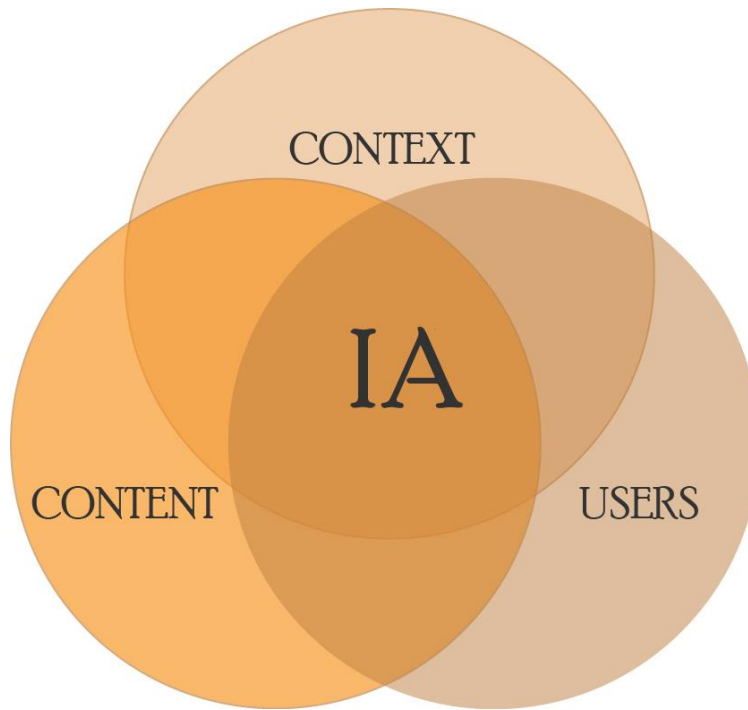


Figure 3. Louis Rosenfeld and Peter defined the ‘three circles of information architecture’ as content, users and context of use.

The content categorizes the structure of information. In other words, this component is responsible for proper writing and labeling. These are the focal criteria, supporting the better findability, usability and navigation on a website. Conducting content inventory is the most effective process for understanding the functionality of a web site. (Iain Barker 2005.)

The context is related to significant business goals and the financial scope, culture and politics, holding and restrains (Lou & Peter 1998). In the area of user experience, it might be defined as the creation of user personas and storyboards. This method provides the basic knowledge about users and their motivation to use a product.

The user component can be explained as the user's way of perceiving information. Conducting usability testing and gathering users' requirements reveals the process of their interaction with a website. Besides, it includes the evaluation of information architecture, performed by users. It is aimed at achieving successful information delivery. Therefore, the delivery has failed if a navigation system is too complicated and it takes much time to find information. This IA component is an important part of interaction design, because the main function of it is to build a prototype and wireframes that definitely help to investigate the communication between a user and an interface.

3.1.2 Interaction design

Interaction design (Ixd) defines the structure and behavior of interactive systems. Figure 4 represents this complex field, containing five essential principles of Ixd design, which are consistency, learnability, visibility, predictability and feedback. Interaction designers aim to create a relationship between users and services that they use. (Adobe.com 2016.)

The first one is consistency. People are very sensitive to all type of changes due to basic human behavior. They immediately pay attention to anything new for their experience. This consistency aims to establish a system of design that allows users to feel comfortable meanwhile learning something new that they might consider familiar on a different interfaces or pages.

The next principle is learnability. Some theories about learning from psychology can help us to understand how people obtain knowledge and skills. Interactions must be easy to remember and learn. The easier an interaction is, the better ways of actions are, due to the ability to remember and learn an interface.

Another factor, called visibility, is one of the most important principles of interaction design. In general, it proves the existence of an interaction to a user. Hidden interactions decrease usability and effectiveness. For example, all

buttons, textures and hyperlinks are supposed to be “clickable”. It means some style differences between the content and the component, like a color, weight and size of fonts, shadows and underlines. The major part of good visual communication depends on good visualization due to its ability to encourage users to interact.

Predictability means that good design should set correct expectations about what is going to happen before any actual interaction takes place. The best guides that can be used to teach the outcomes of interactions for users are video instructions, labels, icons, etc.

Feedback is rather essential for interaction design. It delivers information about location, what is going on and what might happen in the future. It might be used in a way to complement any user’s experience and to improve an interaction.

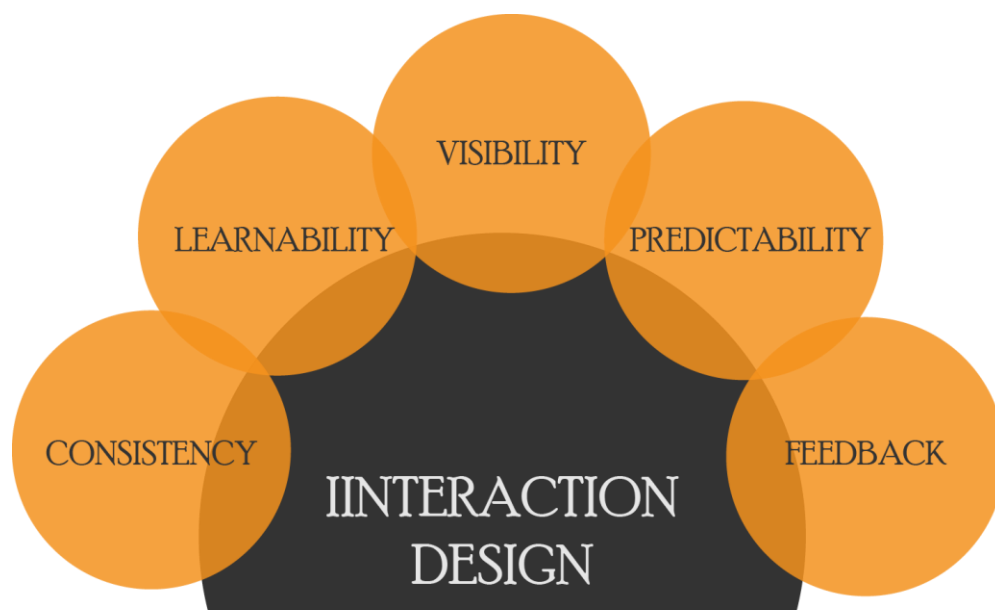


Figure 4. The main components of Interaction Design.

These aspects are crucial for successful user experience design. However, the well-planned functionality is the solid base for the effective interaction between users and websites.

3.1.3 Functionality

The combination of operations supported by a website is called functionality. It allows users to respond, and therefore to interact. (McNamara, Kirakowski 2006.) It is responsible for the information delivery, as well as internal and technical processes. This principle plays a critical role on users' and administrators' sides.

Measuring functionality is meant for controlling the integration of processes on a website, on-time responses to users' requests, security and privacy of content and proper communication of all task processes.

A successful and functional website does not comprise only user interface design together with informative articles. This is the constitution of required functionality and opportunities for visitors and administrators. Launching time and final costs are defined by a website's functionality and the complexity of its development. Functionality includes a few essential types, represented in Figure 5. These are the most common types of interaction for customers: shopping cart (online purchasing), form mail (filled when sending emails), database form (delivering user's data online), viral forms (sharing with friends) and online credit card processing.

Even though the role of functionality in user experience design is coherent, it is often mixed up with usability. These principles are rather different components of the user experience. (Spacey 2016.)

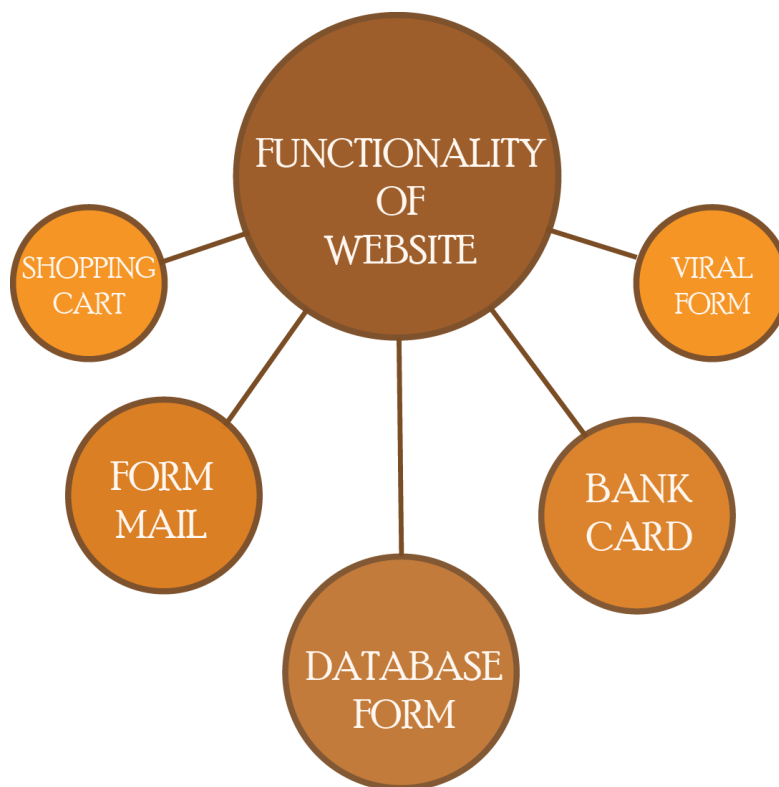


Figure 5. Types of functionality on a website.

3.1.4 Usability

Whitney Quesenbery, the user experience designer and publicist, mentioned in her article that clear and smooth interaction with a user interface is related to usability. Sometimes it is reduced to "easy to use," but this over-simplifies the problem and causes lack of guidance for the user interface designer. (Quesenbery 2001.) Using this line of reasoning, the author clarifies that usability cannot be defined only by the simplicity of using. It also means matching a product with users' requirements and offsetting their demands.

The higher the level of usability, the more visitors are inclined to check out a website. It directly affects the number of visits and the conversion of a webpage. In other words, the goal of increasing usability is to make sure that any visitor will find a proper way to get information at a quick glance.

In general, a number of components such as intuitive design, ease of learning, efficiency of use, memorability, error frequency, severity and subjective satisfaction forms usability. Intuitive design means understanding navigation principles and the structure of a website through insight. Easy learning refers to the speed of performing some basic task by a new user. When implementing basic tasks, an experienced user shows the efficiency of use. Memorability is responsible for the ability of a user to remember and effectively perform the same actions in future visits. Error frequency and severity reports about the amount and structure of user errors, as well as about the ways to recover from them that they use in general. Usability evaluation is stated in subjective satisfaction. All these options can be improved upon in every stage of website development by applying better visual design, structuring a navigation bar, writing texts and locating images. (Usability Government 2016.)

Unnecessary thoughts drain a lot of a user's time and interest in a website. Users barely look through the whole page, fending off useless information. A large amount of information, long loading time and complicated interface can turn off a number of users.

The improvement of usability refers to determining the target group, creating a transparent and well-defined information structure, taking care of a user and excluding "visual noise". Therefore, high website conversion is guaranteed in case of fulfilling these conditions.

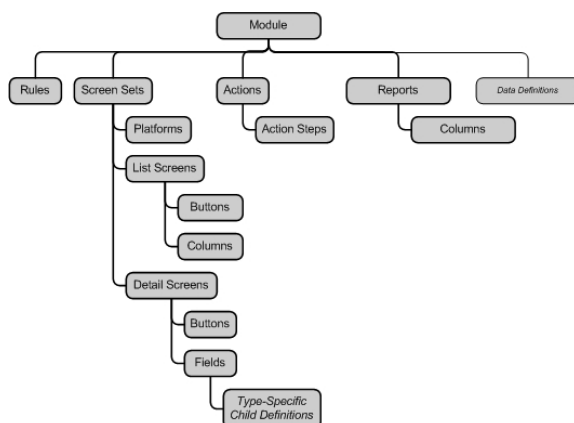
3.2 User interface

To give a detailed definition of user interface, it is necessary to define the basic concept of an interface itself. An interface is a system of rules and tools which provides an interaction with several processes or objects.

A user interface is often defined as the appearance of software, but this notion is too narrow, since it is the user's way to perceive an entire program. In general, a user interface consists of content, formats, codes, command modes, user interface language, data input devices, technologies, conversations, interactions, transactions between users computers, etc.

It is important to highlight that there are other types of user interfaces in addition to graphics, such as sound, text (e.g. a command line), voice (e.g. mobile device management, using voice commands), tactile (different interfaces for blind users).

Speaking of user interface, people consider only a few components that users directly interact with (buttons, icons on a screen, voice commands, etc.), meanwhile forgetting about another important part of it. This is a set of rules, defining a particular user's actions that lead to certain reactions from a system. These rules should be simple and natural, so users can easily understand and remember them. Picture 6 represents the module-level user interface structure.



Picture 6. Module Scheme of user interface (Source: Research Gate 2015).

In accordance with the accomplished investigation, user interface design consists of two basic components: visual design and typography, which are studied comprehensively.

3.2.1 Visual design

The focal component of user interface is visual design. Visual design is a combination of graphic and user experience. It improves the usability and interaction by the use of images, shapes, typography and colors (Figure 7).

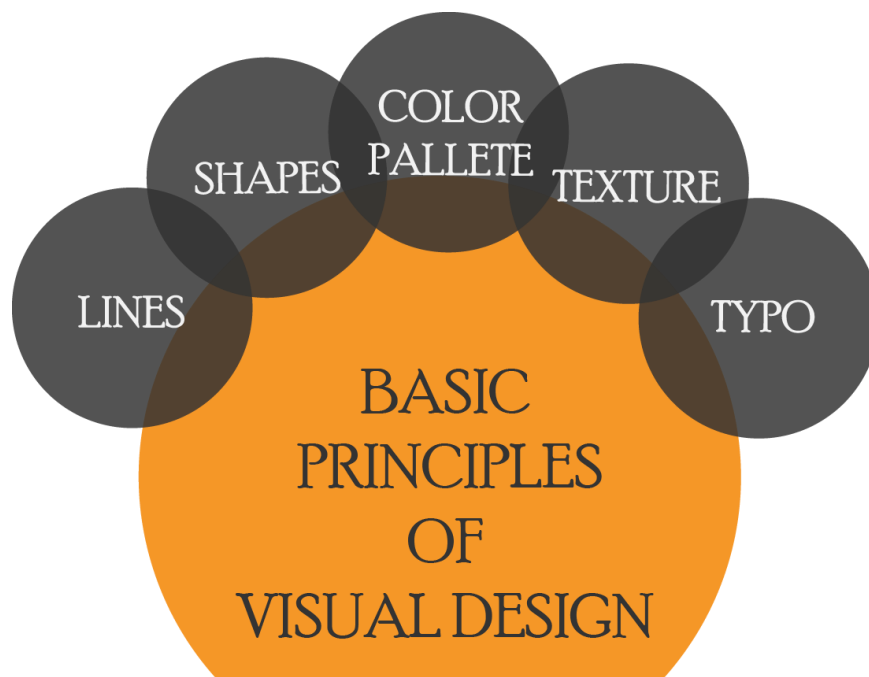


Figure 7. Basic principles of visual design.

