

Bachelor's thesis

Information Technology

2018

Maksim Starovoytov

# USER INTERFACE DESIGN AND USER EXPERIENCE IN A CORPORATE INTRANET WEBSITE REDESIGN



BACHELOR'S THESIS | ABSTRACT

TURKU UNIVERSITY OF APPLIED SCIENCES

Information Technology

2018 | 48

Maksim Starovoytov

# USER INTERFACE DESIGN AND USER EXPERIENCE IN A CORPORATE INTRANET WEBSITE REDESIGN

The purpose of this thesis was to study and develop a user interface and user experience redesign for the intranet of a corporate website.

Theoretical information is provided in order to fully understand an importance of web design and redesign particularly, and modern tools used in this field are reviewed.

The study then moves into more detailed explanation of user experience and user interface design concepts, focusing on human perception of user interfaces by providing theoretical information on colours, typography, and layouts.

The case study, based on a project of corporate intranet website redesign is analysed and problem-solving methods are developed. Web 2.0 concepts were utilized during the developing of website design, while responsive design approach was implemented. A survey was also conducted during the study, in order to determine the aspects of redesign most demanded by users.

The result of the study is a user interface and user experience redesign which was accepted by the developing team and representative of the company and set as a basis for the further development of the website.

## KEYWORDS:

web design, website, redesign, user interface, user experience, web 2.0

# CONTENT

<b>LIST OF ABBREVIATIONS</b>	<b>5</b>
<b>1 INTRODUCTION</b>	<b>6</b>
<b>2 THEORY</b>	<b>7</b>
2.1 History of design	7
2.2 Web design	7
2.3 Redesign and its importance	8
2.4 Typography in web design	10
2.5 Colours	12
2.6 The role of optimization for mobile devices and tablets	14
2.7 Web 2.0	15
2.8 Website structure	17
2.9 Examples of well and poorly structured websites	18
<b>3 CASE STUDY</b>	<b>22</b>
3.1 Team Roles and Technical Specification	22
3.1.1 Briefing	22
3.1.2 Survey and raised issues	23
3.2 Project stages	24
3.2.1 Prototyping	24
3.2.2 Designing	25
3.2.3 HTML Layout	25
3.2.4 Coding	26
3.2.5 Content	26
3.2.6 Internal SEO optimiztaion	27
3.2.7 External SEO optimization	27
3.2.8 Testing	27
3.2.9 Delivery of the project	28
<b>4 DESIGN ANALISYS AND REDESIGN PROCESS</b>	<b>29</b>
4.1 Analysing problems of previous design of the website	29
4.2 What tools and methods can help	31
4.3 User Interface designing process	33
4.3.1 Colours	33

4.3.2 Typography	34
4.3.3 Designing User Interface for desktop devices	35
4.3.4 Designing User Interface for mobile devices	41
<b>5 RESULTS AND CONCLUSION</b>	<b>45</b>
<b>REFERENCES</b>	<b>46</b>

## FIGURES

Figure 1. RGB colour circle (Wikipedia).	13
Figure 2. Kiasma Museum website.	19
Figure 3. Flow Festival website.	20
Figure 4. Muusikoiden.net website.	21
Figure 5. The survey for staff members.	23
Figure 6. Results of the conducted survey.	24
Figure 7. Prototyping of website layout and main elements in Sketch.	25
Figure 8. caniuse.com.	26
Figure 9. Xcode iOS Simulator was used for iOS devices usability testing.	28
Figure 10. Previous interface of the website (Applications page).	29
Figure 11. Current interface of the website (Messages Inbox page).	30
Figure 12. Current interface of the website (Software Installation Requests page).	30
Figure 13. Corporate logo used prior to 2015.	33
Figure 14. Currently used corporate logo.	33
Figure 15. Helvetica font (Jim Hood).	35
Figure 16. Georgia font.	35
Figure 17. News page.	36
Figure 18. Holiday Vacation Applications page.	37
Figure 19. Holiday Vacation Applications Add page.	38
Figure 20. Technical Support and Software Installation Requests page.	39
Figure 21. Address Book page.	40
Figure 22. Mail Inbox page.	40
Figure 23. News page designed for mobile devices.	41
Figure 24. Holiday Vacation Applications Add page designed for mobile devices.	42
Figure 25. Holiday Vacation Applications List and Technical Support and Software Installation Requests pages designed for mobile devices.	43
Figure 26. Mail Inbox and Address Book pages designed for mobile devices.	44

## **LIST OF ABBREVIATIONS**

CMS	Content Management System
UX	User Experience
UI	User Interface
HTML	HyperText Markup Language
SEO	Search Engine Optimization
CRM	Customer Relationship Management

# 1 INTRODUCTION

This thesis consists of the following parts: introduction, theoretical, practical, analytical parts, followed by results and conclusion.

This thesis begins with a short digression into the history of design, where different interpretations of the definition of the word “design” since its initial inception are given.

Next, the aspects and components of the design are analysed. Eventually, the conclusion is made that the role of design is not only in its artistic aspect, but also in solving various social and technical problems of the functioning of production and consumption, by rationally creating its visual and functional properties.

Thesis covers topics of colouring, typography, importance of optimization for mobile devices and tablets, website structure and relevance of Web 2.0.

The practical part describes the stages of project and the process of web interface redesign. A survey and the analysis of the received information were also conducted.

The objective of this thesis is to analyse the theory of design and web design and to create a new interface for the corporate Intranet website. During the development of the redesign, obtained theoretical information is used and the conclusion about how user-friendly interface is important for optimizing the work of employees on enterprise is given.

## 2 THEORY

### 2.1 History of design

The word “design” began to be used in the XVI century throughout Europe. In the Oxford Dictionary for 1588, we can find the following definition: “A plan or scheme for something that is to be implemented or is the first draft of a future work of art” [1].

The Journal of Design magazine was published in 1849 in England, whose title used the term “design”. This magazine was founded by Sir Henry Cole, who was a statesman and a designer. The publication of the magazine has given a new interpretation of the definition of the term: “Design has a dual nature. Firstly - strict correspondence to the purpose of the created thing. Secondly - decoration or ornamentation of this useful structure. The word «design» for many is associated most often with the second, with an independent ornament, opposed to a useful function, rather than with the unity of both sides” [2].

The following definition was adopted by Herbert Simon in 1969: “Design is devising courses of action aimed at changing existing situations into preferred ones.” [3].

The modern idea of design in the civilized world is considered much broader than just graphic or industrial design. Indeed, any field of creative activity, whether it be art, construction or politics, are confronted with the concept of design. Nowadays, it becomes clear that the term “design” is much more extensive than simple visualization. It is important to understand that design relates not only to artistic design, it affects the industry and plays an important role in solving various social and technical problems of the functioning of production, consumption, the existence of people in the object environment, through the rational construction of its visual and functional properties, as well as timely adaptation.

Design as a creative process can be divided to [4]:

- Artistic design - the creation of the objective world purely from the point of view of aesthetics of perception (external manifestations of form);
- Technical design - the consideration of all aspects, such as constructiveness, functionality, disposal.

### 2.2 Web design

Work in the web design area is inseparably linked with the creation of design, so it is important to take all aspects and rules of design into account, as functional and aesthetics components are equally crucial. A web designer

should not forget about the basic rules for placing and displaying all elements of the resource page, as well as being able to concisely write them into the overall concept of the project.

Web design is a branch in web development industry and a part of graphic design which aims to design user interfaces for websites or web applications. Web designers develop the structure of web pages, think through the most convenient solutions for submitting information, and also engage in the design of the web project. One of the tasks of web design of any website is to create the visitor's confidence in a company, and quality of offered products and services, while preserving the corporate identity, corporate culture, and positioning the company on the market. The tasks of web designer include searching and developing of options for interface adaptation, that would make website interface intuitively easy and user-friendly [5].

The design of the website and its construction itself combines various nuances that must be taken into account when developing. First of all, this is the presence of convenient navigation and transparency of the structure of the website. In this case, it is necessary to take into account the artistic value and refinement of graphic design, as well as optimization of the future website to search engines.

Web design has different goals:

- formation of a positive perception of the advertised product image;
- simplicity and clarity of the website structure;
- intuitive user interface;
- convenience of the navigation system.

Achieving these goals allows the fulfilment of economic goals of the company. In this regard, the creation of websites has acquired a new meaning. Sometimes, web design impresses with its ability to translate abstract ideas into real life experience, and such works truly deserve to be referred as the modern art form. Along with the interior design exhibitions, web design exhibitions began to appear [6].

### 2.3 Redesign and its importance

Redesign is a plan for making changes to the structure and functions of website in order to better serve the purpose of the original design, or to serve purposes different from those set in the original design. It is difficult to underestimate such procedure, as the timely redesign of the website. The Internet is changing rapidly. What seemed convenient or aesthetically attractive to users several years ago, could be considered a tasteless antiquity nowadays, which, in addition, could be not as familiar and convenient for newer visitors.

In order for a business organization to successfully exist in the market of goods or services and bring profit to its owners, it is necessary to constantly keep it up to date: repair the premises, upgrade the equipment, improve the quality of service. Redesign of the website is not the last aspect to consider in this list. It is necessary to regularly update and monitor the uniqueness of the published materials. It can be both a small cosmetic redesign, and a major redesign, affecting the main functionality [7].

When is the website redesign needed?

- When a website is hard to find in search engines, there are not many visitors or no visitors at all. This means that website is outdated and needs a redesign with a revision of the thematic focus of the resource or of the list of provided services.
- When the website contains errors, links do not work or images are not loading - graphics redesign and page linking are needed.
- When website navigation is complicated, software modules are difficult to maintain, there are difficulties in working with the database – there is a need of navigation redesign.
- When basic information about the company has changed: its name, logo, or the corporate identity has changed in general - that means, it is necessary to conduct image redesign of the website.
- When the subject matter or its target audience of the website has changed. Web design primarily takes into account the preferences of the target audience.
- Finally, when the website can become morally obsolete: its optimal service life does not exceed 4 to 5 years, because computer technologies develop amazingly fast, and a website made more than 5 years ago simply does not attract attention and looks outdated.

A website is also a business tool. To promote the website web designer needs to periodically redesign, and upgrade the website. Modernization of the website can be considered as a special case of redesign, because the expansion of the functionality and informative content of the website is achieved for an already developed website.

The concepts of "redesign" and "modernization" are often identified. Redesign can mean changing the graphics or layout of the website, and upgrading involves changing the functionality of the website, updating information, adding new sections. Modernization and redesign of the website is carried out by web programmers, but sometimes the change of the website's software modules displaces the sections of web pages, then web designers are connected in order to develop the optimal design of the website [7].

The modernization and redesign of the website include [8]:

- change the structure of the website;
- optimization of website modules;

- creation and filling of information sections;
- implementation of a content management system (CMS);
- simplification of website navigation;
- simplification of the interface for buying and viewing goods.

Optimization of website modules is especially important for high-quality website promotion, so as the popularity of the website grows, the number of visitors also increases, and so does the load on the server. Processing several lines of non-optimized code with a small website attendance may not be noticeable, but when the attendance is growing, the optimization of the modules is just the necessary stage of modernization [8].

## 2.4 Typography in web design

Typography is the strongest tool for expressing messages in web design. It is a set of laws, rules and standards for text processing, based on the study of the perception of the set by the reader. Knowledge and understanding of typography make the text a tool for composing the composition, make it alive, give the character and ability to convey the idea not only with the help of content, but also graphically. Typography makes it possible to combine text and visual components, which will help to reach the visitor. Correct use of typography will help to avoid typical mistakes made by designers when creating the next website. We will try to understand what we are doing wrong, and how to avoid mistakes in the future [9].

The font family is a set of several fonts that have the stylistic unity of the outline. It consists of a set of symbols. Often this concept is confused with the concept of "font", although the font is a certain set of symbols, while the font family defines a common set of fonts. Serif and sans-serif are the two main categories of font families. Any of the fonts can be used in projects, as there are no unambiguous prohibitions. A web designer needs to look at the situation, what kind of project they are doing and what is more relevant to them.

Serif fonts, holds a line, and accordingly improves readability. Often serif fonts create a sense of professionalism and credibility of the information provided, express respect, emphasize stability and conservatism.

Sans-serif fonts accentuate rationality, adherence to style, youth and modernity. They help to create space between letters, and also separate one character from another.

Cap height is the height of the letter, which includes the lower and upper detail elements. It is measured in typographic items (denoted as pt).

Leading is the term for line spacing, distance between baselines of adjacent rows.

Kerning is the distance between letters. The main essence of kerning is the selection of different intervals between different pairs of specific letters to increase readability [9].

