The Impact of Good Navigation and Trust in E-commerce

- The importance of navigation and trustworthiness when creating a web application for selling emission allowances

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Abstract

The purpose of this report was to study how the design of a web application can induce trust and navigability. To study this, a web application was created where the private consumer can buy a part of an emission allowance, tailored to the consumers’ specific needs. Since environmental companies are subject to hard audits, not only by authorities but also by the consumers, it was concluded that this type of web application is well suitable to test how design can induce trust. This web application was tested by different test groups in three iterations. The user tests made use of the Critical thinking-aloud protocol, System Usability Scale, and Smith’s Lostness formula, and consisted of two assignments followed by various questions regarding how the test subject experienced the assignments. After each iteration, the web application was altered in alignment with the feedback received from the test subjects. Each iteration had a completely different test group to ensure that the alterations were effective on a larger scale than only to address the last test group's concerns. The results from the user test improved with each iteration and after the final iteration, all test subjects were unanimous in that they experienced the web application as secure and trustworthy enough to make a payment using their debit card on the site. It was concluded that implementing a website according to existing theories and websites is important to create trust and navigability. Design, information pages, typography, colors, and shape, have an impact on trustworthiness while placement of functionality as well as popups for completed tasks improve navigability. This study can hopefully be viewed as a foundation for future research in the field of design and its impact on trustworthiness and navigability.

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1 Introduction

More than half of the people on earth have access to the internet [1]. As the digitalization of society increases more websites are created to fulfill users’ needs. In today’s digital world consumer behaviors are shifting from physical stores to online retail [2]. Design, therefore, becomes a greater aspect when developing a website, to appeal to its customers. Navigability and trustworthiness, therefore, have a greater impact on how a website is perceived [3].

1.1 Background

Our vision for the development project is to create a digital climate compensation tool for consumers. Our business idea is based on offering a digital trading portal where individual consumers can compensate for their impact by buying emission allowances. The following section addresses how emission is sold within the EU today and how climate change needs to be stopped.

1.1.1 Kyoto Protocol

In December 1997, the Kyoto Protocol was signed by parties of the United Nations (UN). After a prolonged period of authorization, it took effect on February 16th, 2005. The Kyoto Protocol puts The United Nations Framework Convention on Climate Change into action. The goal of the convention was to get industrialized nations to limit the emissions of greenhouse gases (GHG). The convention does not force any specific measures on the committed nations however it does require them to take measures against emissions and report to the UN periodically. The Kyoto Protocol on the other hand sets specific targets for industrialized nations [4]. The target for the European Union (EU) was to reduce the amount of GHG emissions by 8% compared to 1990’s levels during the five years 2008-2012 [5].

1.1.2 European Union’s Emissions Trading System

One measure the EU applied to meet the targets set by the Kyoto Protocol was the EU Emissions Trading System (ETS) [6]. The idea of the EU ETS was presented in March 2000 by the European Commission. After discussions, the EU ETS Directive was accepted in 2003 and in 2005 the system was tested for the first time [6], [7].

The EU ETS is directed toward installations and aircraft operators. All installations that operate within the EU and emit more than 25 ktCO₂e per year are subject to the ETS [6]. In total, these installations, and aircraft operators account for around 50% of GHG emissions within the EU. The ETS decides the maximum volume of GHG that can be emitted by the subjects. The allowances for each subject can be traded with other subjects, however, the total emissions stay within the maximum allowed volume. This type of system is called cap-and-trade where the cap is the maximum allowance [6].

1.2 Motivation

Establishing trust online can be complicated, considering that trust is subjective. The initial seconds are important for consumers when browsing a new website. If the user’s interaction
with the website is perceived as negative, they will most likely proceed to other websites marketing the same products. Online retail, therefore, needs to emit trust. As consumers can physically interact with products in a retail store, the quality of the products needs to be transferred from the web application to the user when browsing online [3].

Navigation has a big impact on how the user perceives a website. Making a website more navigable is crucial for the user experience. A frustrating shopping experience can happen as easily online as in a physical store. Thus, it may lead to the user not completing their task while using the website and not returning. Making a website navigable increases the perceived credibility and comfort for the user, therefore, increasing the probability of them going through with a purchase [8]. This is crucial for a more digital world where competition is increasing online.

1.3 Aim

The report aims to research the effect the design of a website has on its users contributing to further intel on how graphical elements have an impact on the user experience and determine the trustworthiness of a website.

The goal is to discover which consumer’s criteria find a web application trustworthy and navigable. This is investigated with the help of relevant measures and methods to conduct tests and come to conclusions from how user experience can be perceived trying to discover a pattern of how customers reason when performing a purchase in online retail.

1.4 Research question

How can a web application be structured to be perceived as navigable and trustworthy?

1.5 Delimitations

The report only investigates how the structure of a web application impacts the navigability and trustworthiness. There are limitations to researching that does not have an impact on the research question. Since only the user experience will be investigated, features such as security and operating costs will not be considered for the study.

The study’s data will be collected through surveys from specified focus groups. Therefore, the data is subjective to everyone answering the survey and results may vary if the study is to be replicated. This is most likely not the case, since the investigating is with a test group that is supposed to lead to solid results according to studies.

It will not be possible to test every design aspect of the website. Therefore, the focus will be on the investigated theory. The focus will be on functionality and accessibility. The original colors and other design factors are chosen from scientific articles, papers, and articles from conferences.
2 Theory

The theory that the implementation will be based on to understand the study will be discussed in this chapter.

2.1 Navigability

The following section discusses what navigability is, why it is important and different topics connected to navigability that are important to consider when designing a website.