One aesthetically pleasant way to solve interaction problems between websites and users is the main objective of visual design. (Mullet & Sano 2006, 1) There are some basic elements when creating visual design: lines, shapes, colors,

textures and typography. Lines create shapes and make divisions and textures by means of particular measurements and directions. Shapes, on the other hand, form objects. Every shape is an enclosed area formed by lines, colors and textures. Elemental differences are created through combinations of colors. They help to create depth, add emphasis and differentiate components. Texture is formed by repeated elements. This is meant to be a crucial factor in perceiving a surface by a user. Typography defines fonts, their shapes, sizes, spacing and colors. Picture 8 demonstrates a few principles of visual design in action. (Usability government 2016.)



Picture 8. Example that features some of the principles in action. (Usability government 2016).

The following values must be considered in appliance of the elements of visual design (Usability government 2016). If unity and diversity are balanced and the webpage elements belong together, the overall design is user friendly and good-looking. Effective perception of visual design by users is provided by perceptual unity. In other words, people observe a group of objects as an entire entity before they recognize specific components individually. The perceptual unity of a user interface is very clear if all the visual elements are placed in an appropriate order.

In visual design, space is an important part of any webpage layout. It helps to increase readability and to reduce noise. Hierarchy shows the difference in significance between elements on a webpage. It can be created in a particular order, fonts and/or colors. The equal distribution of information might be emphasized by balance. All the differences in colors, sizes, shapes, textures and positions are defined by contrast. Scale demonstrates relations between some elements of a webpage based on their size. These two can be used to form dominance, which is focused on subordination between elements arranged in a proper order. The last definition is named similarly. It provides the opportunity to learn the interface faster and easier by creating incessancy between objects on a web page.

Among the other elements of visual design, it is important to mention the role of typography in area of user interface.

3.2.2 Typography

Typography is the most overlooked factor of successful user interface design. Web designers are paying too much attention to graphics and Cascading Style Sheets (CSS) effects, when, in fact, the text part of any website's content provides major benefit for visitors, since this is a core part of information.

In 1969 Emil Ruder, one of the most famous Swiss typographers, mentioned his contemporary print materials in the same way we could describe present-day websites:

"Today we are inundated with such an immense flood of printed matter that the value of the individual work has depreciated, for our harassed contemporaries simply cannot take everything that is printed today. It is the typographer's task to divide up and organize and interpret this mass of printed matter in such a way that the reader will have a good chance of finding what is of interest to him." - Emil Ruder (Information Architects, Japan 2006).

Typography can be defined as a part of user experience design, based on the consideration of a few key concepts: placement of desired typeface, getting the user's attention with centered headlines and consistent applying of a well selected font family across the whole content of a website.

Various fonts may have a different impact on a user's mood. Generally, serif fonts are better suited for printed materials. Intersections help to create a space between letters, as well as to separate one symbol from another. For example, serif fonts give an overall impression of respect, intelligence and professionalism.

Sans serif fonts are applicable for web pages. Low screen resolution makes any serifs look blurred, leading to unreadable content. Sans serif fonts usually express rationality, stylishness, youth and modernity. For example, a choice of serif fonts provides a sense of professionalism and authoritative information. It is generally presented in major media resources, such as the New York Times (Picture 9). Smaller blogs have a better look with some sans serif fonts with a large line height. It allows users to run through the text of a source.

Another significant quality of a good website's typography, complementing user experience is intelligibility. Illegible typography usually strikes an eye. Fancy fonts are better suited for headings in rare cases of specific design solutions.



Picture 9. Example of serif font on The New York Times newspaper (Sewell Chan 2008).

3.3 Comparison of UI and UX

Even though UX and UI design are rather different processes, people often mix them up. In some way, they might be analogous with each other, due to resembling responsibilities, such as transferring of development, research, content and layout into an attractive experience for users. (Lamprecht 2016).

User interface is the visual representation or “skin” of a product. In comparison with UX, the main responsibility of user interface design is to deliver visual assets and brand strengths to a user experience through a product’s interface, as well as guiding users through the creation of interactive elements. Finally, it is responsible for cooperation with web developers.

Both UX and UI are critical factors in creating successful products with proper visualization and good usability. When designing a product, these disciplines are equally significant to results. Figure 10 represents the interdependence between user interface and user experience in a product design.

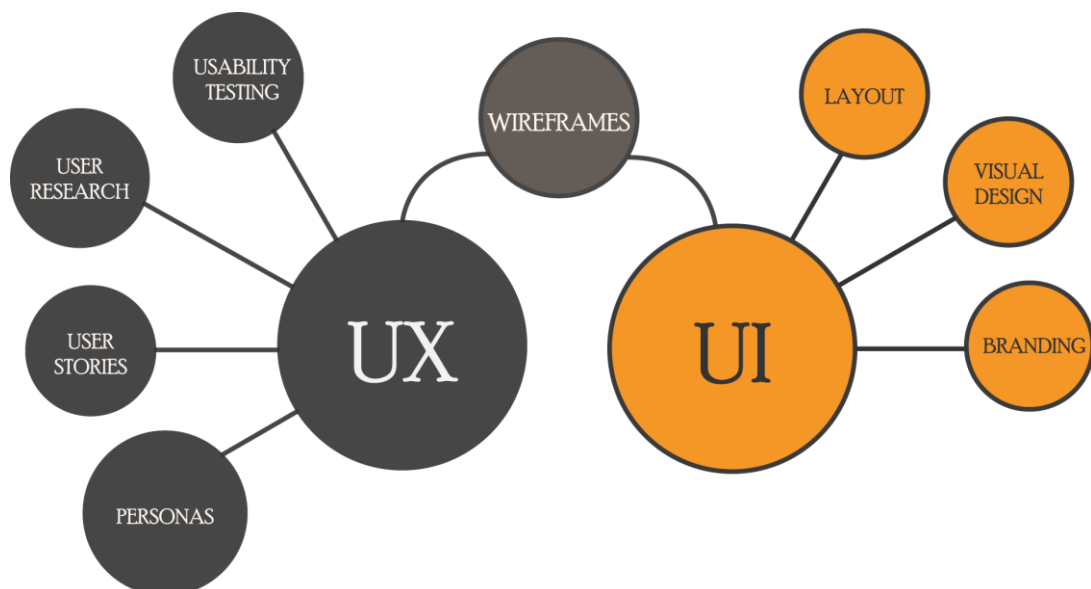


Figure 10. Interdependence between UI and UX in a product design.

4 USER EXPERIENCE SURVEY

4.1 The goal of user experience survey

A survey was sent to the clients of Havusport before starting the project. The goal of this was to define the average users' opinions concerning the existing interface and functionality, their ways of online behavior and possible expectations on upcoming features. In addition, the survey was aimed at gathering user's recommendations and concerns regarding some visual elements.

The survey was conducted in two ways: usability evaluation interviews and email questionnaires. All the respondents were people involved in the local hockey organization, called Jokipojat. The survey took place in Joensuu, starting from November and ending in December of 2015. The majority of the participants were hockey coaches and team managers; however, some young players and their parents were also briefly interviewed. Interviews were performed at Joensuu Arena during office hours; meanwhile lists of questions were distributed to respondent's emails. In total, about three players, two parents and five coaches participated.

The overall topic of questions referred to user opinions towards the existing user interface of Havusport online service and personal goals of usage. The purpose of the user questionnaire was to analyze the disadvantages of the current website's functionality, usability and visualization, as well as to estimate the project scope.

The first part of the survey was aimed at users' backgrounds and purposes when using the website. This helped to learn more about the existing group of users from my own perspective. In conclusion, I received a report about their needs, which allowed me to observe the existing interface from the user's perspective and to define a way of building a new set of visual elements.

The second part of the survey focused on defining all the weaknesses and shortcomings of the current user interface in accordance with users' opinions. Every participant shared views about the current content that could be structured in a better way or some existing features that need to be changed or updated. This information was used in searching for new solutions to help redesign the user interface and structure the site content.

4.2 The outcome of user research

The feedback delivered by coaches provided incredible insight into the most common ways of interaction with the website in daily use. The rest of the users consisted of young hockey players and parents. Their answers were rather different from each other. However, the contrast or differences among the collected opinions allowed me to observe the interaction between users and the website from different points of view.

In order to conduct a successful survey, it was necessary to start by gathering general data about the customer base of the company. It is possible to form a clear picture of the existing user group and to evaluate the complete upcoming stage of the working process. The survey starts with a few questions referring to

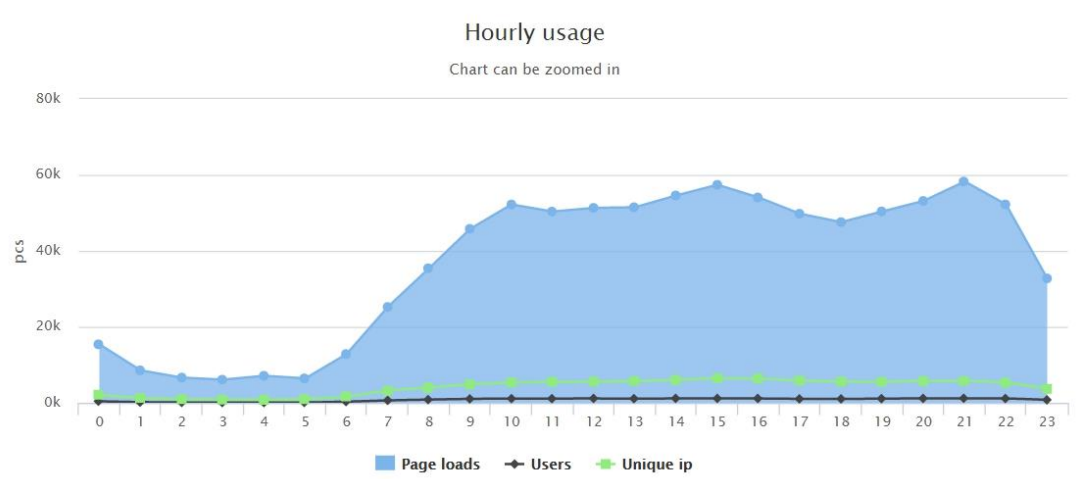


Picture 11. Registered users (Source: Havusport 2016).

an approximate date of starting the use of the website. Picture 11 indicates the number of registered users in 2015.

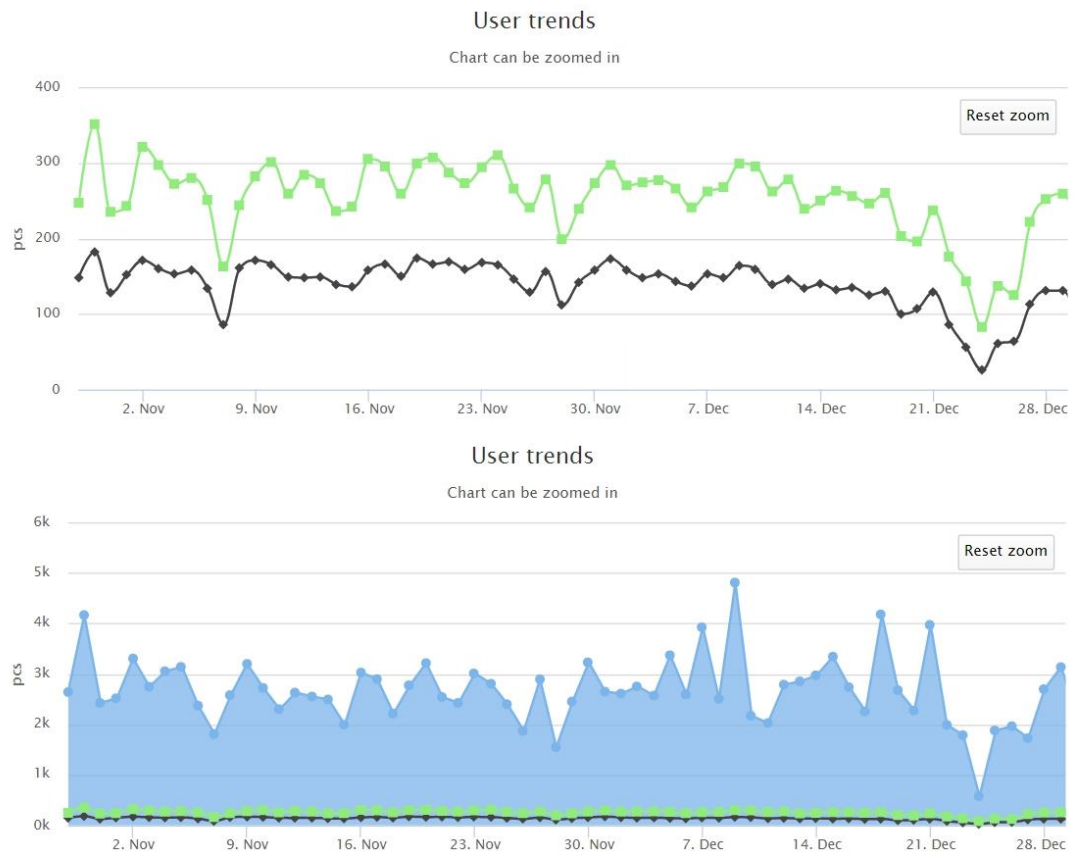
As we can see, Havusport is quite a young organization, having a small user base, although it is growing rapidly. According to this, the average amount of users had not reached 500 in the beginning of the year of 2015. It started growing slightly around March and reached one thousand during the summer. In the middle of autumn, the range of users almost hits 2k and the end of 2015 was highlighted by reaching 2500 users, which definitely allowed me to collect enough respondents for the project development.

The next chart (Picture 12) shows the total number of daily page loads, counted daily. In appliance with these visualized statistics, the sum of page loads hits its maximum at around 9 pm from day-to-day. Also, it indicates hourly popularity among users and their devices in operation. The upturn of activity during certain hours of a day can be explained by the average user's daily schedule. Moreover, the green line clearly shows the increase in device units, accomplishing page loading, which informs about the popularity of the Havusport mobile app as well.



Picture 12. Hourly usage of Havusport website (Source: Havusport 2016).

Finally, the user trends graph points out the frequency of using the website between November and December 2015 (Picture 13). It is similar tracking of page loads, number of users and interacting devices for particular time durations.



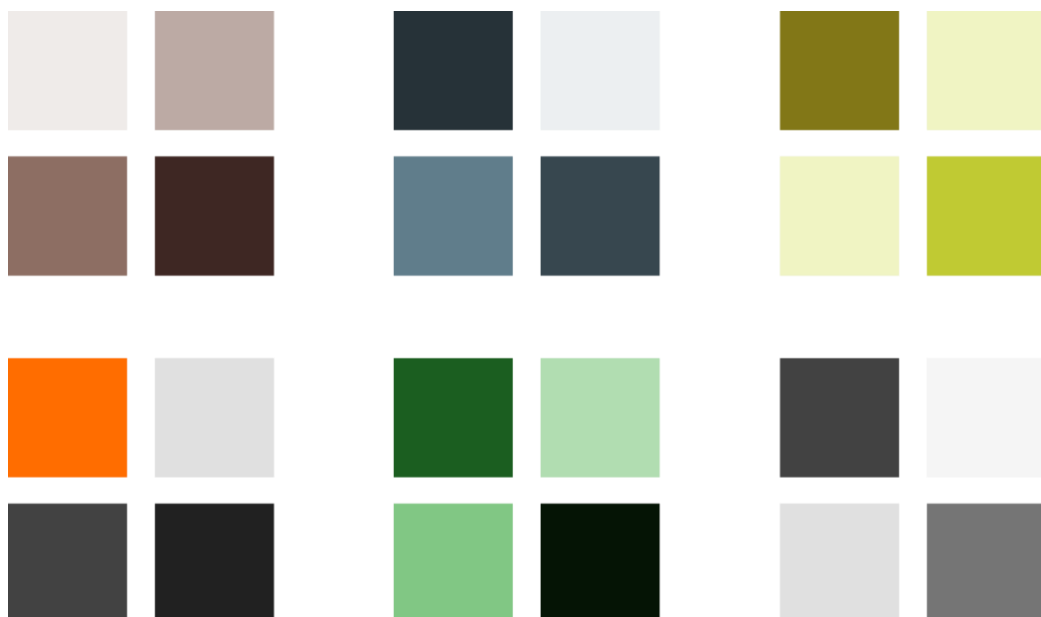
Picture 13. The indication of Havusport website, being in use over a certain period (Source: Havusport 2016).