Common errors include [10]:

- Using a large number of fonts.  
It is advisable to use no more than three fonts. It can be fonts from one font family or from different families. For example, the Arial font family contains a fairly large number of different fonts. It is easy to choose three of them. Bold or Light font can be used for headings, Bold for buttons and Light can be used for the regular text. Thus, the whole webpage can be properly designed using one font family. Naturally, all of these details depend on the theme of the website and the idea that client plan to put into design.
- Ignorance of the font size.  
The size of the text on the web should not be less than 12 pixels. The best choice is within 14-18 pixels for the main text so that the font is not too large and at the same time it is well readable. In addition, if the size of 16 pixels is chosen, it should remain exact 16 pixels on all pages of the website and not vary from section to section. This applies to the leading, it must be the same everywhere. The font size should be specified in whole numbers, without using decimal fractions. In Adobe Photoshop conversion of pt to pixels is needed.
- The length of the line is important.  
The length of the line of the text should not exceed 600 pixels (for standard displays, although in case of optimization for UHD or Retina displays all values should be multiplied by 2). This is the optimal size for a comfortable look from one line to the other. It is very difficult to read a very wide content part - often reader simply loses the line that they intended to pass after reading the long previous line. If it is still needed to stretch the text block to 1000 pixels or more in width, it is preferable to break the text into two or more columns. Another option is to make the line spacing slightly more than usual so as to visually separate the lines from each other more visually. It is important to not forget to separate the text with paragraphs, it will also help make it easy to read.
- Leading corresponds to the font size.  
The distance between the lines should almost always be larger than the font size. Except for headings. To achieve a balance between text and "air" the line spacing can be set at about 1,5 times the height of lowercase letters (or equal to 150% of the font size).

One of the simplest methods of checking the correctness of design is to make sure that from user's point of view, without touching the mouse, it is easy to

guess where the link is, and where not. Therefore, you need to think in advance how all links on the website will look. For example, all clickable items are the same colour (red) and not clickable are another (black).

Text sections are often aligned incorrectly - it is justified in width, aligned in the middle and aligned to the right. In all these cases, reading the text is inconvenient, and it looks visually unattractive. Alignment should be on the left in order to provide easier readability. The exception may be one or two short sentences, which are most likely subheadings for the main text.

Contrast is one of the main means of expressiveness in design. Consciously chosen large typography becomes an independent element, which does not require additional graphic design tools. A good example of contrast in colours, shapes and sizes of all objects.

Positive messages can be accompanied by light, airy and soft forms of fonts, while messages of some more conservative or corporate themes would be better accompanied by fonts with a stricter outline. With the help of typography, web designers emphasize the atmosphere and style of the page, and also create a fertile ground for emotional response [10].

## 2.5 Colours

Colour determines the user's emotional reaction to the website, even if the person does not clearly realize this. One of the main questions web design answers is what colours to use for the background and different elements of the website to evoke those or other sensations, and how to correctly combine colours in web design.

There are several tools that help to translate the colour theory into practice:

- Adobe Color CC (previously marketed as Adobe Kuler). One of the most reliable tools in choosing colours [11].
- Paletton. If a simple tool for the fastest colour selection is needed, the Paletton is perfect choice [12].
- Flat UI Color Picker. A great tool for choosing the colour of the user interface [13].

The colour circle (Figure 1) is an irreplaceable tool not only for designers but also for anyone involved in a process of creation of visual object or content. Isaac Newton was the first to investigate the properties of colour. Based on his work on the Theory of Light and Colors, Isaac Newton has suggested that the white is the only colour objectively existing in nature, and that it could be divided to seven components. Red, orange, yellow, green, blue, blue, purple are the primary colours that make up the rainbow. Newton described the model of the colour wheel by analogy of the musical model, dividing the circle into 7 parts, proportional to the musical tones [14].

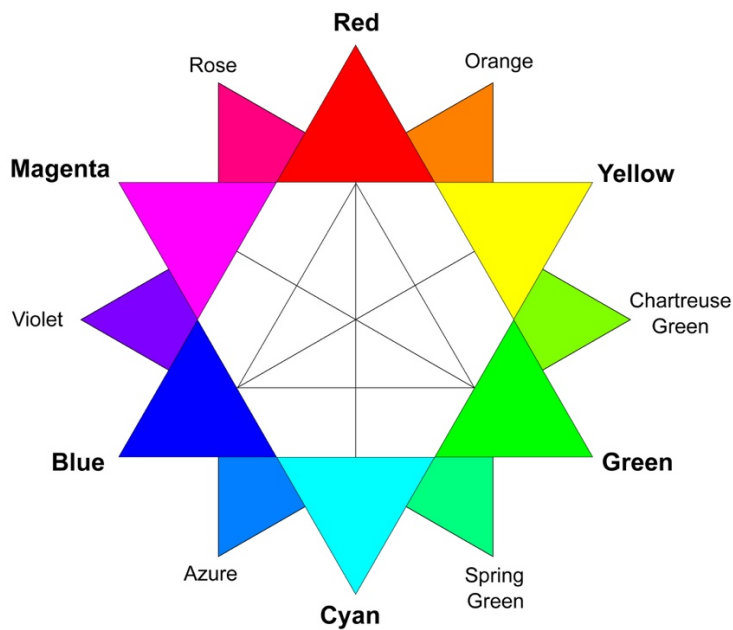


Figure 1. RGB colour circle (Wikipedia).

- **Primary colours.**  
Red, yellow and blue represent primary colours. It is impossible to get them by mixing other colours. Additional colours can be formed by combining these three colours.
- **Secondary Colours.**  
Also, orange, green and purple represent secondary colours. It is possible to get them by mixing red and yellow (resulting orange), yellow and blue (resulting green) and blue and red (resulting purple).
- **Tertiary colours.**  
Tertiary colours are achieved by mixing any main colour with any secondary colour.
- **Opponent colours.**  
Opponent colours are those colours located directly opposite each other on the colour wheel: red and green, blue and orange, purple and yellow. Such combinations, are used to highlight some elements on the website by creating contrast.
- **Similar colours.**  
Similar colours are the colours located next to each other on the colour wheel. Using such colour combinations causes a sense of comfort for visitors of the website.

The Colour Theory can be divided into three parts [15]:

- Contrast.  
Each shade has the opposite, which makes the greatest contrast with this colour. The colour wheel can be used in order to find such colour. It is necessary to select the colour on the opposite side of the circle.
- Addition.  
These colours do not always conflict with each other. Complementary colours emphasize each other, in the opposite to contrasting. In the colour circle, these colours go one after the other, for example, complementing the colours of purple - blue and pink.
- Resonance.  
Each colour causes a certain mood. Bright warm colours (red, orange, yellow) fill the person with energy, awaken them, and cold dark shades (green, blue, violet), on the contrary, relax and soothe.

For example, BBC News uses the red navigation bar to awaken the reader, to strengthen his agitated state. Given the specifics of the website - sensational news - red colour looks like an obvious solution [16].

The colour theory in web design is more than just decoration. Colour can change the perception of website and play a decisive role in business. There is a close interaction between colour and emotion. And, of course, any web designer wants to use this influence to create the right atmosphere for each website. It is important to remember that different cultures around the world perceive colours differently. When choosing a gamut for website, it is important to consider the fact that colour can have all kinds of meanings in different cultures.

Each website has a colour scheme in which the main colours are used to fill a larger space. The use of these colours affects the mind and mood of a person unconsciously. Therefore, it is important to choose them carefully. These are just the basics of colour theory, which can help in creating an impressive custom design, and there is no limit to how far website can be changed in terms of colours.

## 2.6 The role of optimization for mobile devices and tablets

Why is it important to optimize a website for mobile devices?

- 1) The number of purchases made from smartphones in the last 6 months [17]:
  - 0 purchases: 51%
  - 1-3 purchases: 26%

- 4-6 purchases: 11%
  - 7-9 purchases: 5%
  - 10-15 purchases: 2%
  - More than 15 purchases: 5%
- 2) Only 35% of companies have sites optimized for mobile devices and tablets [18].
  - 3) Companies with mobile websites have 3 times more chances to increase mobile conversion by 5% and more [19].
  - 4) The probability of buying from the tablet is 3 times higher than from a smartphone [19].
  - 5) 97% of mobile purchases are cancelled at the stage of the order because of the extra elements of the shopping cart interface on the mobile devices [20].
  - 6) 43% of consumers are unlikely to return to the mobile website which is slowly loading [21].
  - 7) 40% of buyers go to competitors' sites after an unsuccessful mobile shopping experience [21].
  - 8) 55% of purchases are made within one hour after the initial search for goods on the Internet from mobile devices [22].
  - 9) 73% of search requests from mobile devices lead to different actions and conversions [22].
  - 10) Corporate methods for website optimization for mobile devices [23]:
    - Adaptive design (on the client side): 46%
    - Development for finishing platforms: 41%
    - Percent creation with help HTML5: 33%
    - Percent adaptive design (server-side): 22%
    - Other methods: 2%
  - 11) 52% of tablet owners prefer to make purchases from them, rather than from computers [23].
  - 12) 72% of tablet owners purchase weekly [23].

## 2.7 Web 2.0

Web 2.0 is not a particular technology but rather a trend in the development of websites that includes the particular set of web design methods as well as

reconsidered approach to designing user experience. Such trend emerged as a consequence of the dot-com crisis occurred in 2000 [24].

The term Web 2.0 was initially used in a title of the conference carried out as a joint event by the O'Reilly Media and MediaLive in October 2004. The purpose of this conference was to develop a new way of user interaction with websites and Internet as a resource of information in general. It was suggested to develop and promote tools for user-created content and online communities such as blogs, social networks and wiki, which popularity has just started growing at the time of the conference. Although the main speakers were representatives of Microsoft, Google, AOL, Yahoo, Sony and many other key players of the industry. Therefore, expressed opinions and ideas was still mostly given by representatives of commercial corporations, not academic circles, which resulted in commercial purpose of the event [24].

Tim O'Reilly became the central figure of the Web 2.0 development, as he has formulated the concept of the Architecture of Participation in June 2004. This concept is based on voluntary intellectual contributions of participants. Open Source Programming and Openly Editable Content (Wikipedia in particular) models are present such approach in practice [25].

Pierre Omidyar, the founder of eBay, figuratively expressed the idea of voluntary participation: "We have technology, finally, that for the first time in human history allows people to really maintain rich connections with much larger numbers of people. It used to be, your connected group was really your immediate community, your neighborhood, your village, your tribe. The more we connect people, the more people know one another, the better the world will be. Everywhere, people are getting together and connecting. And using the Internet, they're disrupting whatever activities they're involved in. It's because it's a fundamental shift in power toward the bottom, toward the people as they organize themselves, and away from a small group of people who want to impose a policy top-down. That's really the promise of the technology, and we're seeing it in all these fields." [26].

Web 2.0 presents an opposite to its predecessor Web 1.0 which is often considered as the technology providing only an output of static HTML web pages. Next stage in the web design history was known as Web 1.5 which was considered as a technology providing the output of dynamic HTML web pages. Such approach allowed to dynamically update content of the page using tools for centralized editing. Web 2.0 approach utilises another set of tools, oriented to the socializing aspect of the Web. This approach allows to adapt website to each individual user, providing them with unique experience and tools for personal page editing and customization (such as Profile Photo upload or Personal Information on social networks or forums) [27].

## 2.8 Website structure

The structure of the website is its basis. Even at the stage of creating a website, web designer needs to take care of the convenient structuring of all information. Several types of structures are currently used by web designers, each of which has its advantages and disadvantages.

The simplest structure is linear. On a website with this type of structuring all the pages go in turn. This greatly complicates the visitor's search for information of interest, because before visitors find the page they need to flip through all content placed above it. Often, sites with this structure appear not attractive for visitors. The linear structure of the website is very primitive, and, despite its price availability, is not in demand by customers. The use of this type of structuring is justified only when it comes to a business card website with a couple of pages [28].

To structure information on small sites, a modified linear structure is often used. It differs from the linear structure as it has several branches from a certain page. This allows visitors to get to the page they are interested in more quickly. Although the shortcomings of this type of structure are obvious: there are few branches and the freedom of visitors is limited. Nevertheless, this method of structuring has an indisputable advantage, namely, it gives a unique opportunity to control the behaviour of users. For example, in an online store, administrator can send a visitor to the page with an advertising description of the product, then gives information about bonuses, various discounts, and only then allow access to the page with prices [28].

The most convenient are tree and lattice structures. The tree structure of the website has 'the stem' from which the branch-pages diverge. This structure allows visitors to quickly find information and not get lost on the website. Sometimes, for the structuring of a website, a lattice type of information arrangement is chosen. Visitors can find the right information instantly and from any page on a website with this structure, although there is a risk for visitor to get lost. Therefore, when choosing such structure, web designer must necessarily add an understandable website map [28].

Formation of a page of a website is made dynamically on the basis of the used page template, data output by components and static information posted on the page. Creation of website templates and placement of components on them is carried out by website developers. However, web designer needs to have a basic understanding of how the page of the website is organized. For all pages of the website, the same external template is usually used.

Structurally the design is divided into three parts:

- Top - header. Includes the upper and left part of the design with static information (logo, slogan, etc.), the top horizontal menu and the left

menu (if they are in the design). It can include information dynamic materials.



- **Main working area.** The working area of the page in which the actual information materials of the website are posted. As the main workspace, web designer can connect both a physical file and a dynamic code that is created by the system based on complex components. If it is decided to connect a physical file as the main workspace, this page is called static. If dynamic code is connected, then this page is called dynamic.
- **Lower - footer.** Includes static information (contact information, information about the author and owner of the website, etc.), the bottom horizontal menu and the right menu (if they are in the design). Can include information materials.


These three parts can occupy different areas, have different shapes, but they also keep their order. The upper and lower parts of the design are formed on the basis of the website design template, information displayed in these areas is determined by the parameters of the website template. When it comes to editing pages of a website, most of them mean changing the contents of the main workspace. Any information can be placed here: text, news list, product catalogue, voting form. Also, in the website template, additional areas can be provided, in which any information can also be placed. The included areas can be placed at both the top and bottom of the page. Thanks to the correct layout of the sections on the page, it is easier to maintain the website for its developers in the future. With the competent distribution of information on the page, it is easier to move around the website and search for information of interest to website visitors [29].

## 2.9 Examples of well and poorly structured websites

One of the examples of well-structured website is the official website of Kiasma Museum in Helsinki (Figure 2). It utilizes large clear fonts and has links to any page of the website in the top menu section of the page. Key information such as opening times, ticket prices and the address are accessible from the front page so visitors do not need to search other pages for this.


**kiasma**  
FINNISH NATIONAL GALLERY


Exhibitions Performances & Events Plan Your Visit Collections About Kiasma Support Us  EN 




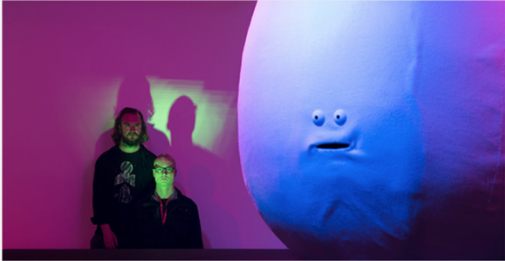
**Grayson Perry**  
13.04.2018 - 02.09.2018

[Read more](#)


 Tue 10–17  
Wed–Fri 10–20.30  
Sat 10–18  
Sun 10–17  
Mon closed  
[Special opening hours >](#)

 Tickets 14/12 €  
Under 18 year-olds 0 €  
Free admission on the first Friday  
of the month  
[Discounts >](#)

 Museum of Contemporary Art Kiasma  
Mannerheiminaukio 2,  
FIN-00100  
Helsinki, Finland  
[Accessibility >](#)



**The Aalto Natives**  
EXHIBITION  
16.03.2018 - 09.09.2018  
The Aalto Natives showcases artist duo Erka Nissinen and Nathaniel Mellors who represented Finland at the 2017 Venice Biennale.



**Vladislav Mamyshev-Monroe**  
EXHIBITION  
09.02.2018 - 29.07.2018  
In his pictures, Mamyshev-Monroe often assumes the role of some great and tragic historical figure.

Figure 2. Kiasma Museum website.

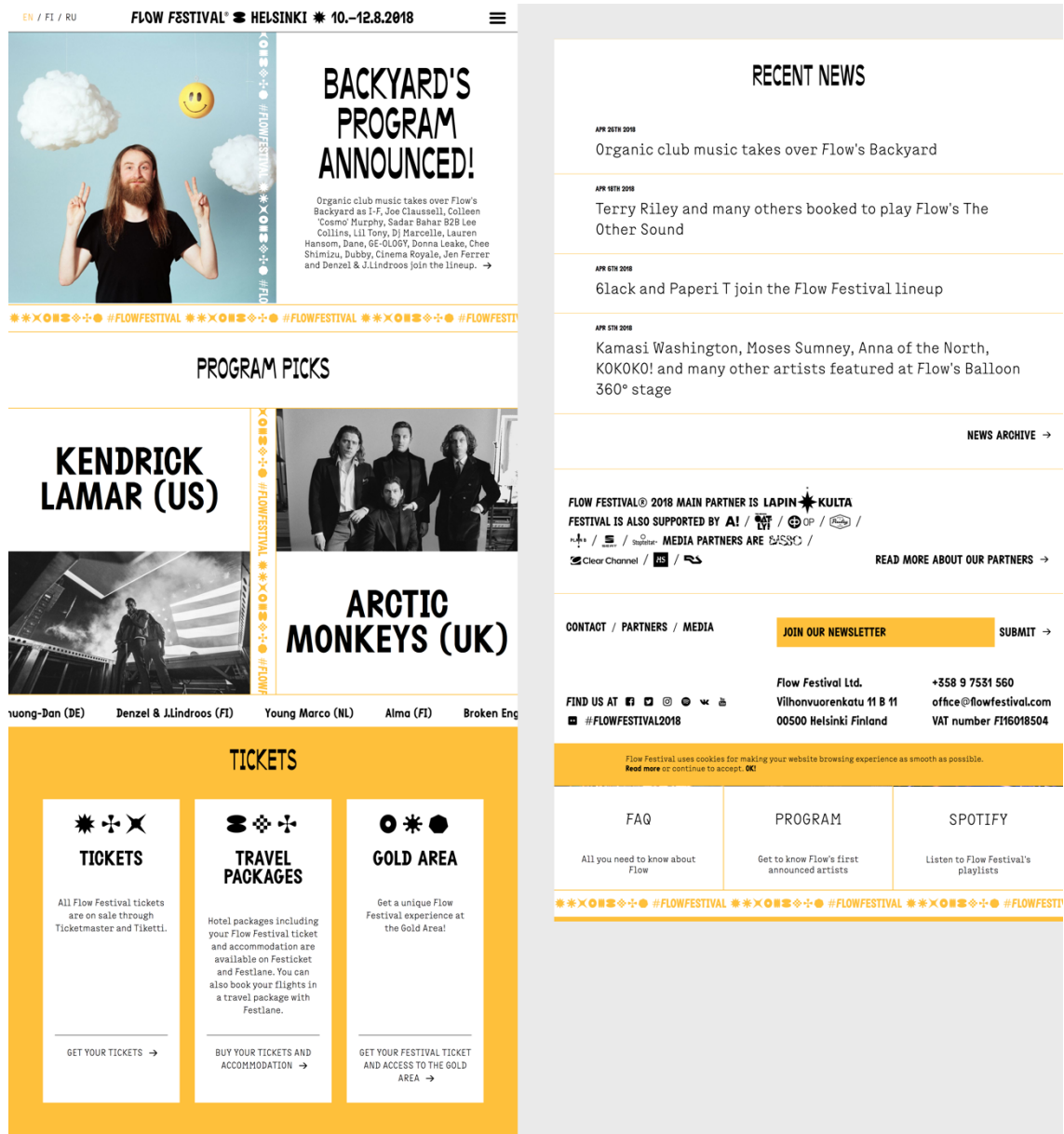


Figure 3. Flow Festival website.


Another example of well-designed website is official website of Flow Music Festival (Figure 3). Another element worth to pay attention to is web designer's work with fonts. Despite the large number of used font families, the used ones are uniquely designed and representing the unique visual identity of this event.

**Muusikoiden.net**  
27. HUHTIKUUTA 2018 v3.5

**UUTISET**  
KESKUSTELU  
HAASTATTELUT  
WANTED  
TORI  
GALLUP  
TOP-LISTAT  
KEIKAT  
ARTIKKELIT  
GALLERIA  
DEMOSTUDIO  
LEVYLISTA  
LINKKIHAKEMISTO  
HUONEET  
JÄSENET  
KIRJAUDU SISÄÄN  
OMA SIVU  
PIKAVIESTIT  
REKISTERÖIDY  
ONLINE  
OPERAATIO: LIVE  
TAPAAMISET  
HAKU  
MEDIAKORTTI  
PALAUTE  
INFO


**MUUSIKOIDEN.NET**  
Muusikoiden.net on palvelu, joka on suunnattu niin musiikin ammattilaisille, harrastelijoille kuin kuluttajillekin. Sivujen tarkoituksena on luoda keskus, jossa musiikista kiinnostuneet voivat kohdata toisensa, sekä tarjota monipuolisia palveluja internetin tarjoamien mahdollisuuksien mukaan.  
Tervetuloa mukaan!

**UUTISET »**  
27.04.2018 HAASTATTELUSSA RED CRICKETS



Muusikoiden.netin haastattelussa Turkulainen vaihtoehtorock-yhtye Red Crickets, joka on juuri signattu australialaiselle After People Recordsille. Yhtye on tänään julkaissut sinkun sekä videon nimeltä Flesh, ja se kertoo väkivaltaisesta parisuhteesta ja siitä eroonpääsemisen vaikeudesta.  
[Lue lisää »](#)

29.03.2018 LÄHES LOPPUUNNYTY RUISROCK JULKISTI UUSIA ARTISTEJA - MUKANA RAP-DUO RAE SREMMURD



Ruisrockin ohjelma täydentyy viidellä uudella nimellä. Yhdysvaltalaisveljesten Swae Leen ja Slim Jxmmiin muodostama hiphop-duo Rae Sremmurd nousee festivaalin lavalle perjantaina 6. heinäkuuta. Kovassa nosteessa oleva yhtye on julkaissut keväällä singlejä odotetulta kolmannelta albumiltaan, jonka yhteydessä kumpikin artisti julkaisee myös soololevynsä.

**JÄSENET »**  
Käyttäjätunnus:   
Salasana:  [» Kirjaudu](#)  
 Kirjaudu automaattisesti ulos kun selain suljetaan.  
Jos sinulla ei ole vielä käyttäjätunnusta rekisteröidy jäseneksi.  
Jos olet unohtanut salasanasasi tilaa itsellesi uusi.

**Maihinnousu.net**  
MUUSIKOIDEN.NETIN MUSIIKKIPALVELIN  
**Muusikoiden.net TV**

**KEIKAT »**  
27.04.2018 Astralton Hanko  
27.04.2018 Blind channel Kuopio  
27.04.2018 Ctrial Seinäjoki  
27.04.2018 Doogie White's White Noise Pietarsaari  
27.04.2018 Ehkä Espoo  
27.04.2018 Elifantree Espoo  
27.04.2018 Everwave Kuopio  
27.04.2018 Fumble Helsinki  
27.04.2018 Iida Umpikuja Espoo  
27.04.2018 In The Mood Joensuu  
27.04.2018 Infected Priest Tampere  
27.04.2018 Inkivisorit Jyväskylä  
27.04.2018 Jani Juhola & Jarze Lemmetti Lempäälä  
27.04.2018 Joni Valkeajarvi Tampere  
27.04.2018 Kari Cardo Helsinki  
27.04.2018 Katupöytä Kuopio  
27.04.2018 Kormus Valkkavökö  
27.04.2018 KrashKarma (US) Helsinki  
27.04.2018 Lifelong Hangover Helsinki  
27.04.2018 Lähden Aika Hyvinkää  
27.04.2018 Oceanhoarse Jyväskylä  
27.04.2018 Pinavikko Espoo  
27.04.2018 PRC Helsinki  
27.04.2018 Rohey (NO) Espoo  
27.04.2018 Roots of south Helsinki  
27.04.2018 Strong Espoo  
27.04.2018 Telos (DK) Hyvinkää  
27.04.2018 The Shithouse Poets Helsinki  
27.04.2018 Tomi Kettunen ja Lassi Kouvo Helsinki  
27.04.2018 Tomi Paldanius Lieksa  
27.04.2018 Tyrantti Raasepori  
27.04.2018 Veresliha Raasepori  
27.04.2018 WOES (DK) Hyvinkää

Muista lisätä myös omat keikkasi Muusikoiden.netin ilmaiseen keikkakalenteriin. [Lue lisää.](#)  
Katso myös keikat-postituslistaa.

Figure 4. Muusikoiden.net website.

Music related discussions forum called Muusikoiden can represent an example of visually outdated website design (Figure 4). Its side menu bar has too many elements which confuses the visitor and prevents them from positive user experience. Links, menus and buttons are presented in different text styles which additionally confuses visitor even more.

## 3 CASE STUDY

### 3.1 Team Roles and Technical Specification

Several specialists were involved in the project. Project manager was responsible for drafting the technical specification and communication with a company representative. Together with the web designer he participated in the development of UX design and its discussion with the representative. Project manager plays a key role in the project, since an improperly compiled technical specialization or misunderstandings in interaction with the customer can ruin the entire process and leave the remaining members of the team without any upcoming task.

SEO specialist was responsible for the implementation of the semantic kernel at the stage of prototyping and subsequent search engine optimization. At that stage, the content manager also worked on text to fill the website. Once the prototype of UX design was approved by the project manager, web designer (responsible for creating a visual component of the website) was involved in the work. HTML developer was responsible for front-end development such as moving a design in an HTML table, adding CSS styles and JavaScript animations and effects. Back-end developer (programmer) was responsible for the functional part of the website, which combined with HTML layout creates a working version of the website.

It is convenient to use CRM-software for communication within the project. Asana was used throughout this project by developer team members. This tool is indispensable in case any of the project participants work remotely.

Prior to the delivery of the project it is necessary to conduct testing. A separate specialist, the tester, was responsible for this. It is highly desirable for a tester to not be involved in the front-end and back-end development, because he must maintain a fresh independent view of the design process and to test the final product from the user's point of view.