4.3 Survey results

Every participant had certain claims about the functionality of the website, as well as its visuals. All questions about the redesigning process were made in agreement with clients in terms of their own preferences regarding potential updates. For easier consideration of redesign suggestions, I separated them from the user background section.

The first question simply referred to features of improvements that users would like to see. All the respondents were able to select a section of potential improvements, listed below in the questionnaire (See Appendix 1). Most participants were positive about restructuring the whole website.

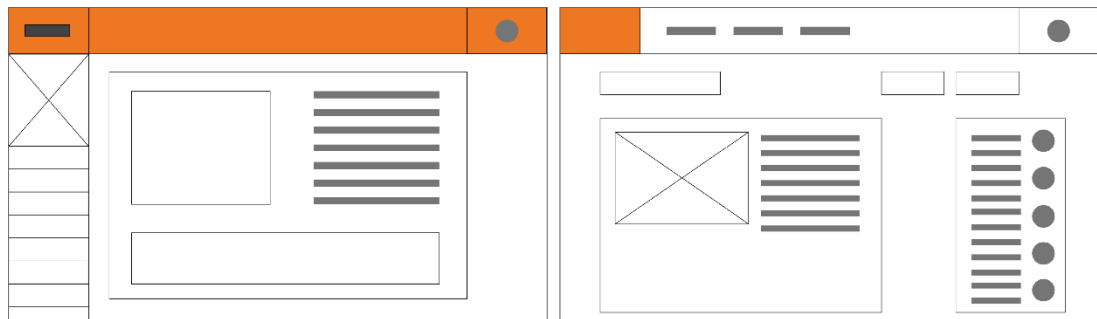
Some respondents left confirmative answers about the variety of color palette proposals (Picture 14). In general, both the users and the clients were happy with the existing set of colors. That is why I ended up making only some inconspicuous modifications to the color map. Originally, the organization consistently used a few colors in their user interface theme: orange, black, white and grey. I suggested a few color schemes to choose, although, in accordance with the



Picture 14. Color schemes, created specifically for survey research.

questionnaire results and the decision of my employers, I ended up using old tones.

Since the company needed a complete restructuring of pages, I had to cover this issue in my survey. The next part helped me to figure out which type of layout would be easier to interact with and be better looking from a user's point of view. All the respondents were able to pick a wireframe, which was roughly created for the questionnaire in line with my employers' preferences (Picture 15). The majority of participants chose the left layout example over the right one. Therefore, my clients also approved it.



Picture 15. Wireframes, created specifically for survey research.

The results of the research survey provided some valuable insight that supported the practical part of my project. Moreover, it revealed some crucial advantages and disadvantages of the existing user interface and the functionality of the website.

The survey involved ten participants. Seven persons had been using the website on a daily basis for over a year (since 2014), while the rest of participants had registered their accounts less than six months before the conduction of the survey.

All ten respondents mentioned the player and team profile sections when asked about the most useful features. Three of them used the calendar more frequently, and the rest provided functions. None of the respondents mentioned the feedback and diary sections.

Five participants gave affirmative answers concerning updating the entire website structure, while the rest of them did not approve any redesign proposals. However, they suggested similar color schemes during the interviews. Finally, all selected the second wireframe when answering the question related to layout.

4.4 Discussion with the client

After the survey was completed, I discussed the results with my clients. All the collected answers provided a good base for redesigning the Havusport web service. It allowed me to understand the main direction to follow when starting the working process and throw light on major problems of existing user experience and to make a detailed plan of any further project development.

Based on the gathered data, the biggest issue negatively affecting user opinions regarding the Havusport website was the complexity of the user interface in general. Other complaints originated from the fact that the messaging features of the service needed some simplification as well. Also, according to the respondent's opinion, the content included too much text and they would rather like to interact with visual components, since those are easier to perceive. Furthermore, loads of pop-up windows contained lengthy pieces of text, which annoyed users. Besides, there was no consistency in typography, since almost every page contained different fonts.

After a few conversations with my clients, we decided to settle on the flat design option. As both the clients and users were attracted by its simplicity and chastity of style, they found it as a good design solution to meet their requirements.

5 HAVUSPORT WEBSITE DEVELOPMENT

This section contains the description of the whole design process, which resulted in defining a set of goals related to the improvement of the user interface, building up detailed prototypes and creating webpage design layouts that were quite satisfying in accordance with customers' opinions.

The primary task of the redesign process was defining a problem. At this stage, I researched the area of business and objectives at Havusport. As a result, I determined the goals of the website and learned more about the clients' behavior. The next step was to analyze the condition of website, the quality of graphic design and the content it was filled with.

Another stage resided in drawing a plan of modifications. During this step, my clients and I discussed the principal task of potential updates on the website. Afterwards, it was already possible to start developing and implementing a concept of changes together by thinking through every element to update in details.

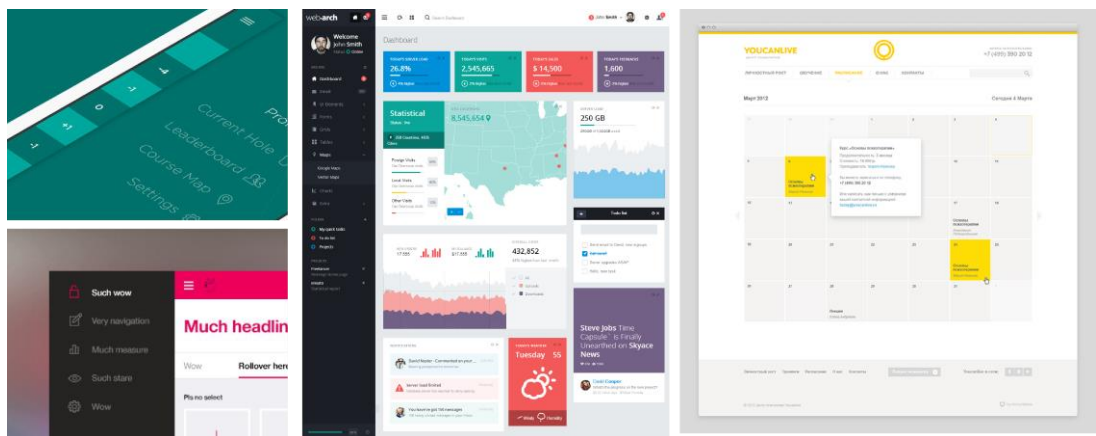
Usability testing is a rather significant step in any website redesigning process. As a result, it assured my clients and me that the website was improved rather than the reverse. It was necessary to evaluate the product with different screen resolutions and to check if it runs on different browsers.

As already mentioned, it is rather impossible to start redesigning a website immediately. This is not a one-time action, but quite a complex process.

5.1 Gathering background information

Havusport developed and launched its own website, tablet and mobile applications, containing a comprehensive sport and game database that is readily available and easy to update. The goal is to collect all the data about junior sport activities in order to provide better accessibility of it to all the club members, including coaches, players and their parents. In addition, the company is aiming at the improvement and simplification of team communication while motivating players by delivering their development statistics and comparing achievements. The project was to redesign the existing user interface of the website and to make a good design solution for simplification of communication between coaches, parents and players. The following task accomplishment would allow the company to increase the client database, to push up sales and to meet expectations of its users, thereby increasing customer satisfaction.

After accomplishing the survey part, I started researching the nature of user experience and on-going trends. It allowed me to get inspired before the profound working process and to define the way to move when starting the building up of storyboards. Using gathered materials, I collected a set of UI design examples and presented them to the clients (Appendix 7). They marked out some visual elements that could form a good design solution for potential layouts (Picture 16). This part of the practice allowed me to define some of the preferences of my clients and to make a final decision regarding the potential web design style.




Picture 16. On-going trends of UI design.

5.2 User personas

The next stage of the redesigning process involved the conception of user personas. It is rather necessary to create a realistic image of core users, based on user data research. User personas help to determine a typical set of clients' (users) needs, requirements and interests, along with figuring out some new features and content ideas. As a result, it gives the opportunity to create a rough scenario of a user's progress through the website pages and to make some evaluation of the potential interaction between clients and visual tools.

Since there are three existing customer groups in Havusport, we pulled user information together and formed three representing personas, which are approximately realistic. Every user persona has basic background information, including a brief description of their personalities and needs.

Based on the user-centered research, there were created three personas. Picture 17 shows the most popular user types in Havusport: junior hockey player, coach and parent. All of them use the website daily; therefore, dealing with average frustrations and obstacles, caused by bad user experience and poor information architecture make them feel dissatisfied about the entire online service provided by the company. Every user persona has a different set of goals when using the website, as well as particular online behavior. This allowed me to think through the different perspective, when planning and visualizing the structure of a website.



Age: 9 y.o.
Work: Junior hockey player
Location: Joensuu

Goals

- Tracking his own development and achievements
- Tracking team schedule
- Comparing his results to other players of the same age group
- Getting a feedback about from his coach

Frustrations


- Slowness of website
- Complexity of the user interface
- Lack of user experience

Bio

He is an active hockey player

Uses Havusport web resource and mobile app for more than one year

Tracks Havusport Diary data daily



Age: 30 y.o.
Work: Sales manager
Location: Joensuu

Goals

- Tracking development and achievements of his kid
- Tracking a schedule of his kid

Frustrations


- Slowness of website
- Complexity of the user interface
- Lack of available features

Bio

He is the father of junior hockey player

Uses Havusport mobile app to track development and achievements of his son

Tracking news via Havusport website and mobile app



Age: 34 y.o.
Work: Junior hockey coach
Location: Joensuu

Goals

- Tracking development and achievements of his players
- Tracking and maintaining team schedule
- Comparing team results
- Tracking players' activities
- Prediction of players' development from collected data
- Collecting and sharing game statistics with players

Frustrations

- Slowness of website
- Complexity of the user interface
- Lack of features
- Lack of users' activity when using the website or the mobile app

Bio

He has been training junior players more than three years

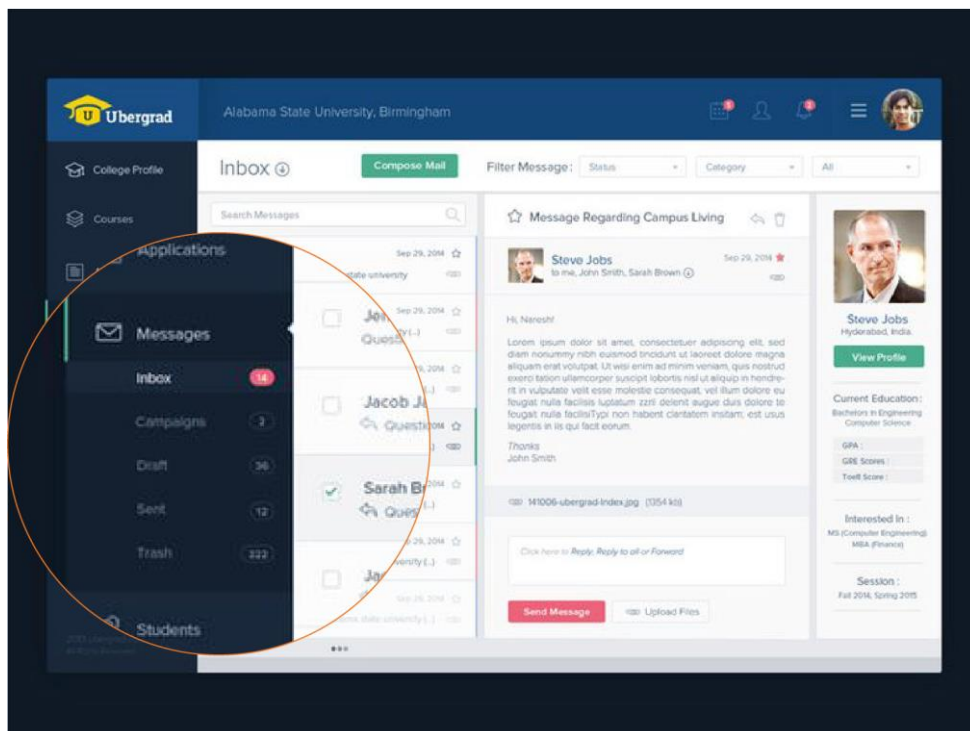
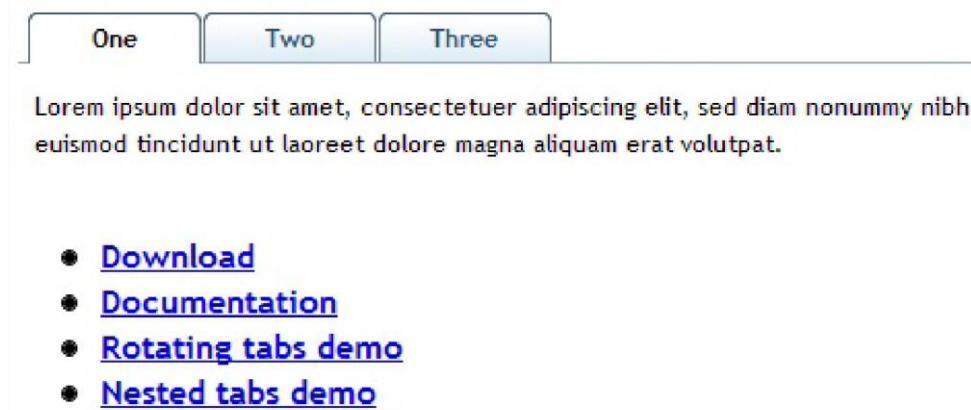
Uses Havusport mobile app to collect and share game statistics

Uses Havusport web resource and mobile app from the beginning of time

Tracks feedback from players using Havusport Diary every day

Picture 17. User Personas.

My recommendations resided in the fact that it was necessary to split the content from some pages to a few subpages below the top-level by creating tabs and dropdown menus under related categories (Picture 19). The preceding decision would simplify the interaction between users and visual components, which definitely yields to desired customer satisfaction.