#### 3.1.1 Briefing

A convenient way to conduct a briefing is to use such tool as Google Forms. This is convenient if personal meeting with the customer is difficult (for example, when working remotely). It is also a convenient option for clarifying details, if frequent meetings are also hampered. For the brief, it is preferred to have templates of technical documentation and also templates of necessary financial documents and contracts. This will speed up the start of the development and create positive experience for the client. Permissible number of edits and customer's requirements for the final product are also discussed during the briefing, as well as timing of the submission of materials (preferably the full project schedule and the approved project manager) and, optionally,

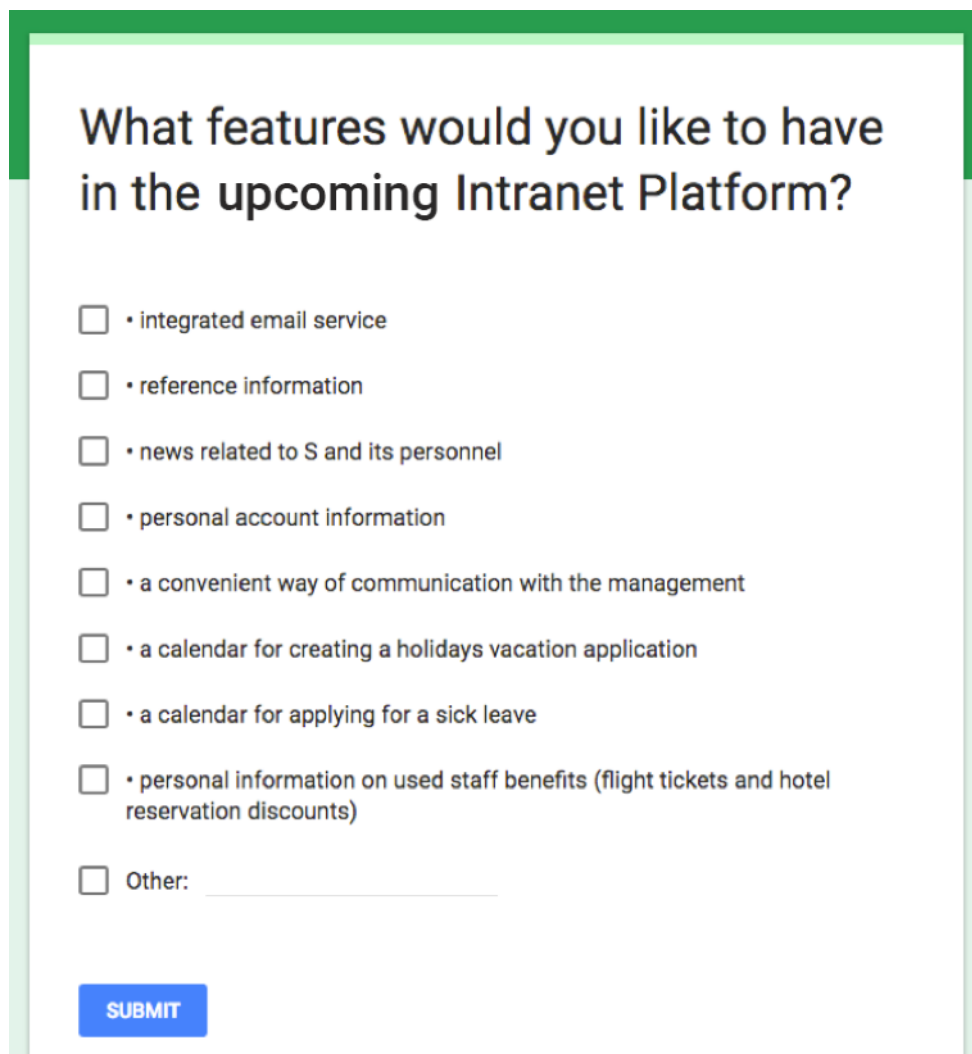
presentations and technical support arrangements. During this project, presentation of currently used corporate style were one of the main references for the redesign.

It was decided to conduct a staff survey in order to collect and analyse feedback, identify problems related to UX design and formulate main aspects of the upcoming work.

### 3.1.2 Survey and raised issues

After the main goals and features of future service were defined, the work on UX design and User Interface structure had started.

A survey for staff members was compiled, asking what kind of features they would like to change in the updated intranet platform (Figure 5). Additionally, the survey included a fill-in blank space for an additional suggestions and feedback.



The image shows a survey form with a green border. The title is "What features would you like to have in the upcoming Intranet Platform?". Below the title is a list of features, each with a checkbox and a bullet point. The features are: "integrated email service", "reference information", "news related to S and its personnel", "personal account information", "a convenient way of communication with the management", "a calendar for creating a holidays vacation application", "a calendar for applying for a sick leave", and "personal information on used staff benefits (flight tickets and hotel reservation discounts)". There is also an "Other:" checkbox followed by a blank line for additional suggestions. At the bottom left of the form is a blue "SUBMIT" button.

Figure 5. The survey for staff members.

As we can see the most sought-after options are those providing an access to personal information and personal enquiries. It was decided to make either “personal account information” or “news” a start page of the intranet (Figure 6).

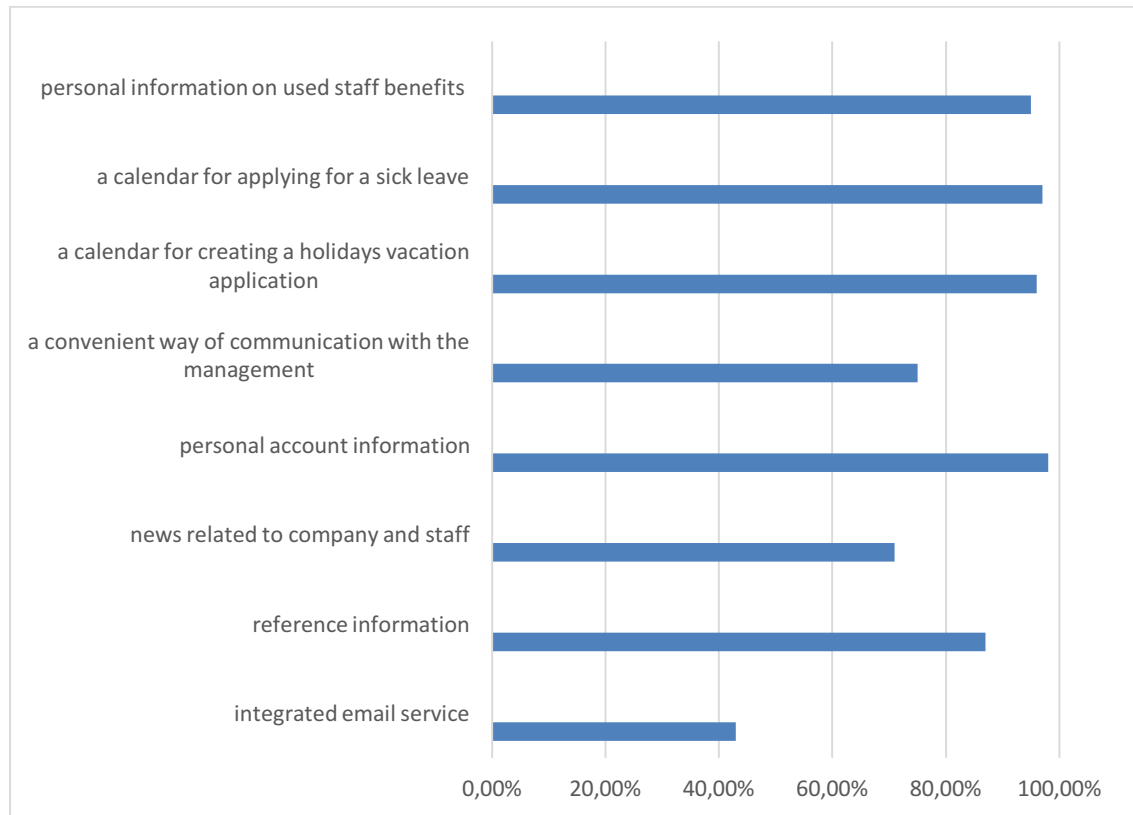


Figure 6. Results of the conducted survey.

## 3.2 Project stages

### 3.2.1 Prototyping

It is necessary to analyse examples of websites favoured by client, results of research or websites of company's competitors prior to start of prototyping. This project was a redesign of existing website, and it was required to correlate with existing corporate identity. Therefore, the main source of information was the survey and analysis of the existing design.

Using tools such as Sketch or Axure RP helps to significantly speed up the process of creating a prototype and developing a UX design (Figure 7). These tools provide a set of templates for prototyping. Sometimes, the key elements of the website are highlighted in prototype colour, for easier navigation for the customer, when discussing and approving the prototype. After the approval of the prototype, the process of design starts.

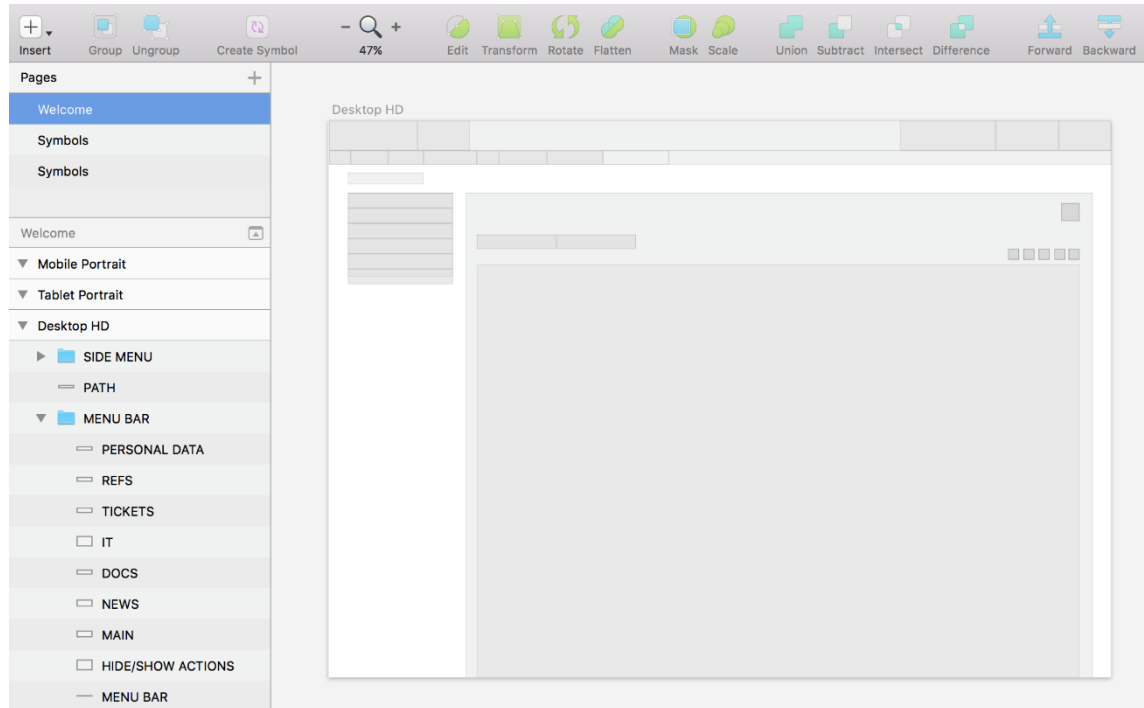


Figure 7. Prototyping of website layout and main elements in Sketch.

### 3.2.2 Designing

Technical specification for designer should include: general requirements for handled files, fonts as well as timetable of deadlines. Usually, providing client with high quality design that accurately follows documented technical specification is more important than trying to impress them with complex design.

Detailed process of designing is documented in Chapter 4.

### 3.2.3 HTML Layout

Approved design is sent to HTML developer for further implementation into the HTML code of layout. Local testing server is a fast and easy way to test the developing layout on the go.

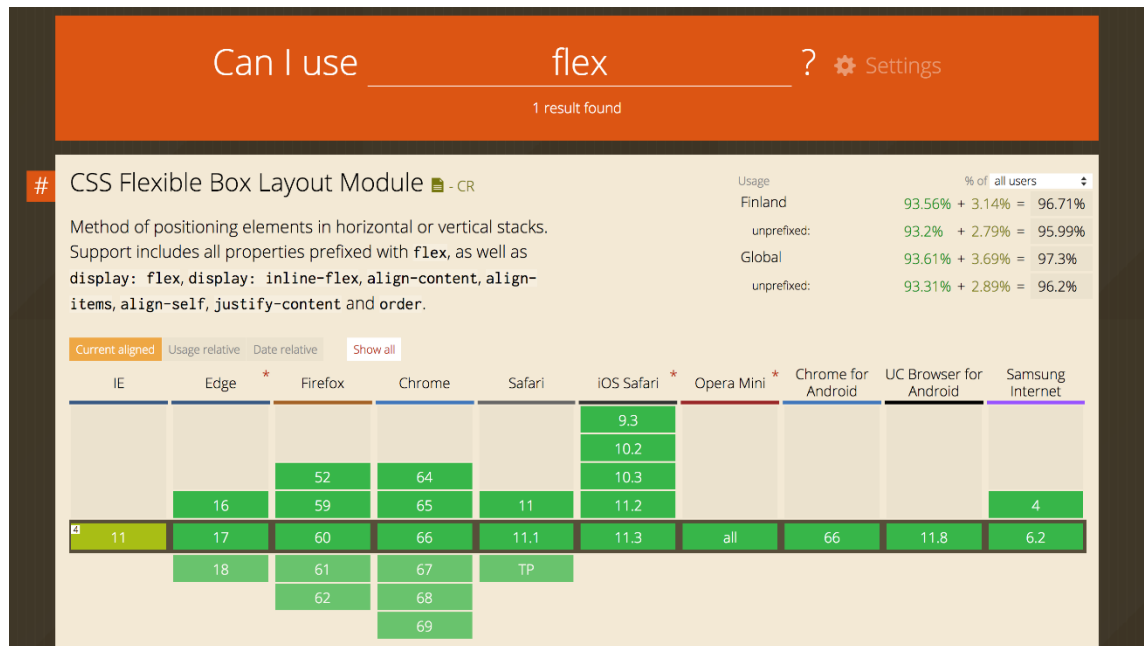


Figure 8. caniuse.com.

Another convenient tool for identifying technical capabilities of the layout is caniuse.com (Figure 8). This service helps to determine the features in the display of plug-ins and various layout layout elements in different browsers and platforms.

### 3.2.4 Coding

Efficient project timing requires simultaneous work on different parts of the project. Therefore, while HTML developer works on layout of the website, coding can also be started.

At this stage programmer can link domain to a hosting service, install and set up CMS, 404-page and create website logical structure (if it is decided on which platform website is going to be built, such as WordPress).

### 3.2.5 Content

The website is then filled with content - texts, images, files for downloading and other elements. The content is usually compiled and provided by the client or a specialist hired by the client company. This is decided in the stage of drafting of the technical specification.

### 3.2.6 Internal SEO optimization

Internal SEO optimization is associated with some changes in the website itself. It begins with the definition of the semantic kernel. Keywords that attract the most interested visitors are defined here. Then these words are entered on the website. Texts, links, other tags are adapted so that search engines can successfully find them by keywords.

### 3.2.7 External SEO optimization

External SEO optimization is usually limited to the construction of the structure of incoming links. This is basically a promotion. External SEO-optimization is not related to the development of the website. Since SEO-optimization is a separate process by itself it is classified into effective and short-term - such, after which the website for two weeks placed to the top, but then become banned. Real SEO optimization is a long and time-consuming process, the cost of which can be several times greater than the cost of creating a website.

### 3.2.8 Testing

Design of the website should properly function on different browsers, especially on Google Chrome and Mozilla Firefox for desktop and iOS Safari and Android Browser for mobile devices. Further, a view with enlarged fonts is tested. It is crucial to test all interactive elements of the website on every platform and browser available for the testing.

It should be taken into account that HTML layout is considered complete only when it is connected to CMS, as wide range of errors can appear at the stage of testing. If any occurred issues were related to the HTML layout, its scalability or cross-platform support, it is necessary for HTML developer to fix them by applying required tweaks to the layout code. It is also very important to correctly configure the viewport feature which provides users with correct representation of the page across different sizes of the screen.

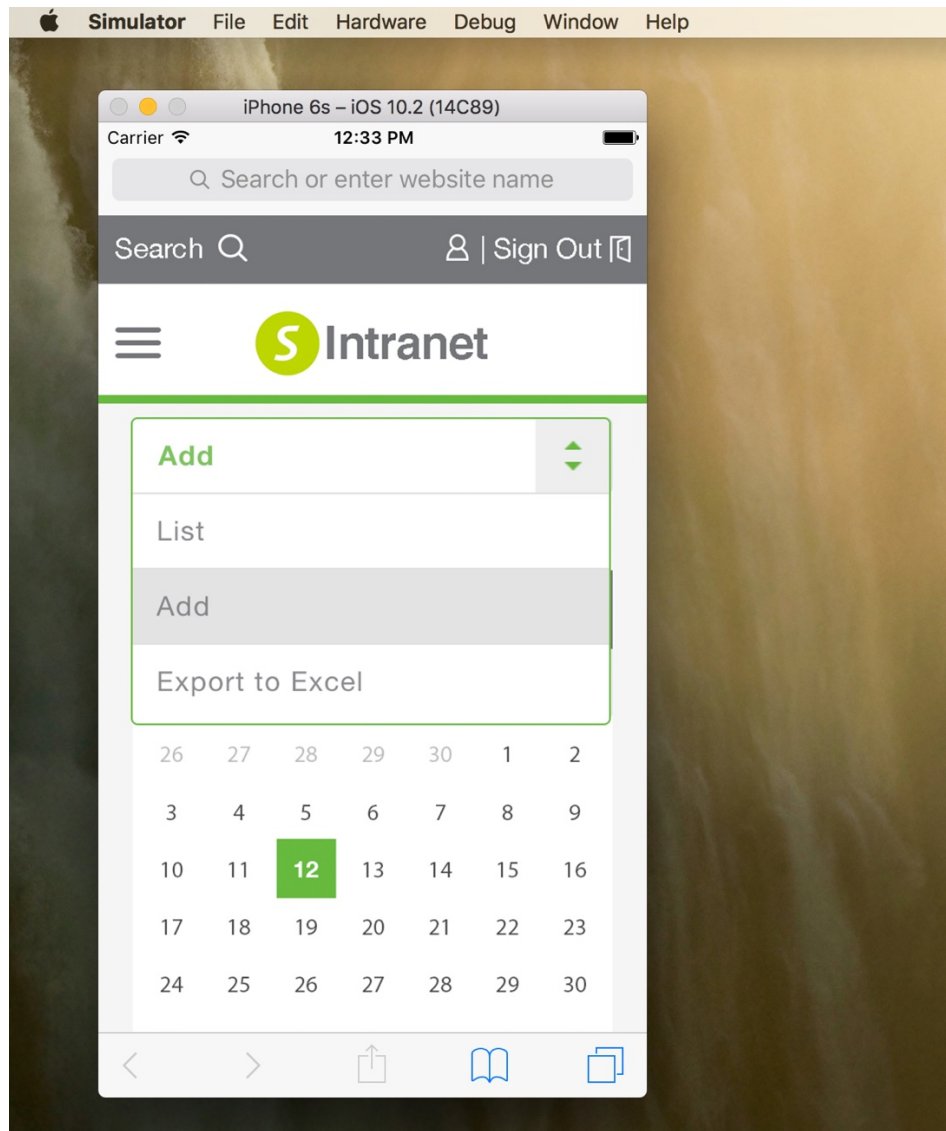


Figure 9. Xcode iOS Simulator was used for iOS devices usability testing.

One of the test methods (especially useful for small teams and projects) is to test cross-platform using virtual machine software. In this project, VMware Workstation Player and Parallels were used. Xcode application was used for testing of website performance on Safari by emulating any of iOS devices (Figure 9).

### 3.2.9 Delivery of the project

After all necessary edits, the representative of the company approved the finished project and signed the agreement. Depending on the project, the delivery stage may include training the staff to use the website administration tools, but in the case of this project it was not required. Additional maintenance may also include technical maintenance, such as accessibility monitoring.

## 4 DESIGN ANALYSIS AND REDESIGN PROCESS

### 4.1 Analysing problems of previous design of the website

The website design that needed to be redesigned had several weak sides. Most of them were the elements of interface which looked outdated. Although, issues related to user experience design were also discovered.

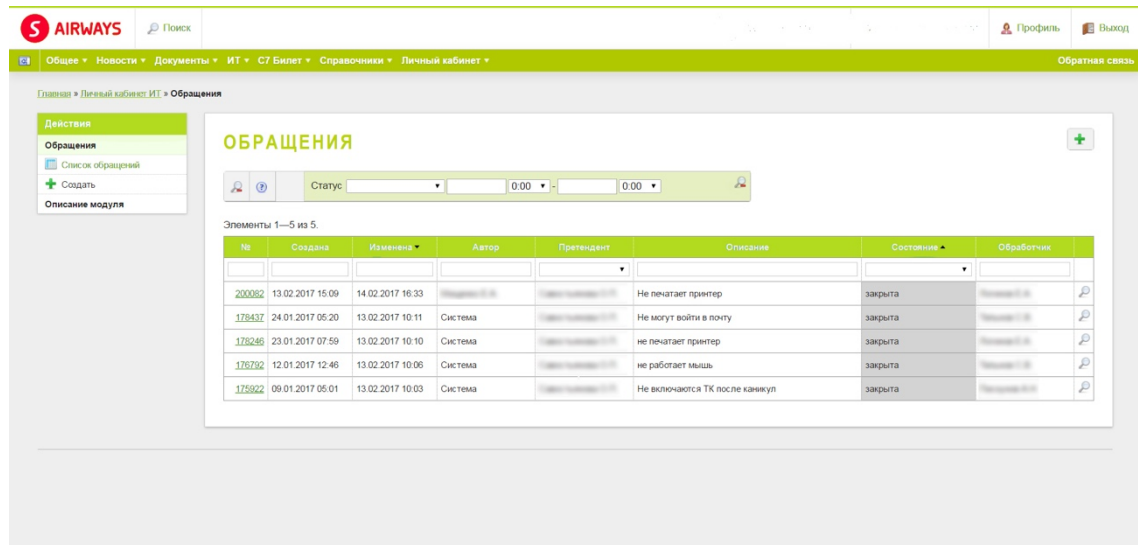
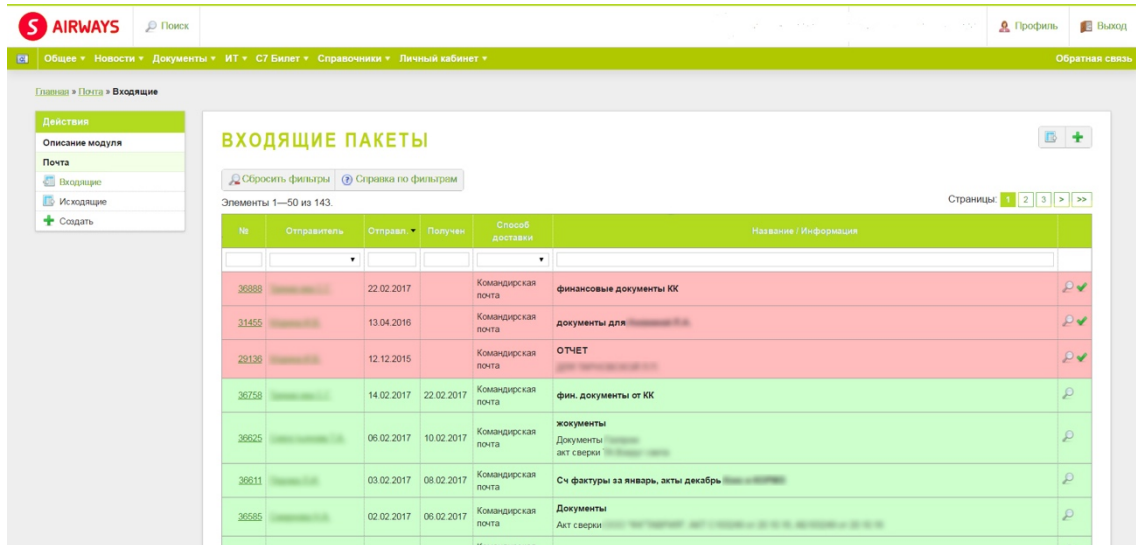


Figure 10. Previous interface of the website (Applications page).

Such issues were skeuomorphic icons (Figure 10), represented as realistic three-dimensional objects with shadows and light reflections. According to current trends in web design, such style is considered outdated as it is often implemented in interfaces built before the major IT corporations such as Google and Apple switched their UIs to today's standard Flat Design and Material Design latter of which was developed by Google in 2014 as a design language in order to implement flat design into its products [30].



**ВХОДЯЩИЕ ПАКЕТЫ**

Сбросить фильтры Справка по фильтрам

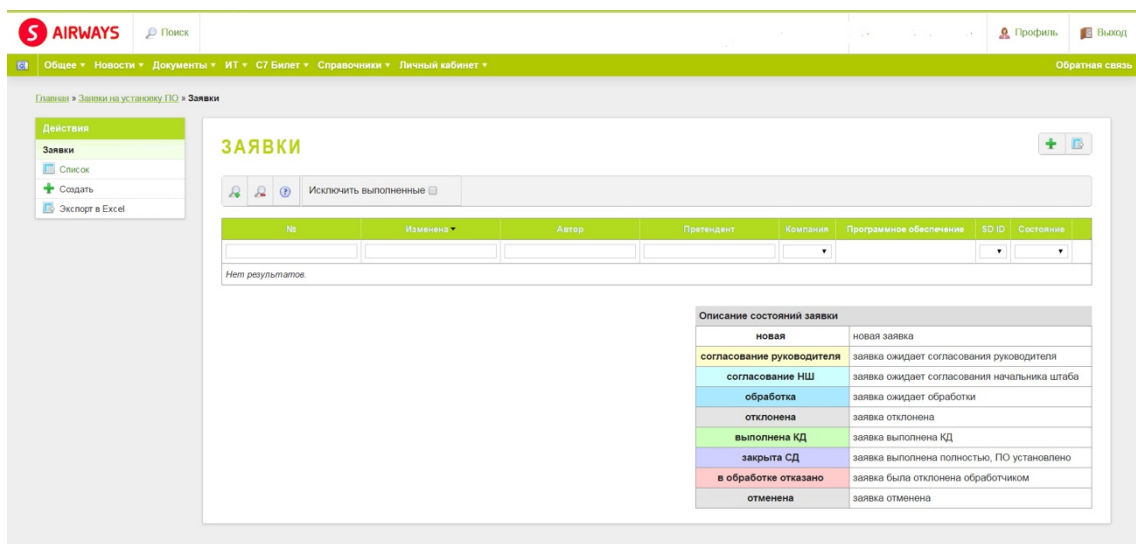
Элементы 1—50 из 143

Страницы 1 2 3 > >>

№	Отправитель	Отправлен	Получен	Способ доставки	Название / Информация
36888	Командирская почта	22.02.2017		Командирская почта	финансовые документы КК
31455	Командирская почта	13.04.2016		Командирская почта	документы для [...]
20138	Командирская почта	12.12.2015		Командирская почта	ОТЧЕТ [...]
36758	Командирская почта	14.02.2017	22.02.2017	Командирская почта	фин. документы от КК
36625	Командирская почта	06.02.2017	10.02.2017	Командирская почта	документы [...]
36611	Командирская почта	03.02.2017	06.02.2017	Командирская почта	Сч фактуры за январь, акты декабря [...]
36585	Командирская почта	02.02.2017	06.02.2017	Командирская почта	Документы [...]