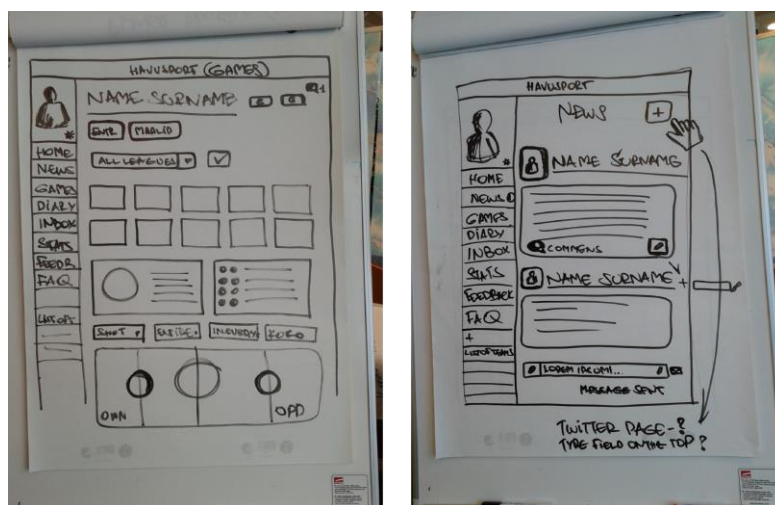
Picture 19. Example of tabs and dropdown menus in user interface design (Web Design Booth 2016).

5.4 Planning the information architecture

After preparing the content, I started thinking through the information architecture. Before filling in the gaps, it was rather important to organize an order and a structure for the content. The goal of this was to model an accurate paper plan of the website which would allow my clients to understand the main principles of navigation through the webpages. The creation of a tangible site structure was the outcome of this process.

This stage was started from building up the sitemaps by drawing them onto whiteboards (Picture 20). The selected method was rather simple to implement in cooperation with the clients and a few outsiders, giving an objective feedback related to visual solutions. Moreover, it was easy to update or completely change the structures in accordance with their decisions.

The main website structure, found from the collected data of the user-centered research, was built step-by-step. Through the use of personas and their online behavior patterns, I was able to create an approximate route of interacting with the system. Since there are three main groups of users, each having different goals, it was rather significant to assign every user persona to particular sets of webpage structures, which were modeled from the perspective of given user accounts. By accomplishing this task, I created the whole site structure that



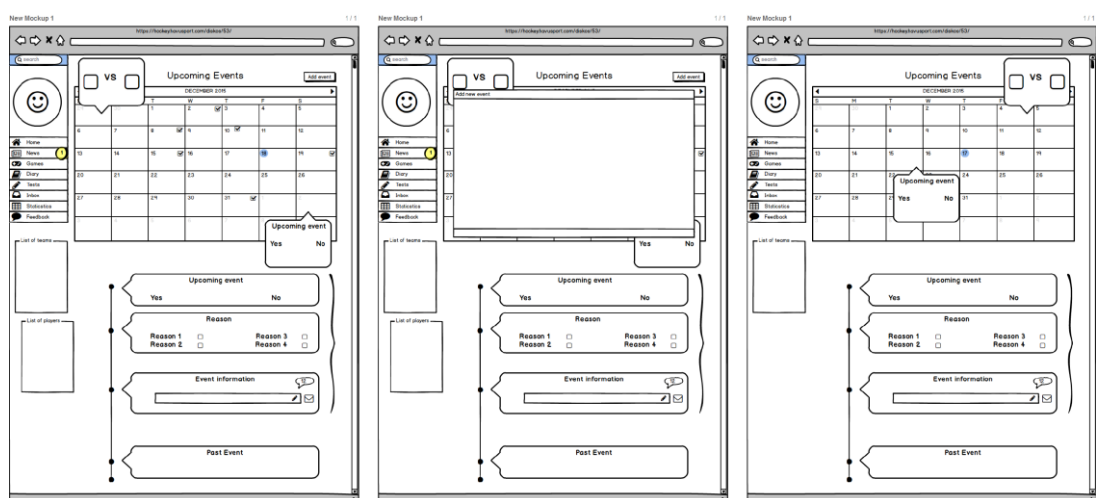
Picture 20. Page structuring.

consistently varied in accordance with the assigned user personas and their needs.

5.5 Wireframing

Once the visual planning of the information architecture was completed, I decided to embark on building the wireframes. The main difference from the page structuring resided in the performing technique and the result of this process. Wireframing was initially meant for creating sharper webpage prototypes, using approximately realistic scales of visual elements. It also helped my clients to make rough estimations of several webpages, sketched into a browser frame. In the same way as drawing the sitemap, it helped me to visualize basic webpage flow and the information hierarchy of my design, as well as to plan a route of processing the information by users.

When using the wireframing tool, it is easy to adjust the scales of visual elements, such as pop-up windows, buttons and icons. Picture 21 indicates the starting point for webpage wireframing, which in this case is the main page of the Havusport website. As with the page structuring, it started with setting the main visual elements, such as header, footer and user panel. With the exception of a few webpages that were supposed to be similar for every group of user, this was the common layout for all the prototypes. After building the main structure of every



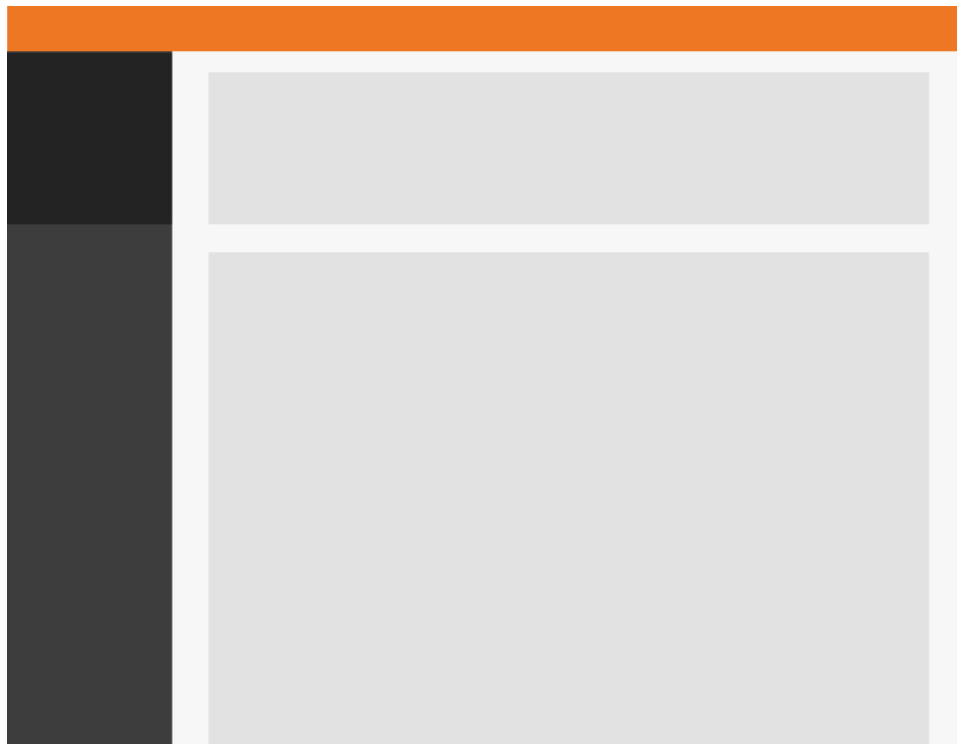
Picture 21. Wireframing.

webpage, I was able to figure out where I want the detailed elements to appear. More visual elements were added during the rest of the design process. Consequently, wireframing allowed me to save plenty of time in the long run.

5.6 Website design

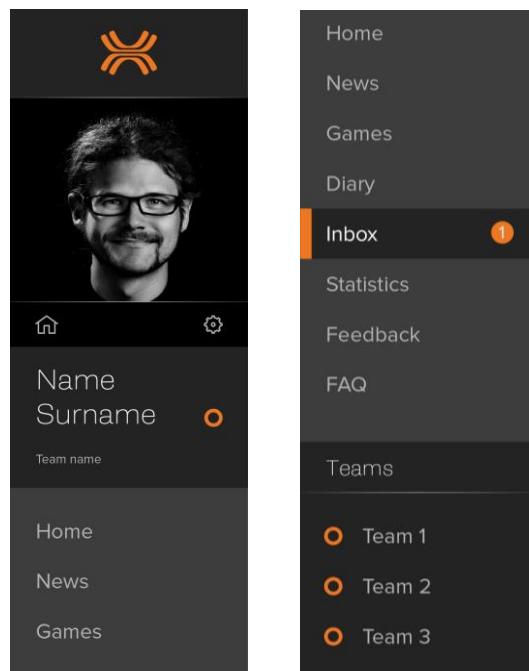
Upon completing the wireframes, I discussed any further development with my clients. As a result, we came to an agreement on all the current design solutions. When planning and evolving the layout design, all the user-centered research studies were taken into consideration. Therefore, I proceeded directly to creating layouts, which represents the final look of the new website.

The design process started from creating the basic solid layout for the first webpage. This is generally the starting point for designing a user interface. It allows grasping the overall look of the structure as displayed in Picture 22.



Picture 22. Solid layout for the first page.

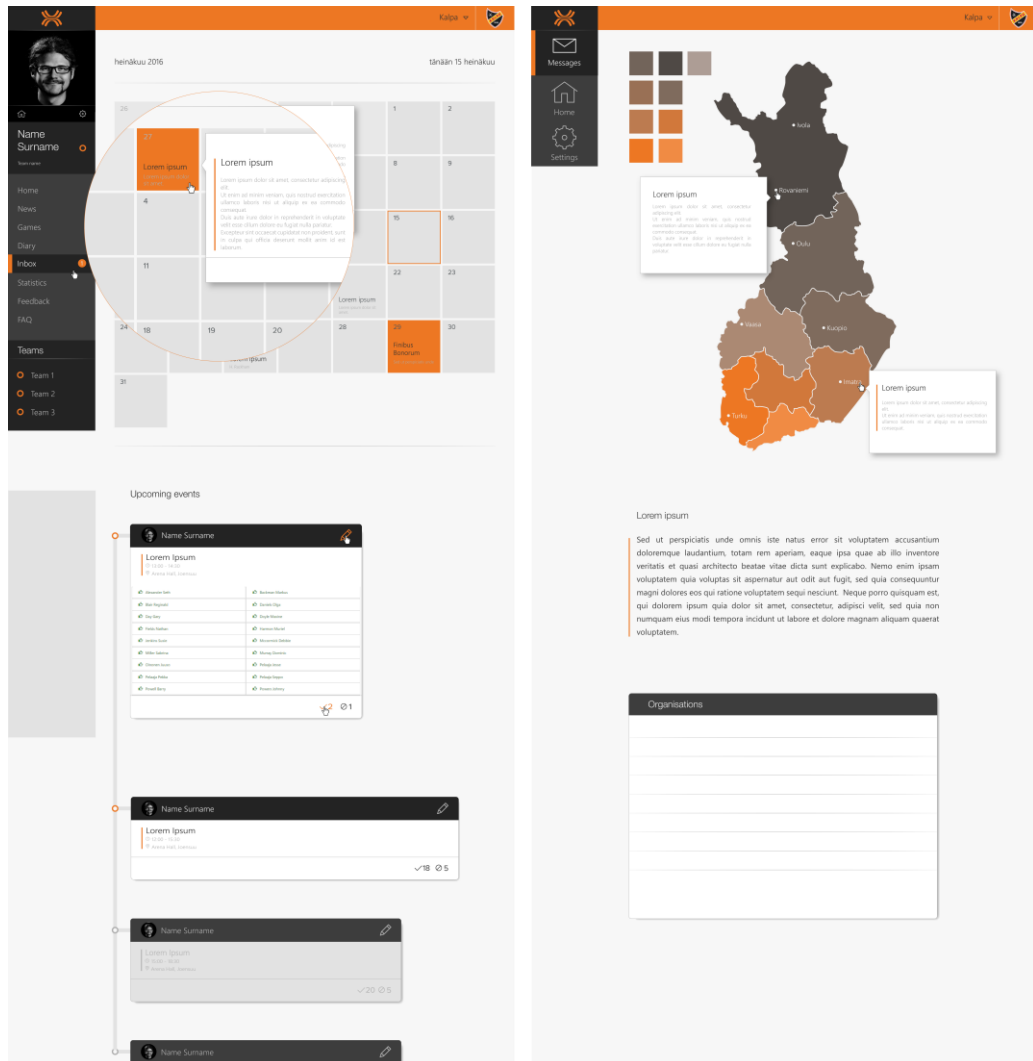
After the basic layout was completed, I started adding details in accordance with the wireframes that were created during the prototyping phase. It did not take a long time to complete the detailed layout, since the color palette and typography were already approved of by the client. The elements were appearing consistently; the user panel was the key component that defined the whole style of the interface (Picture 23).



Picture 23. User panel.

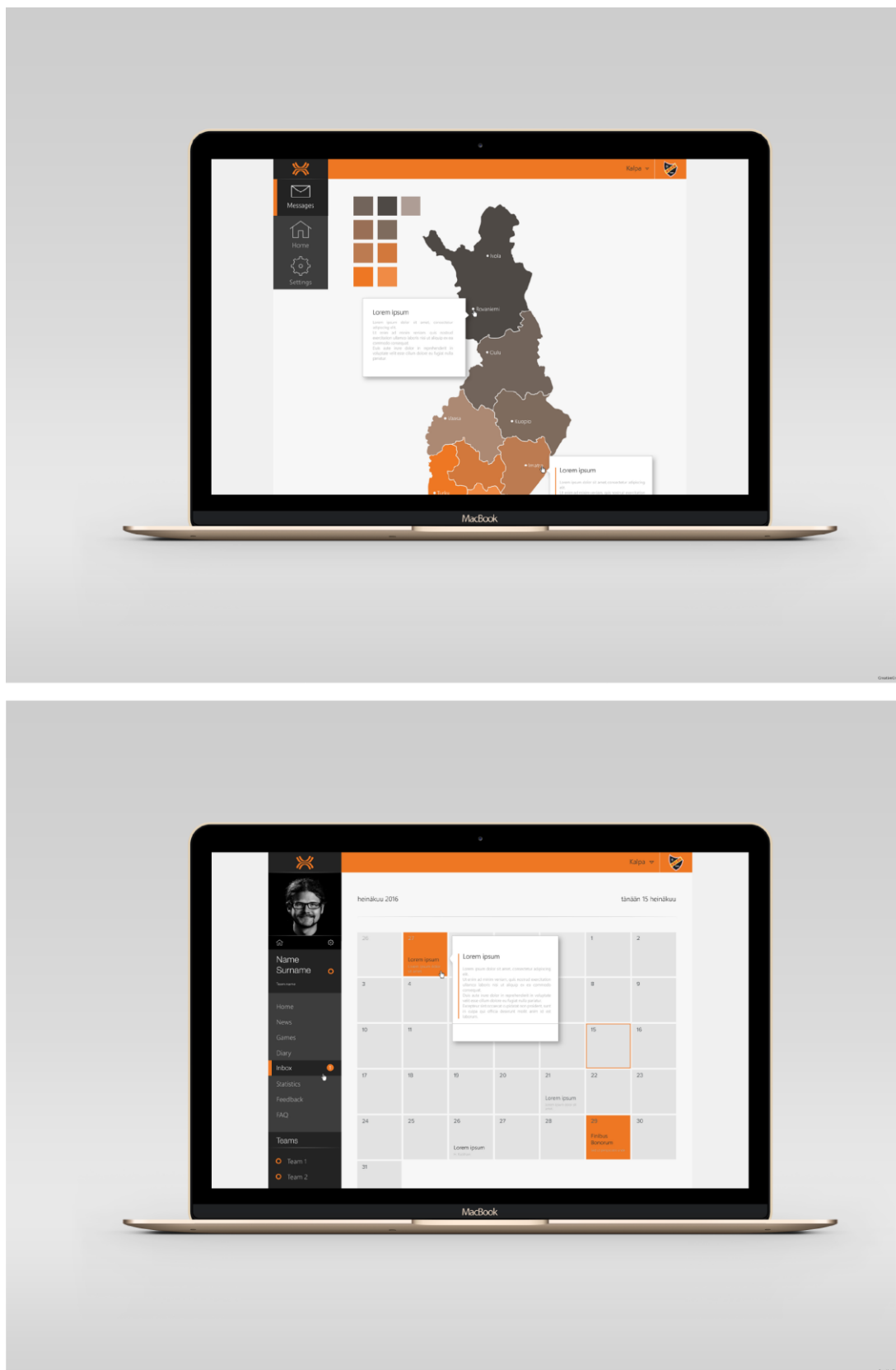
Then I proceeded to the basic content development, which included designing the calendar component, event dashboard and pop-up windows. The following visual elements completed the final layout Picture 24.