Классификация

Figure 11. Current interface of the website (Messages Inbox page).



**ЗАЯВКИ**

Исключить выполненные

№	Именна	Автор	Претендент	Компания	Программное обеспечение	SD ID	Состояние
Нет результатов							

Описание состояний заявки

новая	новая заявка
согласование руководителя	заявка ожидает согласования руководителя
согласование НШ	заявка ожидает согласования начальника штаба
обработка	заявка ожидает обработки
отклонена	заявка отклонена
выполнена КД	заявка выполнена КД
закрота СД	заявка выполнена полностью, ПО установлено
в обработке отказано	заявка была отклонена обработчиком
отменена	заявка отменена

Figure 12. Current interface of the website (Software Installation Requests page).

Another downside of current design of the website is its colours (Figures 11, 12). The colour scheme used in this design can be found in many pieces of office and accounting software developed in the mid-2000s as it was considered as “clear” and “relaxing” thus appropriate for corporate and educational purposes. Such connotation creates a connection to the outdated software and Web 1.0 interfaces.

## 4.2 What tools and methods can help

Some of the rules that were identified and documented during the analysis of accumulated information and knowledge acquired in practice.

Before the start of creation of a web website or of the competent redesign of an existing website, it is preferable to conduct an analysis, in order to formulate the conceptual component of the website. It is worth starting to accumulate information and carefully read the specifics of the company's work for which the website is being created. This will affect both the functional and the external component. The research can be conducted as a poll or an open discussion. It is important to monitor the current situation in the web industry and design in general, in order to keep pace with the times.

It is crucial to create the most optimized and logically constructed menu, which will help the user to navigate the resource, and not to confuse them even more. A sense of unique style and taste needs to be applied where it is necessary. Number of elements on the page should be kept as few as possible. Usually it is better to use simpler solution over the more complex one. As a result of the "cleaning" of the pages, the visitor's view focuses on the content. As navigation is simplified, it is easier to attract the visitor's attention to something important. The main page of the website should not be overloaded with animation effects and other graphic information, as well as advertisements and banners. This causes visitor's mistrust and causes the desire to immediately close the page without waiting for the end of its loading.

Compared with the design fashion of the past, many more websites are centred in the browser, rather than stretched to the full screen or biased to the left. As the design of Web 2.0 is simpler and more of a minimalistic nature, there is always a lot of good, clean white space on such websites.

A horizontal section, usually located at the top of the page is separating header from other content. In addition to the top section, other page elements can also be explicitly highlighted in colour. This can be a navigation zone, a main content zone, or other areas. The problem with bright colours is that they are too distracting from other elements of the page. Therefore, in some cases it is better not to depart from the usual white colour. The navigation menu that appears on each page of the website should be large, understandable and simple. As for hyperlinks, they should clearly differentiate from other content on the page.

On Web 2.0 sites, the font size is usually larger than the sites of the previous generation. This rule follows from the principles of simplicity and functional design. On many sites there are headings, logos and inscriptions of extremely large size. These inscriptions are usually implemented as a graphic element. A clear, powerful and strong brand is created with a noticeable and memorable logo.

In addition to all of the above, more design techniques were effectively used: the use of colour schemes and colour circle; typography; flat design and custom pictograms.

In order to choose the most appropriate prototyping tool for all of project team members a research of currently available prototyping software was conducted. The price of the products and whether they have trial periods or demo versions were also considered in order to choose an appropriate software for further use.

- **Adobe Comp**  
Integration with Adobe Creative Suite products such as Photoshop, InDesign and Illustrator. Additionally, available for free [31].
- **Sketch**  
Modern and popular alternative to Adobe Illustrator as an advanced vector based graphic editor. Available only for Mac [32].
- **Principle**  
User-friendly interface and integration with Sketch. Free trial period is offered. Available only for Mac [33].
- **Vectr**  
Web version is available. Presents less features, although available for free [34].
- **Atomic**  
Intuitive interface and convenient implementation of animation effects. Free trial period is offered [35].
- **Easee**  
Integration with Adobe Creative Suite products such as Photoshop and Illustrator. Free basic plan is offered [36].
- **Origami Studio**  
Wide range of features and integration with Adobe Photoshop and Illustrator. However, the lack of web-based cloud access to the project is present. Available for free [37].
- **Proto.io**  
Convenient interface but lack of direct integration with Adobe Photoshop. Free trial period is offered [37].
- **Webflow**  
Implementation of CMS for prototyping which makes it a lot easier and faster to prototype interfaces with this software. Advanced integration with other software. Free trial period is offered [38].

It was decided to use Adobe Photoshop for designing and Sketch for prototyping as most of the project team members use Macintosh computers, thus features and workflow offered by these applications perfectly suits project's requirements.

### 4.3 User Interface designing process

#### 4.3.1 Colours

The choice of colours going to be used in UI was discussed with the project team and client company representative.

Current website utilizes the colour scheme of green, red and white which were suggested in order to represent main colours of the previously used logo and corporate identity (Figure 13).



Figure 13. Corporate logo used prior to 2015.

But since the company logo was changed in 2015, it was necessary to rethink the colour scheme.



Figure 14. Currently used corporate logo.

The new logo utilizes three main colours: green, grey and white (Figure 14).

Eventually, it was decided to use all three colours with an addition of black (for text), lighter shade of grey for table borders and an additional darker shade of green. Darker shade of green is going to be used for highlighted elements of the interface (such as buttons) as it is a secondary colour to the light green used in the logo. White, black and grey are going to be primarily used for text and fonts and present neutral colours appropriate for corporate purpose of the website.

#### 4.3.2 Typography

The main criteria for typography are that it should fit an existing corporate identity as well as it has to be web safe in order to provide flawless workflow for all staff members using the Intranet Service on all varieties of devices. Other points to consider: the file size, cross-browser compatibility, and last but definitely not least it must be clear and easy to read.

The project team had decided on using Sans-Serif fonts in every section of website, with the exception of large text blocks or optionally content of the tables where it is more appropriate to use Serif fonts in order to keep it easily readable.

A combination of different fonts of Helvetica font family (Figure 15) for Sans-Serif fonts was chosen as its geometric and clear proportions make it very clear and readable. At the same time its neutral style is appropriate for corporate identity.



Figure 15. Helvetica font (Jim Hood).

The Georgia font family was chosen as a Serif font (Figure 16). This font family was initially developed for improving on-screen readability, therefore it is an appropriate choice for the objective. [39]



Figure 16. Georgia font.

#### 4.3.3 Designing User Interface for desktop devices

A list of the required functions and text content was presented by the client company representative. Additionally, a general layout of the website as well as colour set and logos were discussed. The colour scheme of the website was kept as minimal as possible. While utilizing white background this method makes website layout clear and easy to perceive.

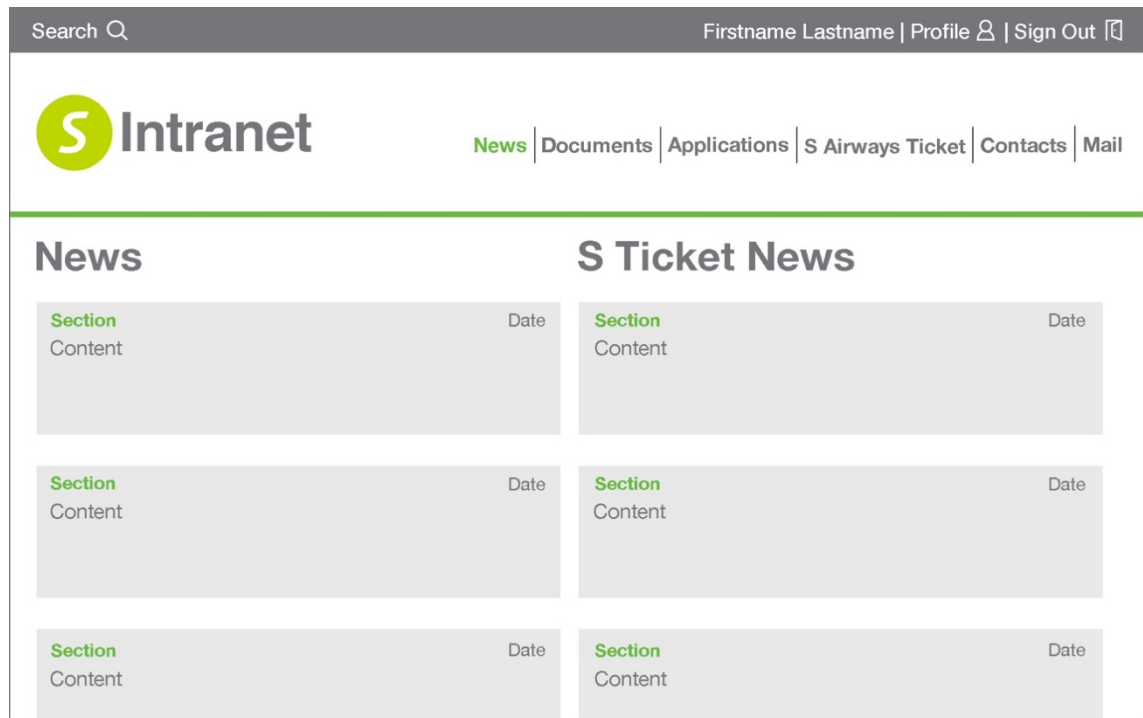


Figure 17. News page.

Firstly, a user interface for the News page was designed, as it is going to be the home page of the website for all of its users. Icons for “Search”, “Profile” and “Sign Out” buttons were created. The line weight was set to match the size of the font symbols. Grey colour was used to create contrast with white background colour.

Upon click on Search field it transforms into fill-in space for news tags or general keyword search through the website. Name of signed-in profile is also stated at the top bar, next to Profile and Sign Out buttons. In the main section of the page, News column titles are also clickable and filter news by either public corporate news or S Ticket related news. The column titles are highlighted in dark green when hovered over with mouse pointer. (Figure 17).

The screenshot shows the Intranet interface for 'Holiday Vacation Applications'. At the top, there is a search bar and user information: 'Firstname Lastname | Profile | Sign Out'. The Intranet logo is on the left, and navigation links for 'News', 'Documents', 'Applications', 'S Airways Ticket', 'Contacts', and 'Mail' are on the right. Below the navigation, there are three buttons: 'List', 'Add', and 'Export to Excel'. The main heading is 'Holiday Vacation Applications', followed by 'Reset Filter' and 'About Filters?' buttons. A table with 11 columns is displayed below:

Modified	Employee	Division	Vacation Type	Start Date	Days	Files	End Date	Order	Notes	Status

Figure 18. Holiday Vacation Applications page.

“Reset Filter” and “About Filter” buttons were also created. Button colour changes to dark grey when hovered over with mouse pointer. Grey colour was used for buttons in order to not to distract user from the main section of the page. Lighter font as well as lighter table borders were also used for the main section table (Figure 18).

Search 
Firstname Lastname | Profile | Sign Out

[News](#) | [Documents](#) | [Applications](#) | [S Airways Ticket](#) | [Contacts](#) | [Mail](#)

---

List

**Add**

Export to Excel

### Holiday Vacation Applications

Vacation Type

August 2018

SU	MO	TU	WE	TH	FR	SA
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	1	2	3	4	5	6

August 2018

SU	MO	TU	WE	TH	FR	SA
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	1	2	3	4	5	6

Duration  days

Vacation days (per year)	
Vacation days left by the beginning of this year	
Vacation days left	
Vacation days planned to be left by the beginning of this year	

Notes

Send
Back

Figure 19. Holiday Vacation Applications Add page.

The next page designed was the Holiday Vacation Applications Add page. The same minimalistic colour scheme was used for the calendar layout, drop down menu and fill-in spaces “Duration” and “Notes”. The “Notes” fill-in space can be resized in accordance to amount of text typed in (Figure 16). In order to attract user’s attention to the key elements of the web page it was decided to highlight chosen date on “From” and “To” calendars and Send/Back buttons with darker shade of green colour which has been chosen as a complimentary colour of brighter shade of green used in the logo (Figure 19).