Originally, the webpages were divided into authorized and unauthorized user categories. An authorized user is able to manage his page with the user panel, which has consistent set of options and profile data, while an unauthorized user has fewer features he can access.



Picture 24. Design solution for Havusport website.

The mockup indicates the overall look of the webpage layout on a user's screen. Picture 25. It helped to create the presentable appearance of the website, as well as giving an opportunity to evaluate the entire design solution before the production phase.



Picture 25. Design solution for Havusport website, presented in mockup.

5.6.1 Tools

In agreement with web developers, I used Adobe Illustrator to finalize the redesigning step. I selected this software because it significantly simplified the task; meanwhile the same workflow would proceed less effectively in Photoshop. The variety of reasons to decide on vector-based software rather than on raster when designing a user interface is stated in Table 1.

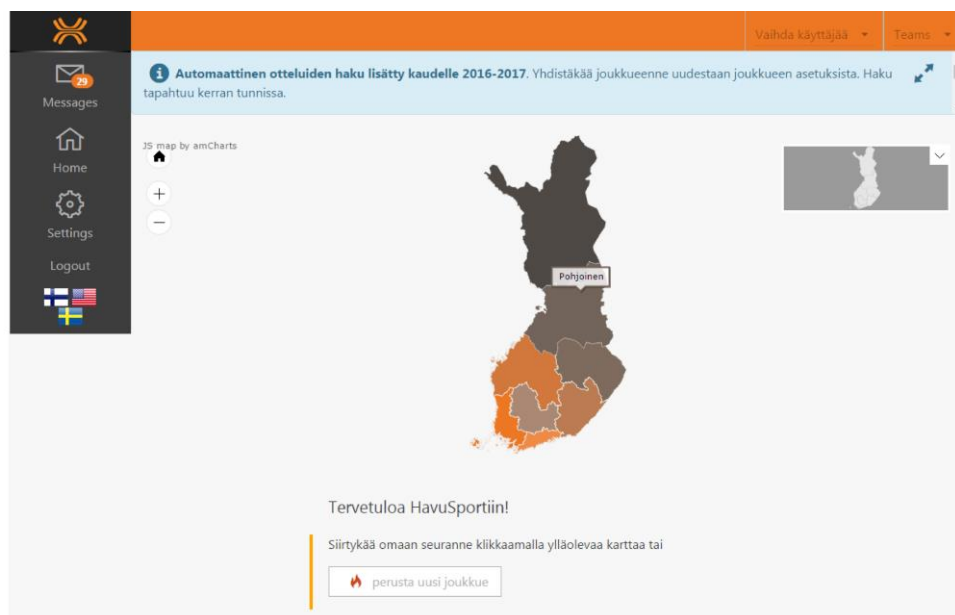
Table 1. Advantages and disadvantages of Adobe Photoshop and Adobe Illustrator in comparison of creating a user interface design

	Advantages	Disadvantages
Adobe Illustrator	<ul style="list-style-type: none"> - Resolution independence (creates an artwork with no limits to be scaled without the loss of quality) - Support of web-friendly formats - Hosted database of fonts and icons (sync with fonts and icons resources) - Pixel perfection (aligns objects to pixel grid) - Creation of interactive prototypes (shares an artwork with d bothers immediately) 	<ul style="list-style-type: none"> - Web developers are not familiar with Illustrator as much as with Photoshop - No layers structure
Adobe Photoshop	<ul style="list-style-type: none"> - Used by web developers and designers - Vector images support - Pixel images support - Layer control - Support of web-friendly formats - Layer control - Familiar to web developers 	<ul style="list-style-type: none"> - Resizing with quality loss - No easy conversion to vector - No creation of complex vector elements -

5.6.2 Feedback from the client and users

After the project was completed, it was relevant to receive feedback from the client for further professional improvement and self-reflection. All the layouts were presented to the client, as well as printed on paper to help with editing. It allowed to see an accurate model of what the finished project would look like and pick out any discrepancies between this and the vision of the client. This was an important phase for quality assurance.

The client had a few suggestions concerning particular pages and icons, but the overall response was quite positive. In addition, I was asked to build more guidelines for the web developer, since that would make the coding process simpler. Hereby, the in-between evaluation that I got from my clients was rather satisfactory (see Appendix 5). However, there is a certain challenge to provide the final conclusion before the new design is tested by users. For that reason, this project is still under development. The website can be found online at <https://hockey.havusport.com/default/>. Picture 26 presents what the main page looks like after launching.



Picture 26. Front page of Havusport website.

6 CONCLUSION

In my opinion, this area of work is rather significant, since this is an opportunity to make a real step towards a career of a UX/UI designer. In our time, the usage of technological solutions for daily life is growing rapidly. As a result, more and more people rely on their computers and mobile phones to cope with their day-to-day routine, creating high demand on the development of such applications. Because of this, interface design is a very relevant specialization in the present day.

The purpose of this thesis was to design and develop a new user interface concept for Havusport website. I studied the key principles of user experience and interface design while readying my working methodology long before I started the actual project. Thereby, the relevant theoretical framework was developed and the user survey data was applied into my planning for the support of the project's execution. The finished project was completed combining theoretical and practical frameworks, which enabled me to finish the projects within the agreed deadline.

The study and implementation of UI and UX principles proved to be particularly challenging. However, the profound research into the topic helped me to gather the required knowledge and gain the competence to finish this project.

This project revealed my interest towards in topic and provided me with a notion regarding my future career. The base theory and theoretical knowledge gathered for the project will definitely become a significant basis for my upcoming works.

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Appendix 1 User research questionnaire

User Experience survey for HavuSport users

User Experience survey for HavuSport users

Uutta käyttöliittymää pukkaa!

HavuSportiin on kehitteillä uusi maailmanluokan käyttöliittymä. Sitä varten on haastateltu paljon porukkaa ja opeteltu asiakkaitten käyttötottumuksia.
RokRok!

New interface, everyone!

HavuSport so is developing a new world-class user interface. For this purpose, has been interviewed a lot of people and learned how to customers' usage habits.
RokRok!

***Required**

1. FULL NAME *

.....

2. OCCUPATION *

.....

Your background information

3. How long have you been using HavuSport online service?

4. How often are you using HavuSport website?

5. Which functions are more useful in accordance to your opinion?

.....

.....

6. What do you think needs be improved in HavuSport website?

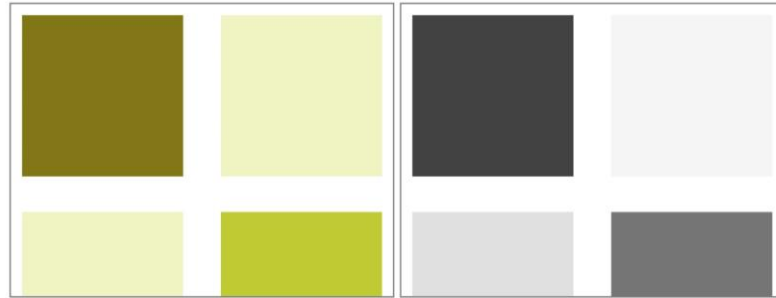
Tick all that apply.

- ☐ Website structure
- ☐ Colors
- ☐ Content
- ☐ All together
- ☐ I am completely satisfied about HavuSport online service
- ☐ I don't use Internet at all

User Experience survey for HavuSport users

7. Please, select a color palette that would blend with the brand and user interface, in accordance with your opinion.

Tick all that apply.



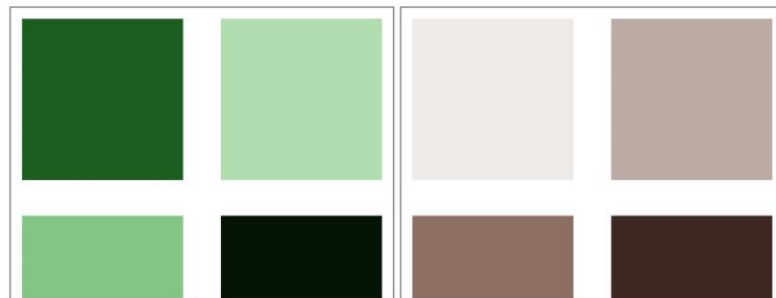
☐ 1

☐ 2



☐ 3

☐ 4



☐ 5

☐ 6

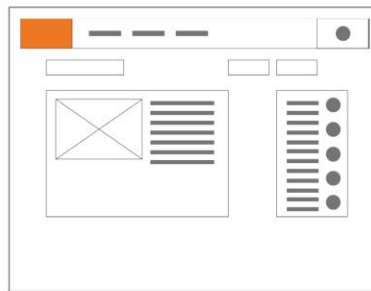
☐ I am completely satisfied with the current color scheme of HavuSport website

☐ I am color blind

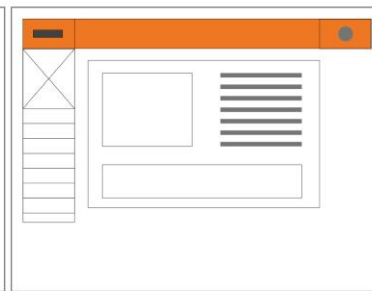
User Experience survey for HavuSport users

8. Which News Feed webpage would you prefer to see on HavuSport website?

Tick all that apply.



☐ 1



☐ 2

☐ I am completely satisfied with the current interface structure

☐ What is News Feed?

Untitled form - Google Forms

Evaluate Olga's ability to orient herself in area of UI and UX design

☐ 1

☐ 2

☐ 3

☐ 4

☒ 5

Evaluate Olga's skills of computer supported cooperative work

☐ 1

☐ 2

☐ 3

☐ 4

☒ 5

Please, share your overview concerning Olga's creative mind and the ability to complete her work in accordance with given tasks. Write 2-3 sentences

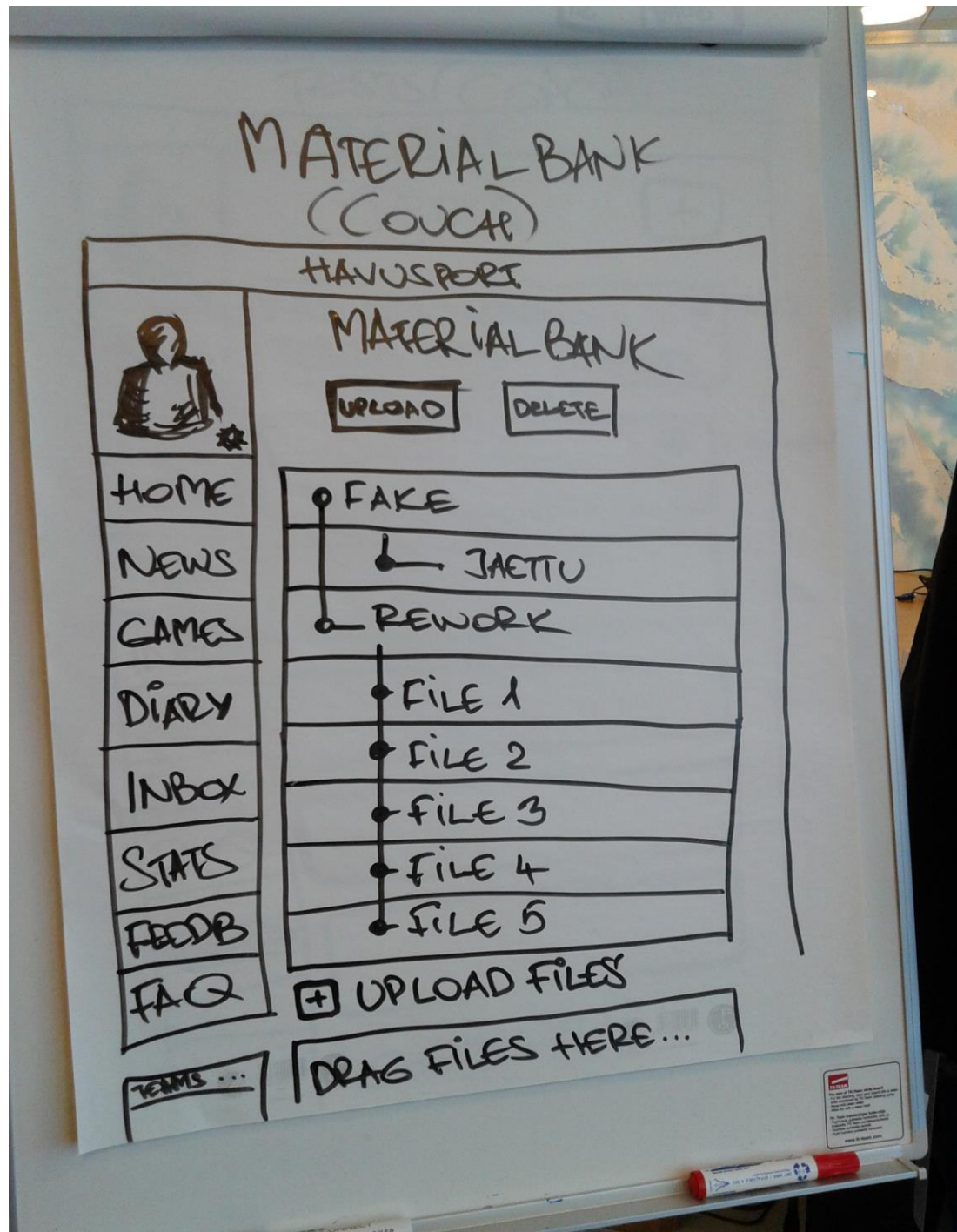
The new interface created by Olga was overall very pleasing to our company. It reflected our needs and vision extremely well. She performed extremely professionally when considering her lack of experience of such projects previously.

This content is neither created nor endorsed by Google.

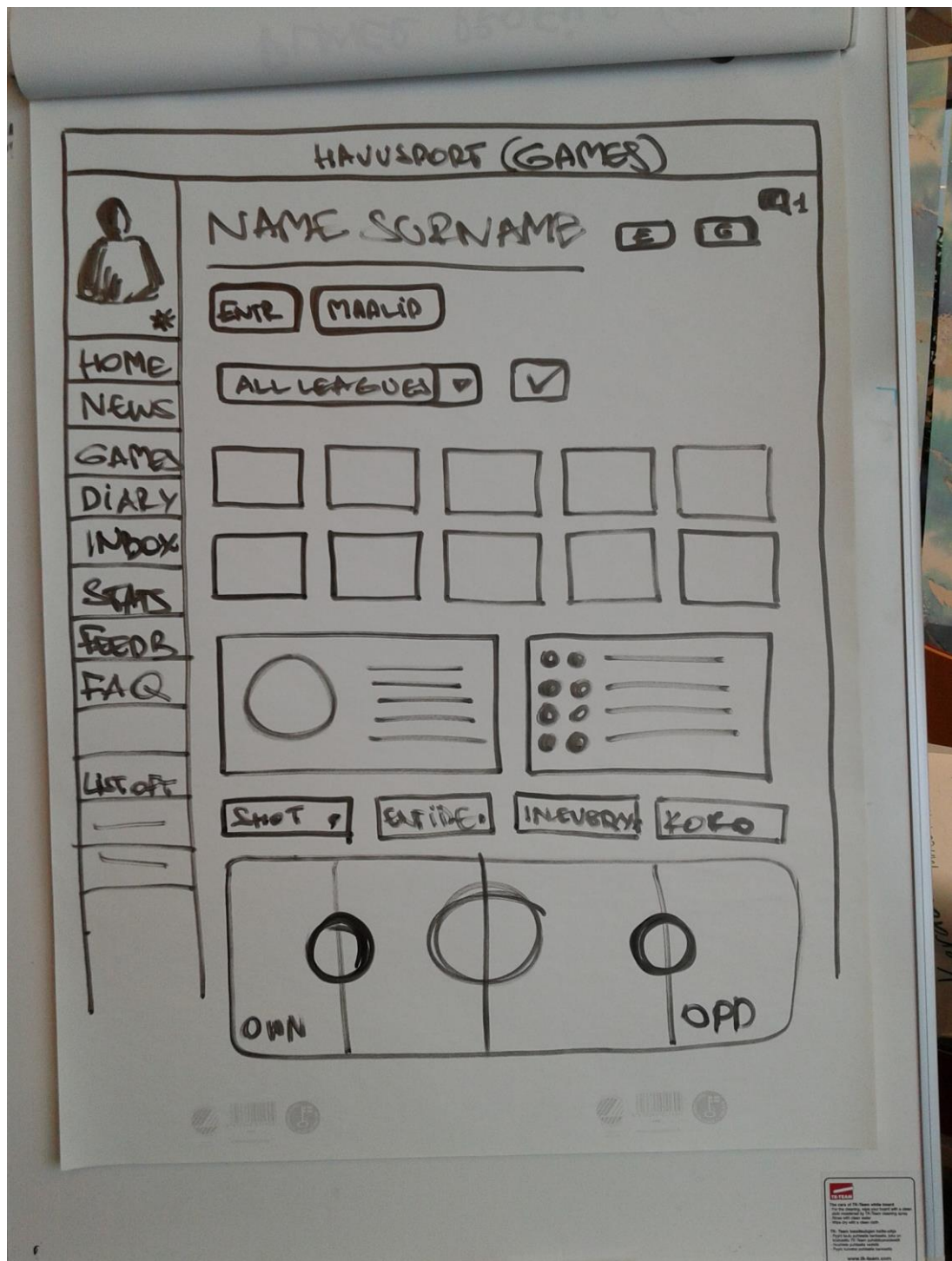
Google Forms

Questionnaire for the client

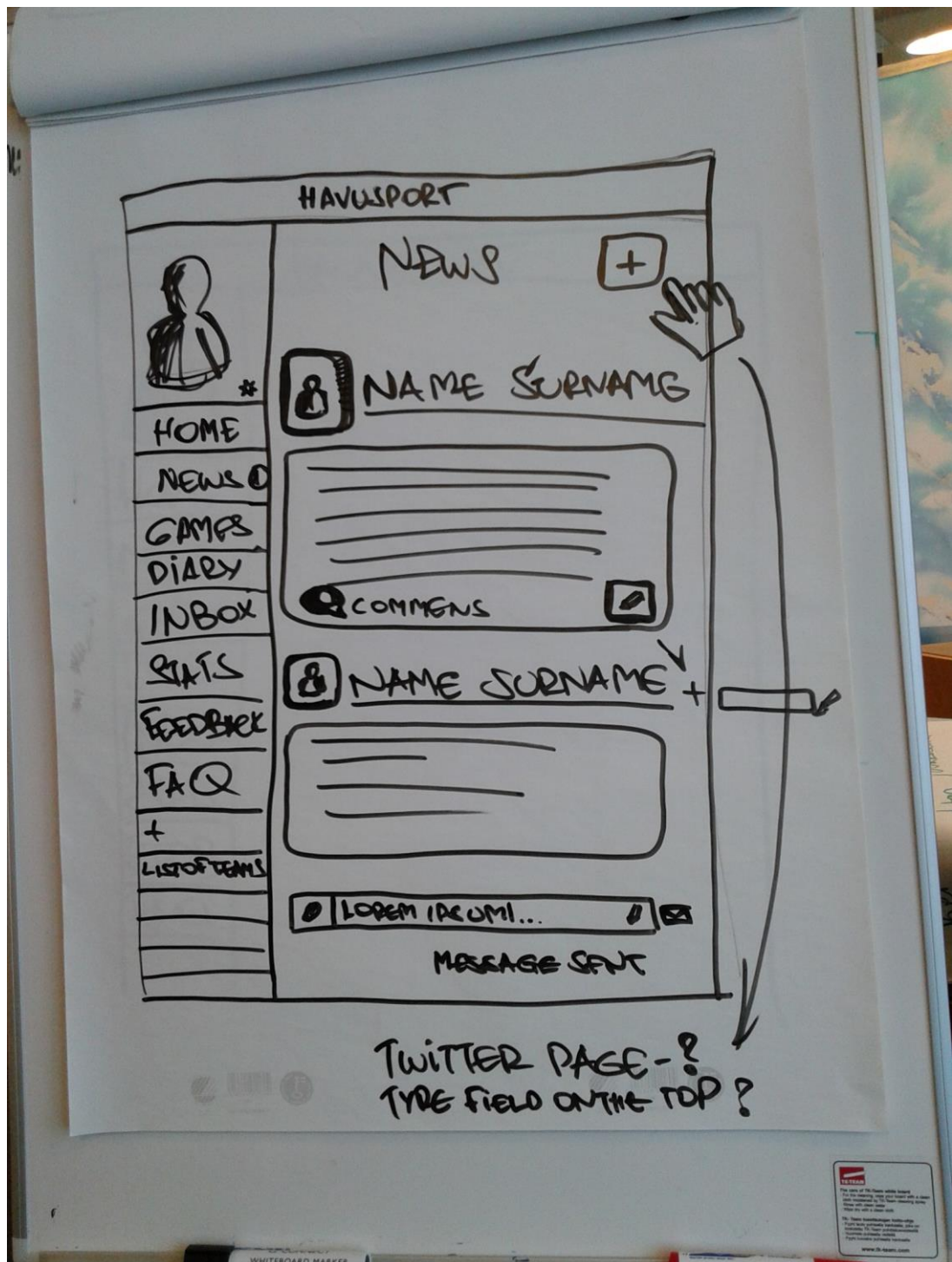
Appendix 2 Sitemapping



Material Bank page

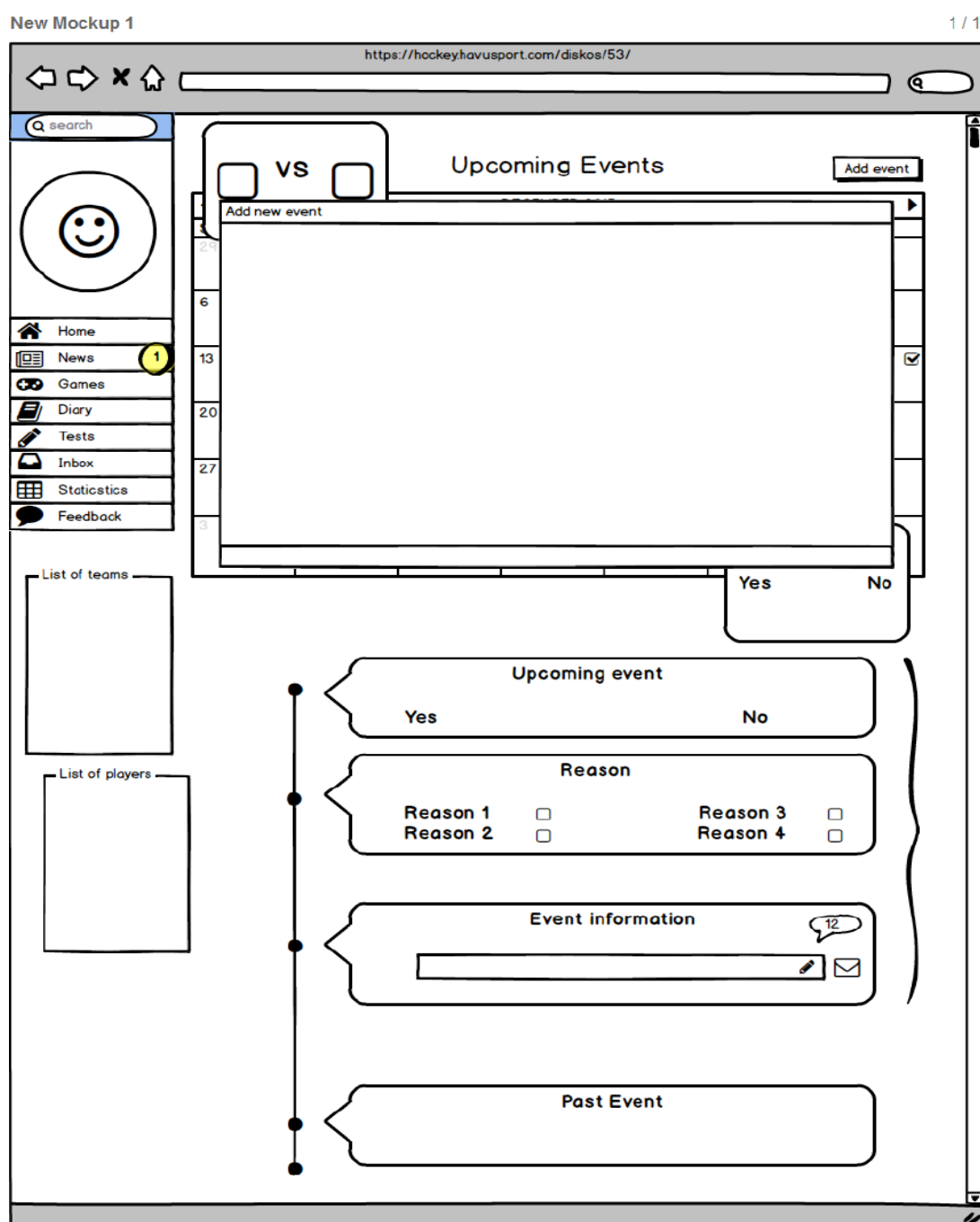


Games page



News page

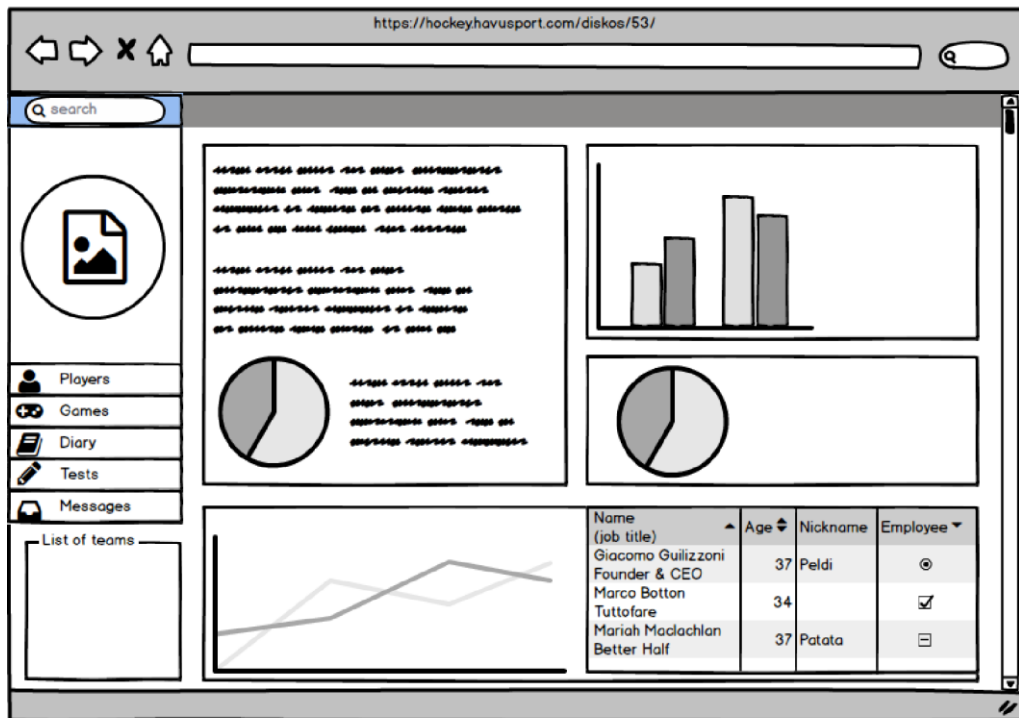
Appendix 3 Wireframing



Front page

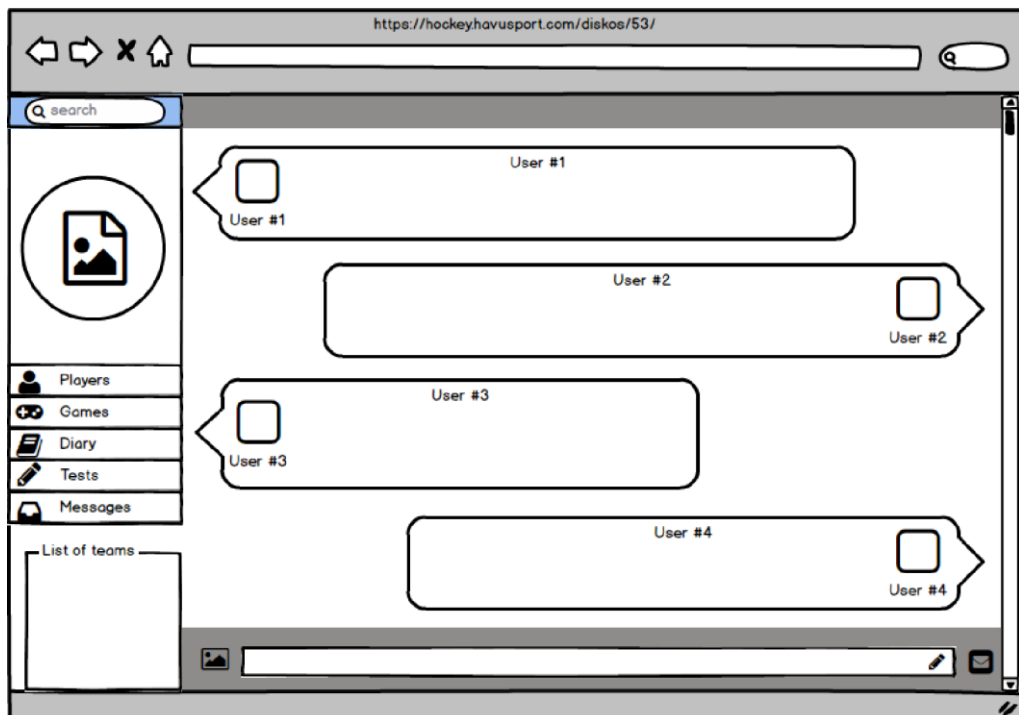
New Mockup 1

1 / 1



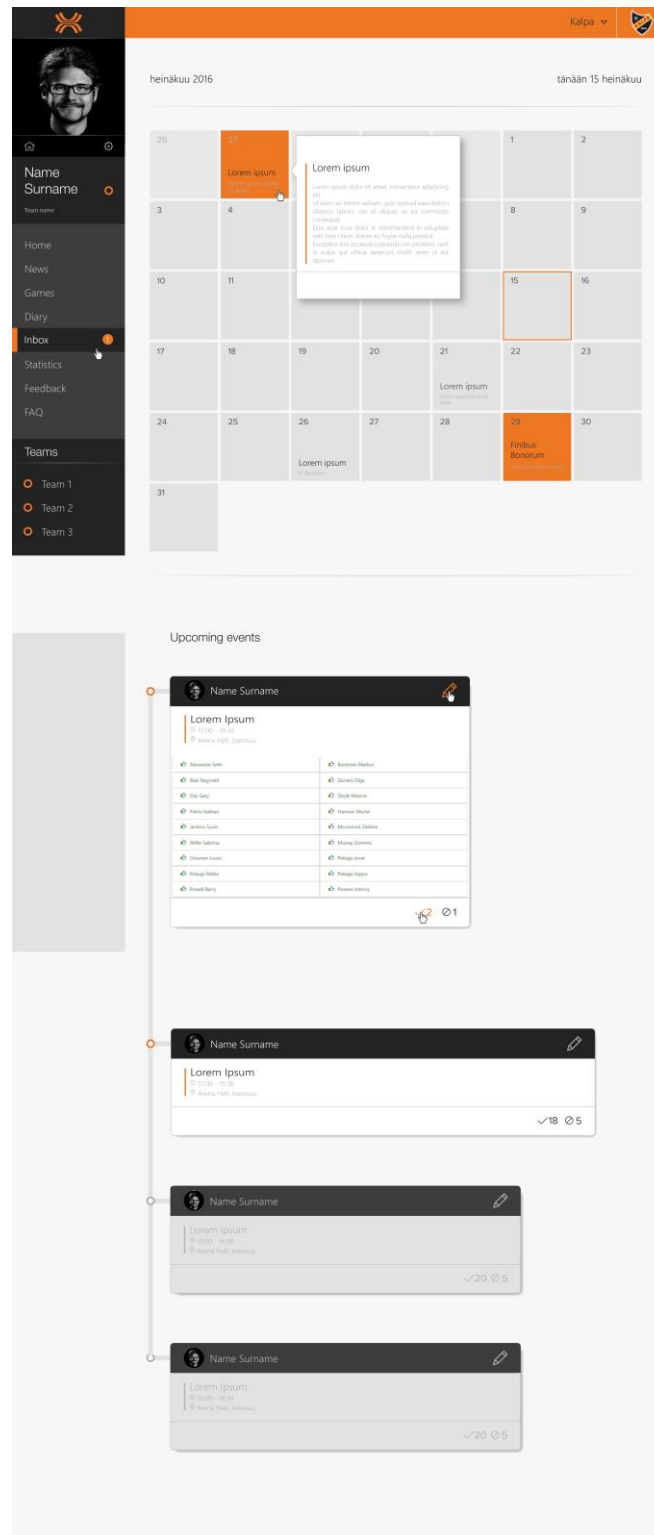
New Mockup 1

1 / 1

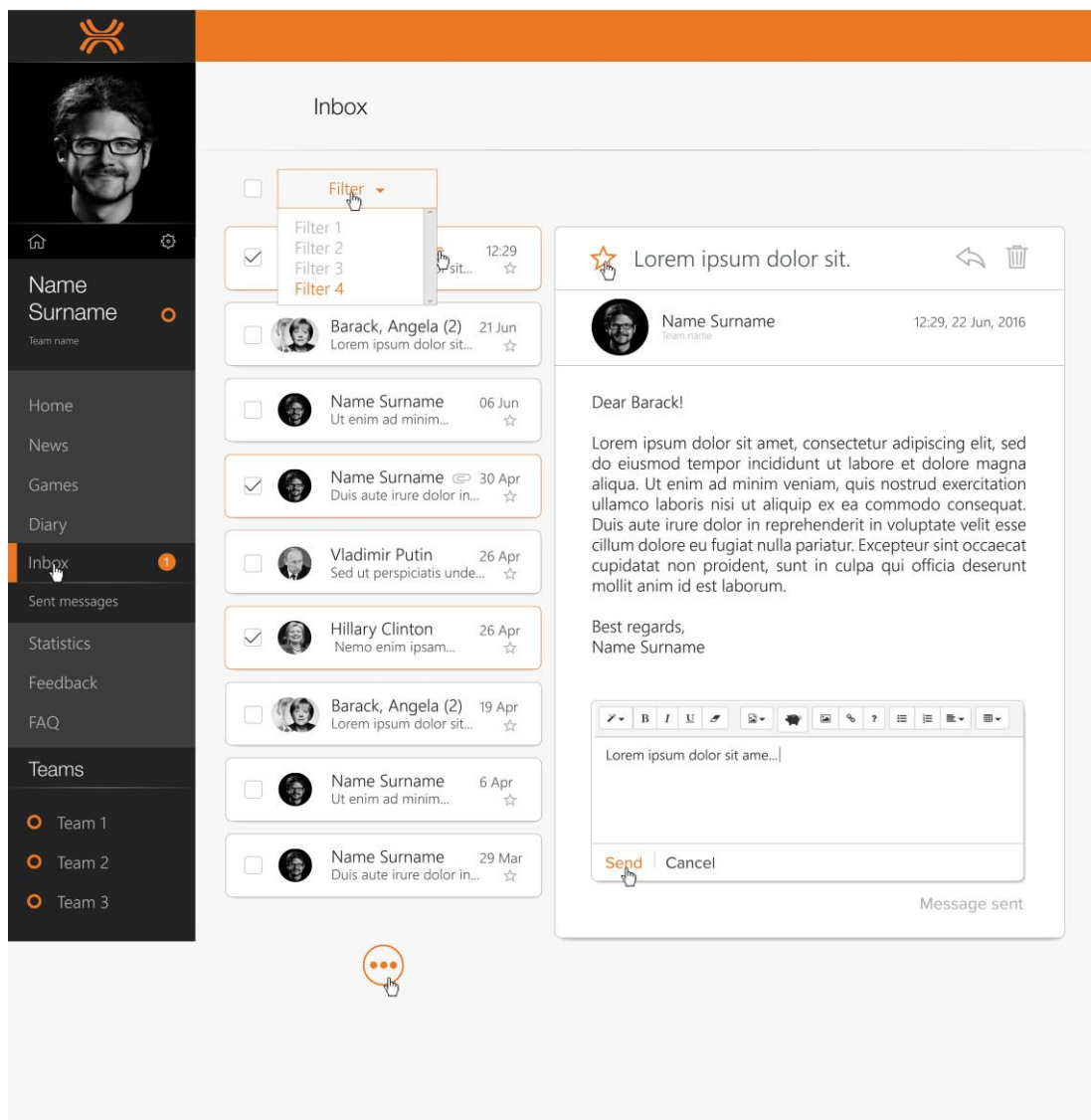


Player profile page and News page

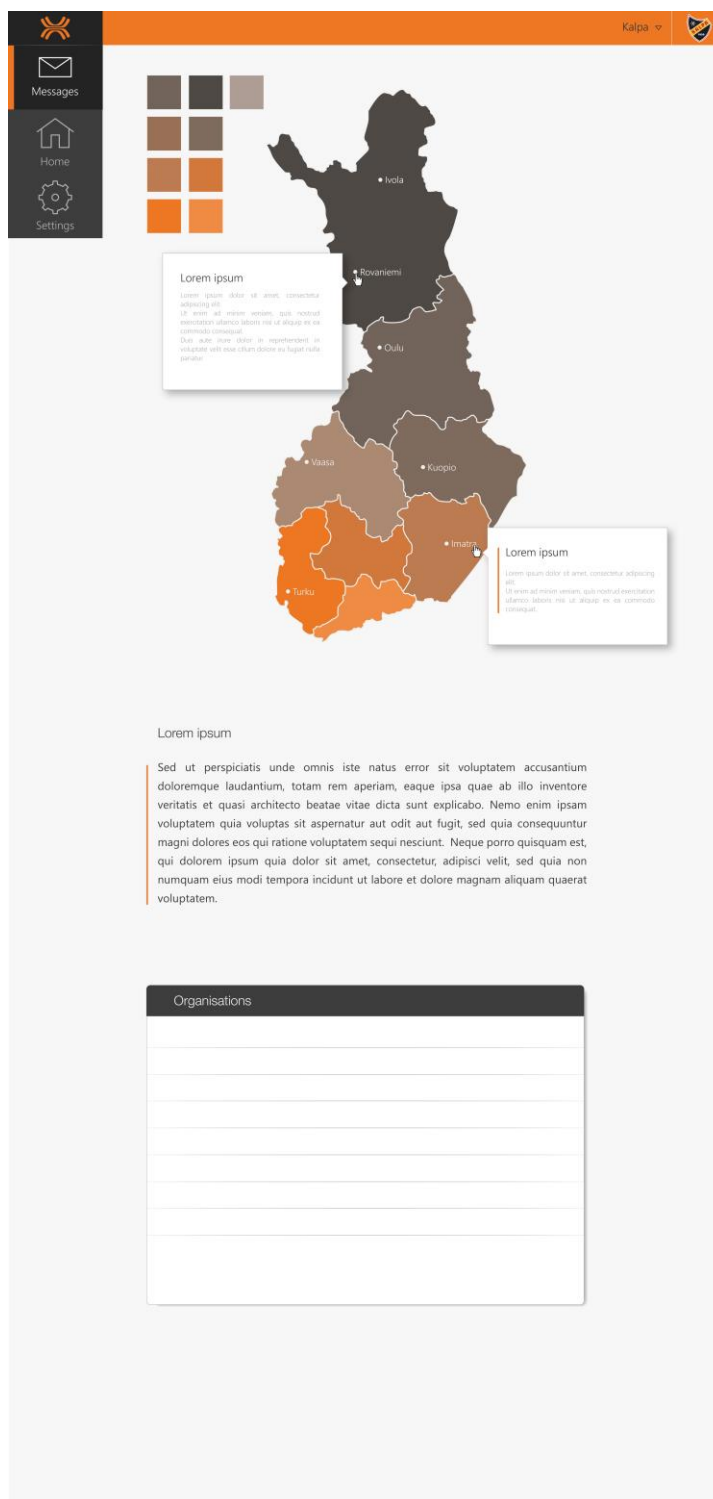
Website design of Havusport



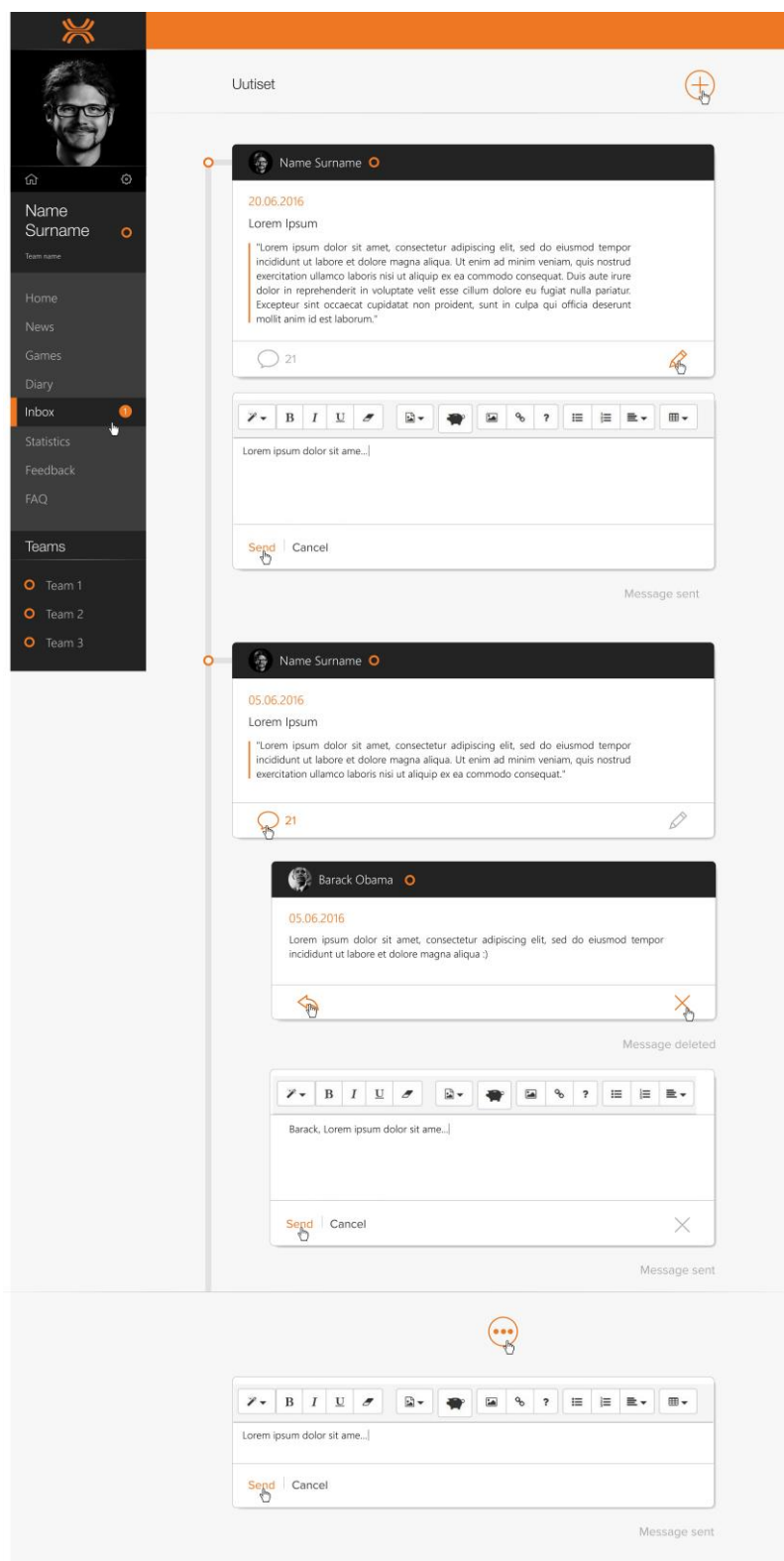
Front page




Inbox messages page



Front page for unauthorized users





Name
Surname

Home
News
Games
Diary
Inbox
Statistics
Feedback
FAQ

Teams

- Team 1
- Team 2
- Team 3

Games

Filter

Jokkue	O	V	JV	JH	H	TM	ME	P
Ilves Toronto	4	0	2	0	2	0		
Hokki White	4	0	2	0	2	0		
S-Keokko	4	0	2	0	2	0		
HIFK Challenger	4	0	2	0	2	0		
Discos	4	0	2	0	2	0		
VG-62 Ducks	4	0	2	0	2	0		
KJK	4	0	2	0	2	0		
HJK	4	0	2	0	2	0		

Played games

Date	Home	Location	Away
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Harkkahalli Vierasjoukkue
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Harkkahalli Vierasjoukkue
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Harkkahalli Vierasjoukkue
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Harkkahalli Vierasjoukkue
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Harkkahalli Vierasjoukkue
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Harkkahalli Vierasjoukkue
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Harkkahalli Vierasjoukkue

Upcoming matches

Date	Home	Location	Away
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Vastustaja Kilpahalli
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Vastustaja Kilpahalli
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Vastustaja Kilpahalli
2016-06-29 05:00 PM	Kotijoukkue	8 - 11	Vastustaja Kilpahalli

Games page

Feedback of the client

Untitled form - Google Forms

Responses cannot be edited

Project evaluation

Share your opinion about Olga's creative skills and vocational competence, which you were able to evaluate during her practical training period. Tick the box opposite the relevant answer, using the scale from 1 to 5.