Search  Firstname Lastname | Profile | Sign Out

**S Intranet** News | Documents | **Applications** | S Airways Ticket | Contacts | Mail

**Technical Support and Software Installation Requests**

List Add Export to Excel

Number	Modified	Author	Applicant	Dept.	Software	ID	Status

Application Status	Application Status
Application Status	Application Status
Application Status	Application Status
Application Status	Application Status
Application Status	Application Status
Application Status	Application Status
Application Status	Application Status
Application Status	Application Status
Application Status	Application Status
Application Status	Application Status

Figure 20. Technical Support and Software Installation Requests page.

It was decided to simplify top bar menu and include Technical Support and Software Installation Requests from separate IT section into Applications section together with Holiday Vacation Applications set of pages. Top bar menu buttons are individually highlight in dark green when hovered over with mouse pointer. Individual cells in the Application Status table can be differentiated by background colours. Monochrome colour scheme of white and light grey was used as binary differentiation was sufficient at the time of redesign (Figure 20).

Search  Firstname Lastname | Profile | Sign Out

**S Intranet** News | Documents | Applications | S Airways Ticket | **Contacts** | Mail

**Address Book** Address Book Pages: 1 2 3 next last

Reset Filter About Filters ?

Full Name	City	Company

Figure 21. Address Book page.

Search  Firstname Lastname | Profile | Sign Out

**S Intranet** News | Documents | Applications | S Airways Ticket | **Contacts** | Mail

**Compose** **Inbox** Pages: 1 2 3 next last  
Sent  
Drafts  
Trash

Reset Filter About Filters ?

Sender	Sent	Received	Method	Info

Figure 22. Mail Inbox page.

It was decided to keep the existing layout of menu bars consisting of top bar (used for navigation through the main parts of the website) and side bar menu (used for navigation inside the top bar sections). This decision was made in

order to provide users with familiar menu layout so they would not be confused with new user interface design. The company representative was rather insistent on this decision, although the team has decided to implement an update on this layout in the further revisions of the interface. (Figures 21, 22).

#### 4.3.4 Designing User Interface for mobile devices

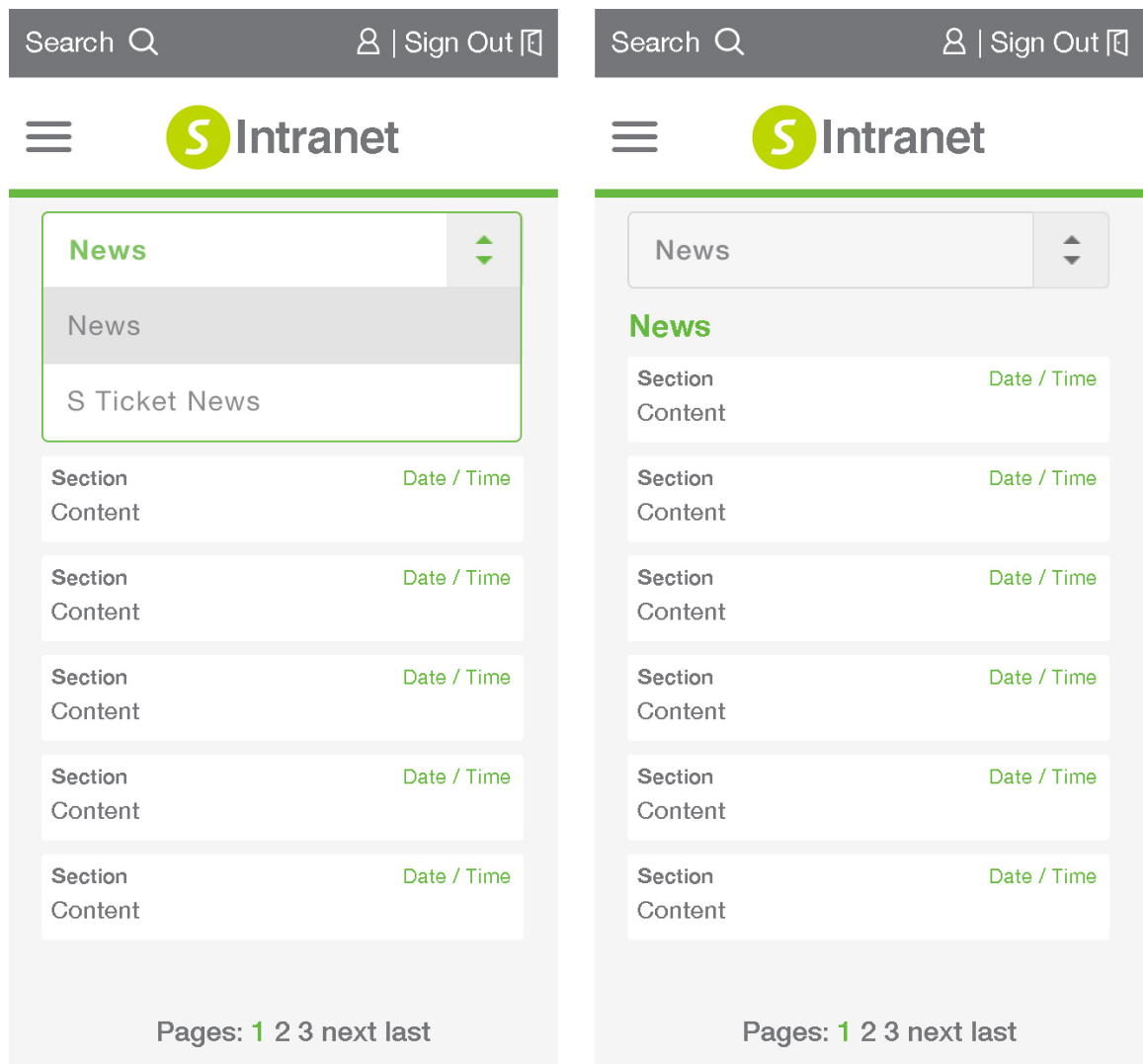


Figure 23. News page designed for mobile devices.

The top menu used in the desktop design was moved to the side menu under the menu button (three horizontal lines icon). The News section of the desktop design was separated into two sub-sections “News” and “S Ticket News” (news related to the corporate discounts and promo companies for the staff members) for mobile devices to not to overload the page with content (Figure 23).

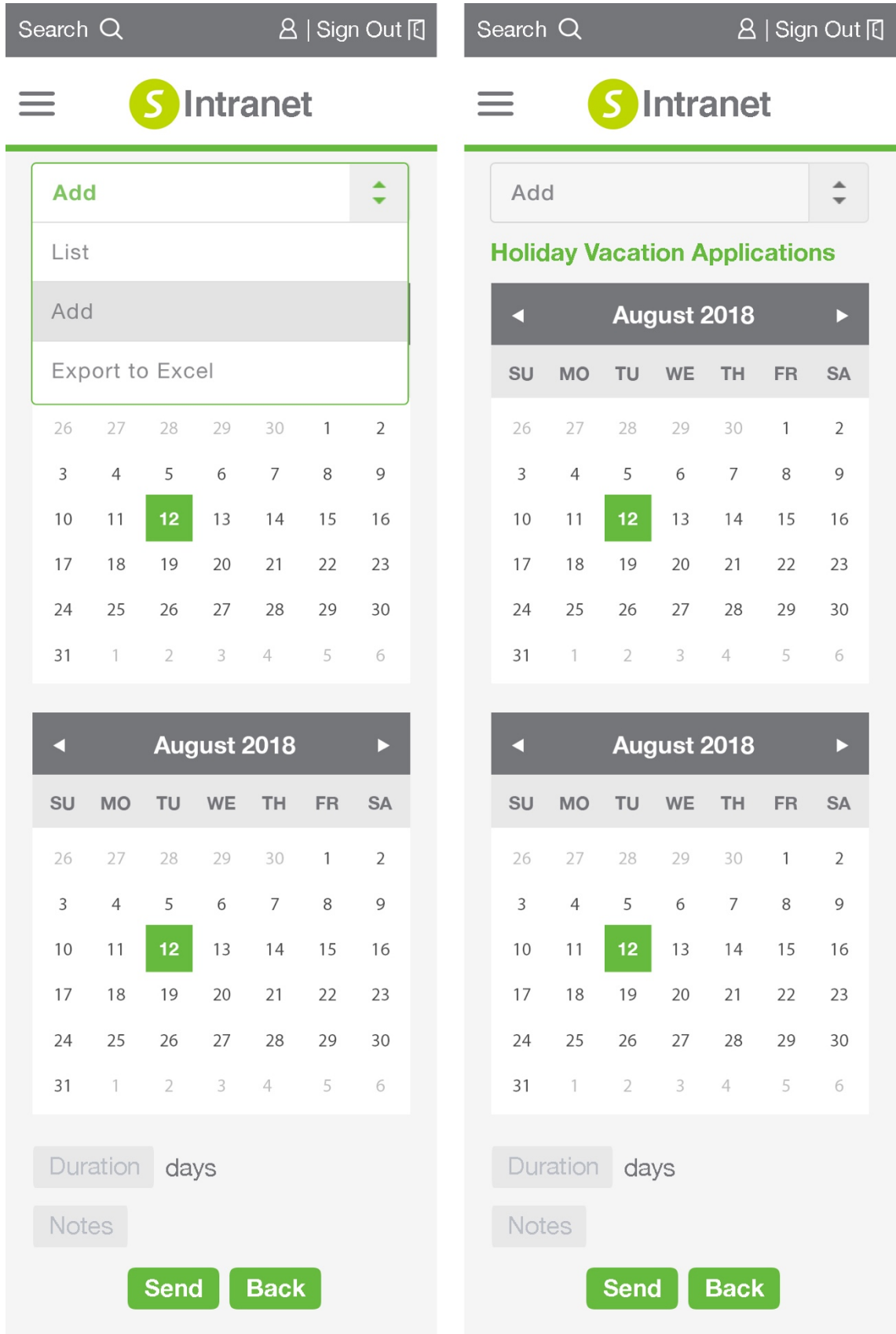


Figure 24. Holiday Vacation Applications Add page designed for mobile devices.

Similar tools and techniques as in the desktop redesign were used, in order to attract user's attention to the key elements of the Holiday Vacation Applications Add page (Figure 24).

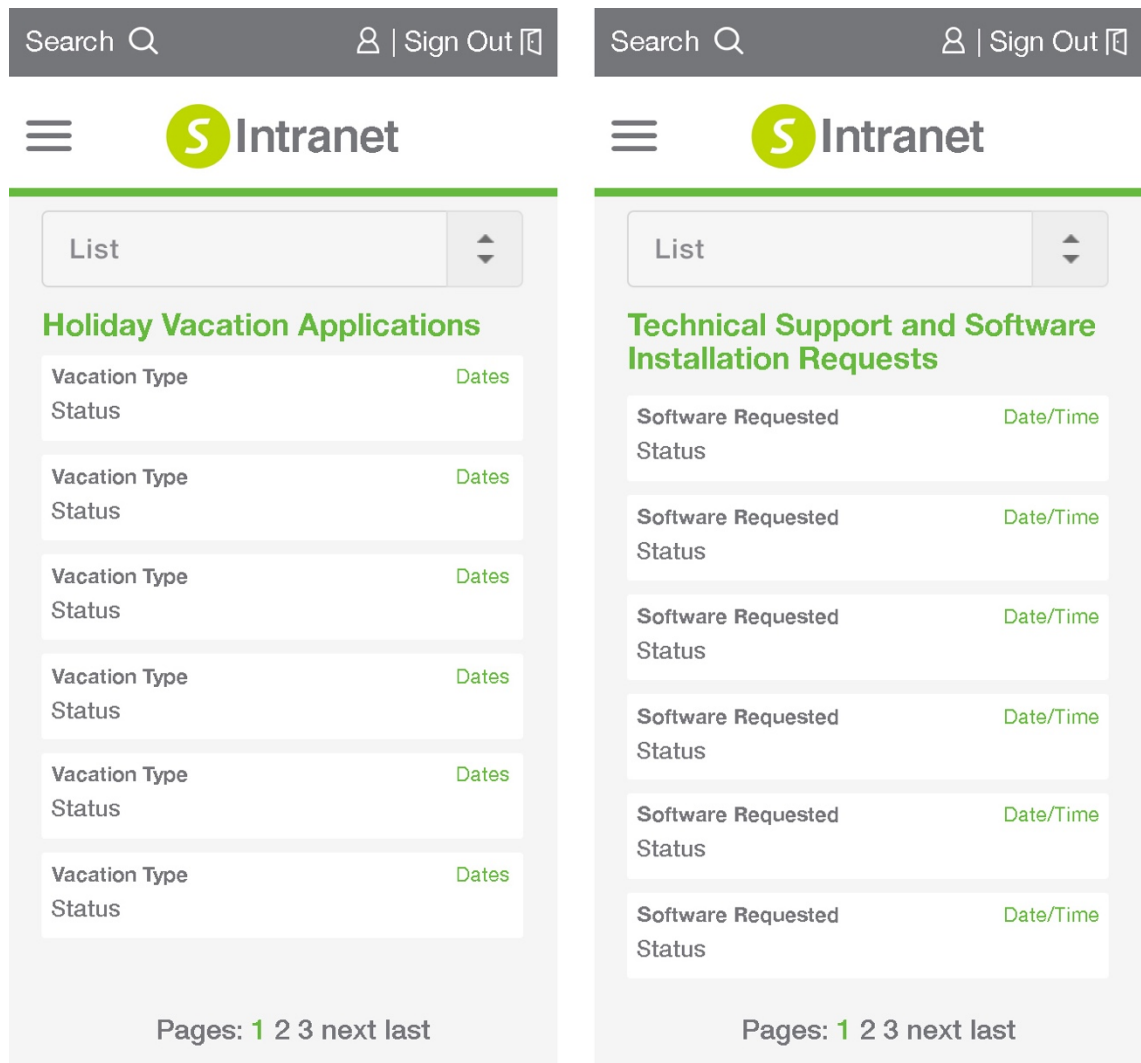


Figure 25. Holiday Vacation Applications List and Technical Support and Software Installation Requests pages designed for mobile devices.