Evaluate the overall design idea for HavuSport user interface

☐ 1

☐ 2

☐ 3

☐ 4

☒ 5

Evaluate Olga's creative attitude

☐ 1

☐ 2

☐ 3

☐ 4

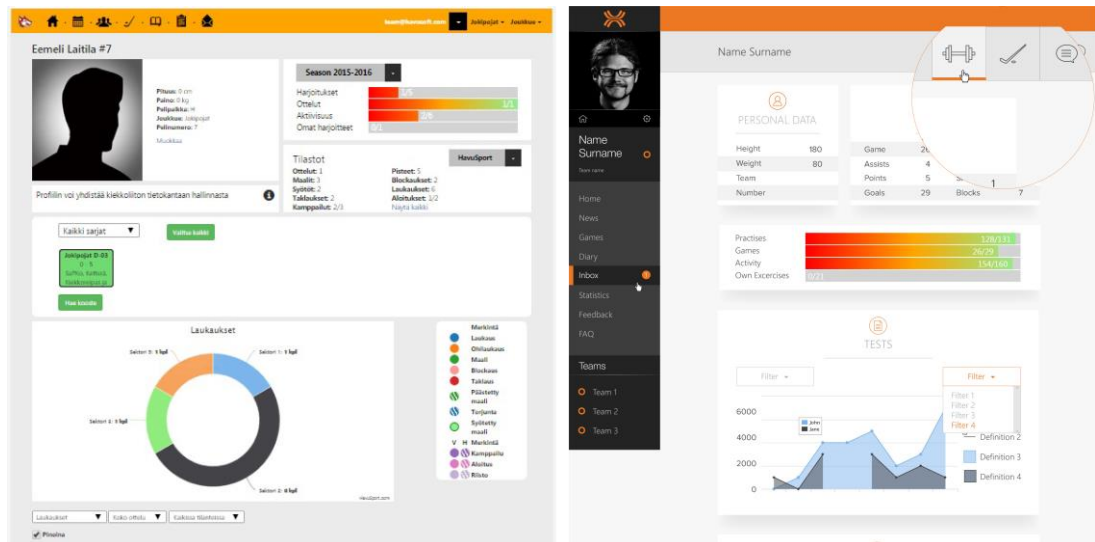
☒ 5

Questionnaire for the client

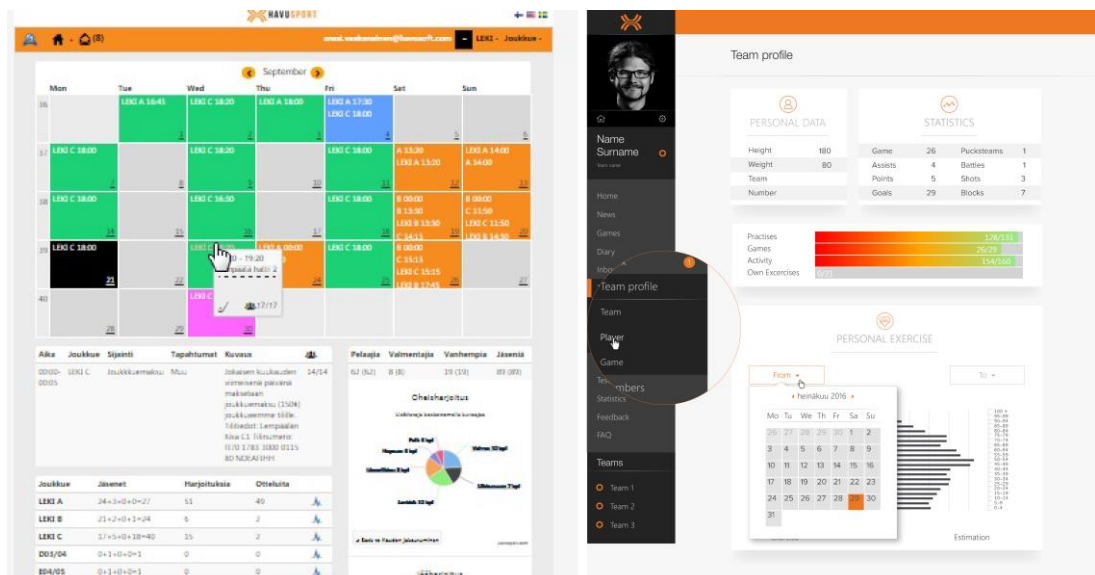
Untitled form - Google Forms

Evaluate Olga's graphic design skills☐ 1☐ 2☐ 3☐ 4☒ 5**Evaluate Olga's team commitment**☐ 1☐ 2☐ 3☐ 4☒ 5**Evaluate Olga's ability to follow the estimated timetable**☐ 1☐ 2☐ 3☐ 4☒ 5

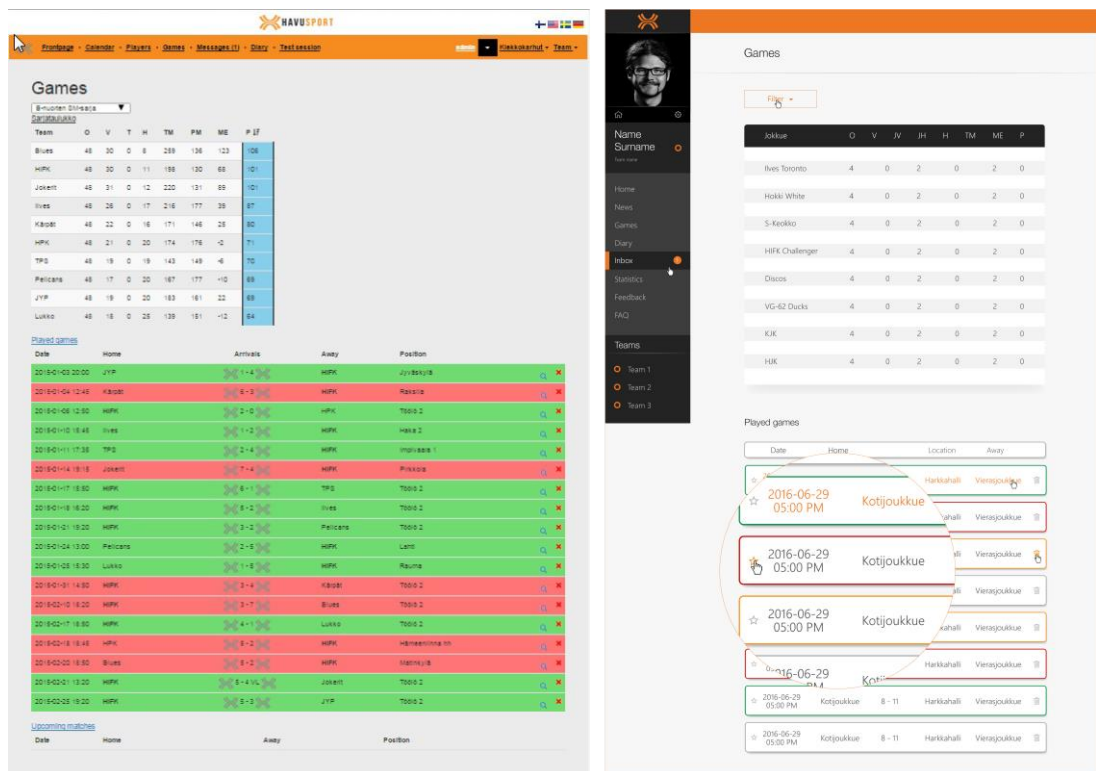
Novel features of the user interface design (old and new)



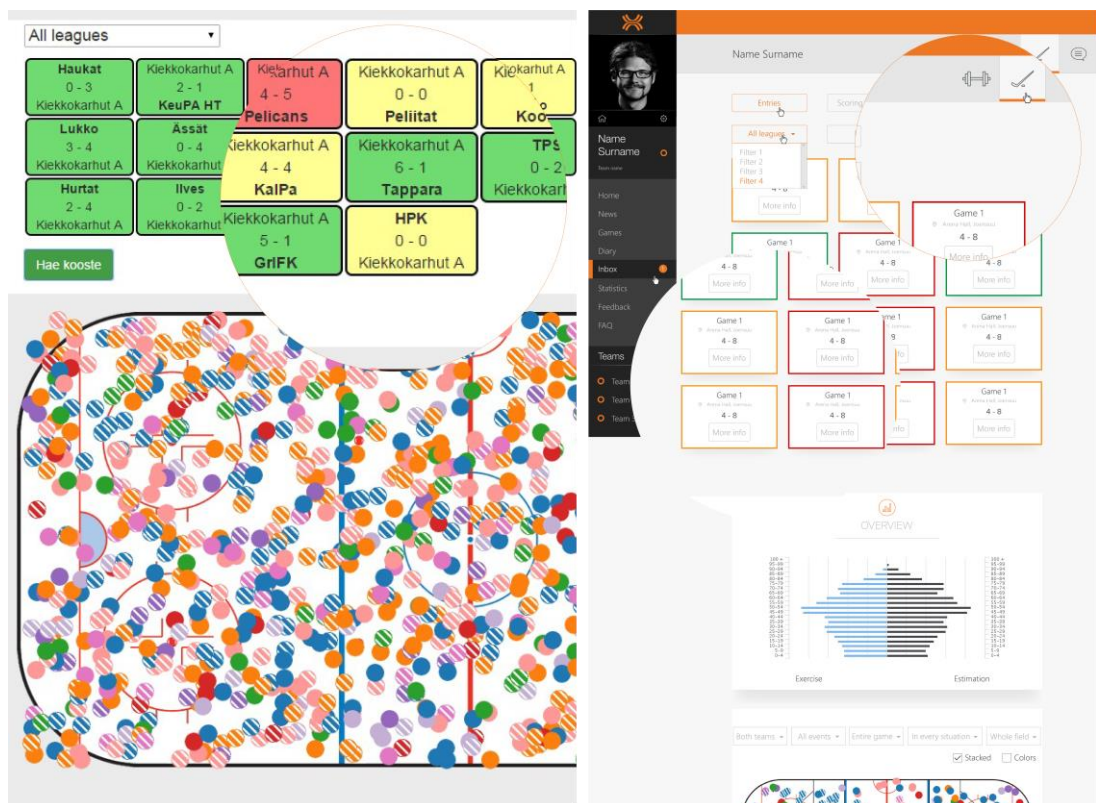
Player profile (subpages links)



Team profile (drop down menu feature)



Game profile 1 (tabs color scheme)



Game profile 2 (scores color scheme)

New event

League of the game

Filter

☐ We are the home team

Home team

Team

Away team

Away

Game day

heinäkuu 2016

2016-06-29

Mo	Tu	We	Th	Fr	Sa	Su
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Time

Des

De

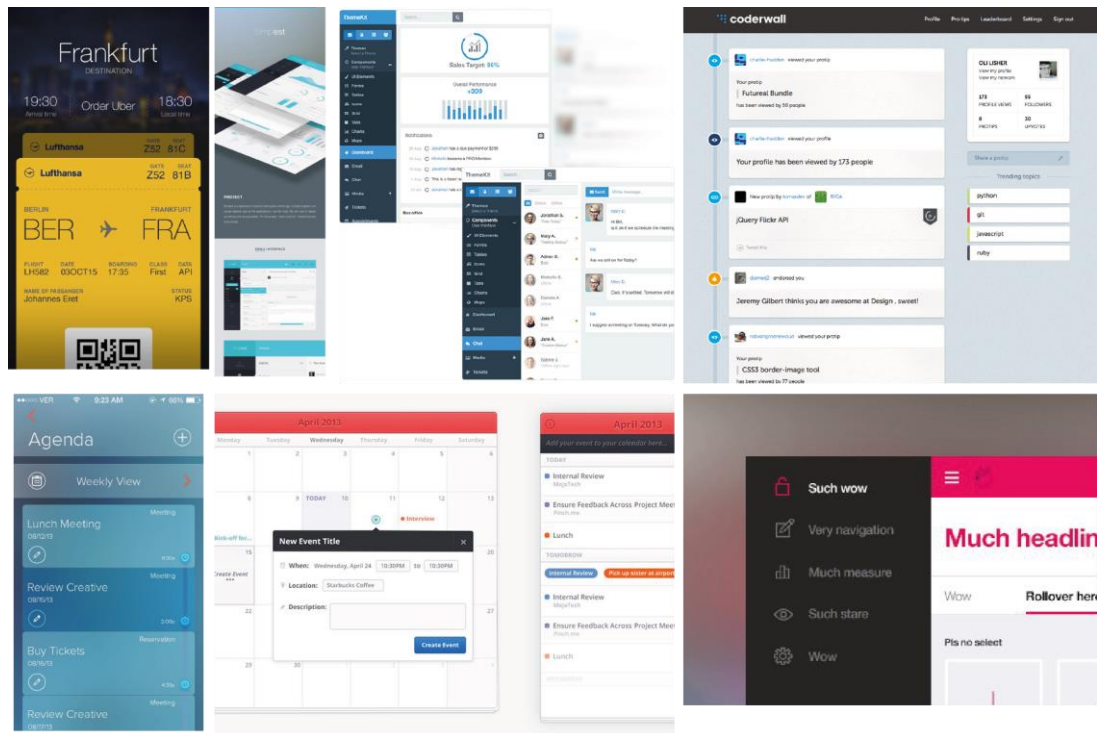
Vis

☐ Default activity

☐ Diary

New event (mini calendar popup window)

User interface design examples



User interface design examples