The side menu has been converted into drop-down menu in order to save additional space for mobile devices. It is highlighted in dark green when tapped (Figures 25, 26).

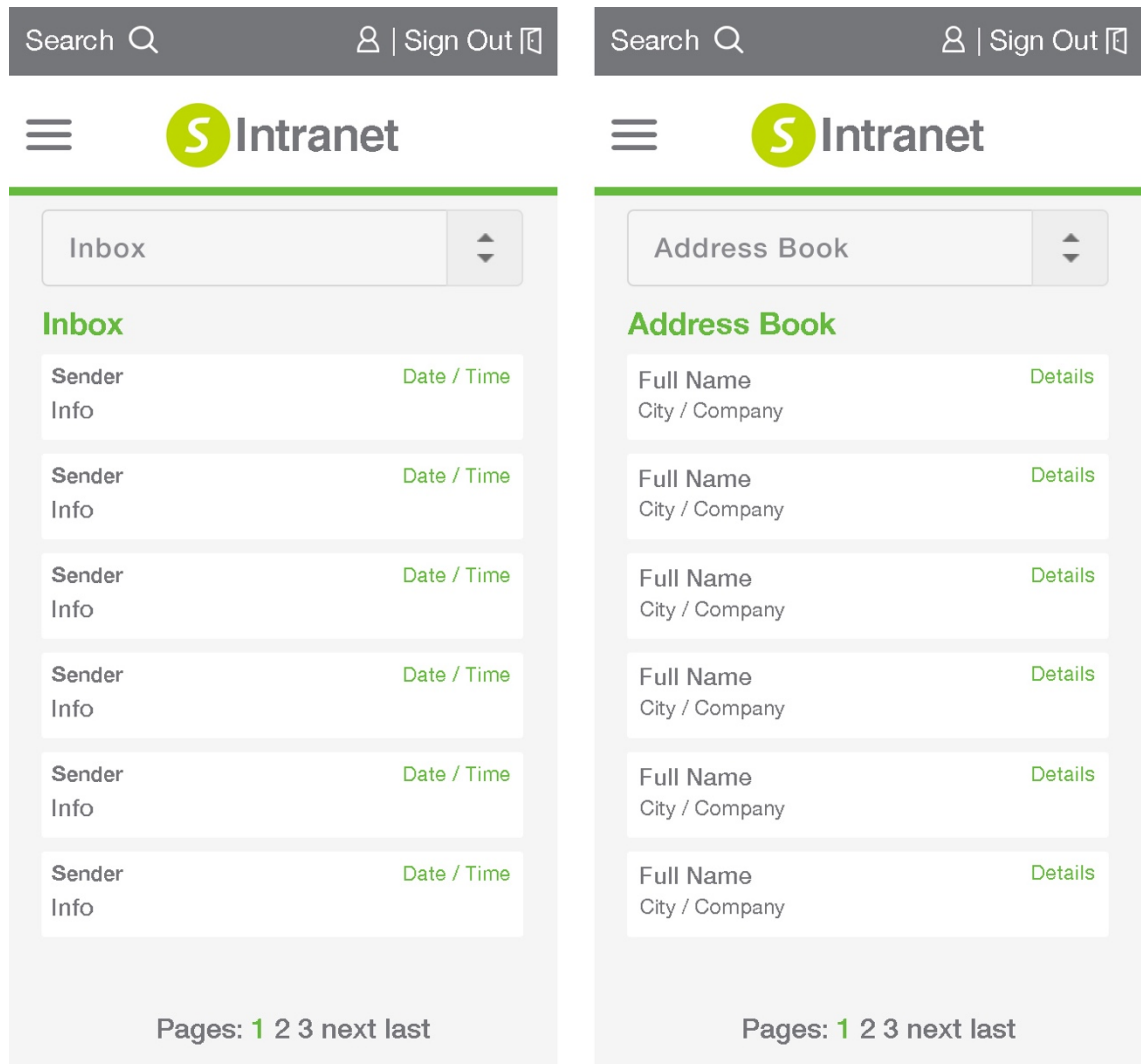


Figure 26. Mail Inbox and Address Book pages designed for mobile devices.

## 5 RESULTS AND CONCLUSION

A unique website design is more expensive, but it also involves drawing from scratch, a completely unique development for a specific order. Depending on the professionalism and policy of the company, the web designer either develops the idea and design concept completely independently, or receives a number of requirements (colour, style), expectations and ideas from the customer or the creative director and tries to keep those ideas when developing a layout.

The goal of this study was to redesign a corporate intranet website. The key part of the study was to collect and analyse feedback from users of the previously used user interface design and to further develop a solution for issues they experience.

The main task was to develop a new user interface design for the website taking User Experience concepts and rules into account in order to provide users with a user-friendly layout and convenient workflow.

The theoretical information presented in Chapter 2 was vastly useful during the whole project and presents a basis for this work.

Another important experience gained as a result of this project was a better understanding the commonly used project stages and roles in the web development team.

## REFERENCES

1. Oxford University Press (2018). Definition of “Design” in English: <https://en.oxforddictionaries.com/definition/design> [Accessed: January 2018]
2. Henry Cole (1849). The Journal of Design & Manufactures. Chapman & Hall: <http://special.lib.gla.ac.uk/exhibns/month/aug2001.html> [Accessed: November 2017]
3. H.A. Simon (1969). The Sciences of the Artificial. Cambridge: M.I.T. Press.
4. T. J. Howard, S. J. Culley, E. Dekoninck (2008). Describing the creative design process by the integration of engineering design and cognitive psychology literature. Elsevier Ltd.
5. J. Beaird (2007). The Principles of Beautiful Web Design (2<sup>nd</sup> Edition). Sitepoint.
6. J. J. Garrett (2011). The Elements of User Experience: User-Centered Design for the Web and Beyond. New Riders.
7. Emily Cotler (2004). Web Redesign 2.0: Workflow that Works (2<sup>nd</sup> Edition). New Riders.
8. Chris Chase (2017). Web Redesign and Technical SEO Workflow. Chase Design.
9. A. Gorbunov (2015). Typography and Web Development. Gorbunov’s Bureau.
10. Y. Gordon (2013). A Book on Characters from A to Z. Artemiy Lebedev’s Studio Publishing.
11. Adobe (2018). Overview of Creative Cloud Libraries: <https://helpx.adobe.com/creative-cloud/help/libraries.html> [Accessed: May 2018]
12. Paletton (2016). Paletton: <http://paletton.com/wiki/index.php?title=Paletton> [Accessed: May 2018]
13. Vasilis Baimas (2013). FlatUIColorpicker: <http://www.vbaimas.com/works/flatuicolorpicker> [Accessed: May 2018]
14. Ashley P. Taylor (2017). Newton’s Color Theory, ca. 1665: <https://www.the-scientist.com/?articles.view/articleNo/48584/title/Newton-s-Color-Theory--ca--1665/> The Scientist. [Accessed: February 2018]
15. Johannes Itten, Faber Birren, Ernst Van Hagen (1970). The Elements of Color A Treatise on the Color System of Johannes Itten Based on His Book the Art of Color. John Wiley & Sons.
16. BBC (2018). BBC News Website: <http://www.bbc.com/news> [Accessed: March 2018]
17. David Moth (2013). Report: <https://econsultancy.com/blog/63338-mobile-commerce-now-accounts-for-23-of-online-sales-report> [Accessed: March 2018]

18. Jim Daugherty (2013). Digital Marketing Journal: <http://leaderswest.com/2013/04/10/study-only-one-third-of-online-retailers-have-mobile-optimized-sites/> [Accessed: March 2018]
19. Ken Hess (2013). Consumerization: BYOD: <https://www.zdnet.com/article/site-optimization-for-mobile-devices-falls-short-again/> [Accessed: March 2018]
20. Carissa Ganelli (2016). 5 tips to improve mobile commerce strategy: <https://www.retaildive.com/ex/mobilecommercedaily/5-tips-to-improve-mobile-commerce-strategy> [Accessed: March 2018]
21. Amman Badlani (2013). Mobile Marketing Conversation Tools & Code Tricks: <https://searchenginewatch.com/sew/how-to/2261040/mobile-marketing-conversion-optimization-tools-code-tricks> [Accessed: March 2018]
22. Google (March 2013). Mobile Search Moments: Understanding How Mobile Drives Conversions: <http://services.google.com/fh/files/misc/mobile-search-ppt.pdf> [Accessed: March 2018]
23. David Moth (2013). Report: <https://econsultancy.com/blog/63069-55-of-businesses-now-have-a-mobile-optimised-site-report> [Accessed: March 2018]
24. Jennifer Owens (June 2000). IQ News: Dot-Coms Re-Evaluate Ad Spending Habits: <http://www.adweek.com/brand-marketing/iq-news-dot-coms-re-evaluate-ad-spending-habits-38208/> [Accessed: May 2018]
25. Tim O'Reilly (June 2004). The Architecture of Participation: [http://archive.oreilly.com/pub/a/oreilly/tim/articles/architecture\\_of\\_participation.html](http://archive.oreilly.com/pub/a/oreilly/tim/articles/architecture_of_participation.html) [Accessed: May 2018]
26. Pierre Morad Omidyar, Robert D. Hof, Patricia O'Connell (June 2005). Online Extra: Connecting People: <https://www.bloomberg.com/news/articles/2005-06-19/online-extra-pierre-omidyar-on-connecting-people> Bloomberg [Accessed: May 2018]
27. James Governor, Dion Hinchcliffe, Duane Nickull (2009). Web 2.0 Architectures: What Entrepreneurs and Information Architects Need to Know. O'Reilly.
28. D. Kirsanov (2006). Web Design. Symbol-Plus Publishing.
29. Patrick J. Lynch, Sarah Horton (2009). Web Style Guide: Basic Design Principles for Creating Web Sites (3<sup>rd</sup> Edition). Yale University Press.
30. Liam Spradlin (June 2014). Quantum Paper And Google's Upcoming Effort To Make Consistent UI Simple: <https://www.androidpolice.com/2014/06/11/exclusive-quantum-paper-and-googles-upcoming-effort-to-make-consistent-ui-simple/> [Accessed: March 2018]
31. David Blatner (April 2015). Adobe Comp is the New First Step in Design: <https://indesignsecrets.com/adobe-comp-step-design.php> [Accessed: November 2017]
32. Matt Pringle (January 2017). 5 Reasons Why I Left Photoshop for Sketch: <https://medium.com/sketch-app-sources/5-reasons-why-i-left-photoshop-for-sketch-8e33c071f96f> [Accessed: December 2017]

33. Cremlab (February 2017). 8 Reasons User Experience Designers Will Love Principle for Mac: <https://medium.com/ideas-by-crema/8-reasons-user-experience-designers-will-%EF%B8%8F-principle-for-mac-e3fcab5920b2> [Accessed: December 2017]
34. Abhimanyu Ghoshal (September 2016). Vectr is an excellent free cross-platform graphics app you can learn to use in minutes: <https://thenextweb.com/apps/2016/09/15/vectr-is-an-excellent-free-cross-platform-graphics-app-you-can-learn-to-use-in-minutes/> [Accessed December 2017]
35. Richard Bray (March 2018). 10 reasons you should be using Atomic Design: <https://www.creativeblog.com/web-design/10-reasons-you-should-be-using-atomic-design-61620771> [Accessed: May 2018]
36. Steven Fabre (2016). Easee Design Case Study: <https://stevenfabre.com/easee/> [Accessed: March 2018]
37. Przemek. Prototyping Tools Review: Proto,io vs, Origami Studio: [https://www.polidea.com/blog/Prototyping\\_tools\\_review\\_Proto\\_io\\_vs\\_Origami\\_Studio/](https://www.polidea.com/blog/Prototyping_tools_review_Proto_io_vs_Origami_Studio/) [Accessed: March 2018]
38. Ryan Morrison (March 2017). Why I ditched Sketch for Webflow: <https://medium.com/@ryryjmo/why-i-ditched-sketch-for-webflow-45c8531d4b0> [Accessed: March 2018]
39. Eric Michael Weisenmiller (1999). Study of the readability of on-screen text: <https://vtechworks.lib.vt.edu/bitstream/handle/10919/29400/WeisenmillerDissertation.pdf?sequence=1&isAllowed=y> [Accessed: November 2017]