2.1.1 Definition

According to Kalyanaraman and Wojdinsky, the navigability of a website “can be defined as how easy it is for a user to find information on the site” [9]. Other definitions focus more on the user’s performance rather than the site’s structure. For example, Fang, Chau, Hu, Yang, and Liu Sheng define navigability as “the extent to which a visitor can follow a website’s hyperlink structure to locate target contents successfully, easily, and efficiently” [10]. Some definitions go even further into the user experience and its consequences and define navigability as “the efficiency, effectiveness, and satisfaction with which a user navigates through the system to fulfill her goals under specific conditions” [11].

Kalyanamaran and Wojdynski claim that the common factor in the definitions of navigability is the “idea of a construct that defines the quality of navigational support provided by a system interface” [9].

2.1.2 The importance of navigability

The navigability of a site is important since it makes it easier for the user to find what he or she is looking for. Good navigability can improve the usability of the site by taking design, site structure, link structure, and other navigation tools into account. Furthermore, the improvement of navigability improves the user’s perception and performance on the site as well as the likelihood of the user purchasing according to Kalyanaraman and Wojdinsky among others [9], [11]. The navigation of a website also has an impact on the likelihood of a user feeling confused and lost and contributes to whether the user leaves the site or not [12]. Additionally, if the user experiences confusion it can result in a bad association with the brand [13].

2.1.3 Navigability’s three dimensions

Kalyanamaran and Wojdynski propose three dimensions of navigability which are clarity of target, clarity of structure, and logic of structure. Clarity of target addresses, for example, the importance of designing effective links. Clarity of structure is about “allowing the user to understand how he or she reached the present position, and what other destinations are accessible from that position”. The logic of structure can address whether the site has a hierarchical, linear, or hybrid structure. Kalyanamaran and Wojdynski also explain that depending on the purpose of the site, the user has different expectations of the structure and claim that “users have distinct mental models of how content should be organized on websites belonging to a specific category, such as online shopping” [9]. An element that contributes to a
2.1. Navigability

user perceiving an online store as easy to navigate is when the site depicts attributes from an offline store, such as the “shopping cart” [14].

2.1.4 Website navigation

The following part states how a user can navigate a website using different functions of the website.

2.1.4.1 Links

Effective links enable users to view different content as well as obtain overall structure and information about the site [9]. According to K. Farkas and B. Farkas, links constitute the core of the navigation system since they are used to transfer on a website. The links must indicate that they are links, which can be achieved by carefully considering the placement, design, and choice of words of these links. Placing the links where they can easily be spotted is important as well as placing the most important ones at the top of the site. The design of a link should align well with the general expectations of what they should look like, such as having blue color, being underlined, and indicating that they can be clicked on. Additionally, K. Farkas and B. Farkas explain that the choice of words should clearly describe the link’s destination [15].

2.1.4.2 Site Maps

A site map is a help page that provides information about the content and the overall structure of the site and provides direct access to the vertices represented [12]. This tool enables users to access sites that are deeper in the hierarchy of the link structure according to Kalyanaraman and Wojdinsky [9]. The site map should show the entire hierarchy, but due to page limitations, the number of levels may be reduced. It is more effective to implement a marker showing “You are here” on a site map [12].

2.1.4.3 Breadcrumbs

Cappe and Huang state that breadcrumbs can be used to improve navigability since they are links in an order that indicates where the user has been before the current state. They are usually placed at the top of the screen and form a line with separators between each link [16]. Typically, a breadcrumb can look like in Figure 2.1 [15].

```
Home --> Products --> Cart
```

Figure 2.1: An example of a breadcrumb

Breadcrumbs can potentially help users that are lost and enable them to go back one step. Additionally, they are helpful when users “enter the middle of a site based on a search from a search engine; this trail provides an orientation about the structure of a site” according to Cappe and Huang [16].

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2.1. Navigability

2.1.4.4 Website menus

A menu has three main purposes on a website which are to function as path in-between pages, support cues, and present links. The menu should be effective in the sense that it is easily navigable for the user so that they do not get lost or overwhelmed with information. A more highly dense menu will be used less than one with fewer options [17]. According to Murano and Lomas, a menu placed horizontally at the top of a webpage or vertically to the left performs best. At least in terms of user preferenceability and fewer errors when it comes to the mouse clicks [18]. The design of the menu also has an impact on effectiveness. A design that takes you with the least number of clicks to the target seems to be the most effective one. This type of menu generated the least number of clicks as well as the loading times for the webpage [17].

2.1.4.5 Search

Cappe and Huang establish that user preferences vary in how they interact with a webpage. While some users prefer to press links until they find their target, others prefer to search right away. Some users use a combination of the two mentioned. Excluding the ability to navigate a site through a search function is a disadvantage for a website as it may lead users to switch to another. The search functionality should be available for every page of a website [16]. The search feature should function as the largest search engines on the internet. Users should be presented with the information sorted in relevance and they should in most cases not be able to change this. The information presented should also be presented on one search page, as most users do not look past the second page of search results [19].

2.1.5 Website navigability

The following part present the different structures that can be used on a website to improve its navigability.

2.1.5.1 Information Structure

In terms of navigability, a website can be viewed as a directed graph defined as:

\[ G \Rightarrow [V, E] \]

“Where V and E are respectively the set of vertices representing the pages and the set of directed edges representing links between pages”. \((u,v)\) represents a link from \(u\) to \(v\), where \(u\) is called the head and \(v\) the tail of the link [20]. This structure is called information structure and is important from a developer’s perspective to give both the application and the user structure [15].

2.1.5.2 Hierarchical Structure

F. Farkas and B. Farkas claim that the most common structure is hierarchical since people naturally divide their world by categories and subcategories. At the top of the hierarchy is information of overall nature and the deeper you go into the structure the more specific information you can find [15]. How effective this structure is, depends on the depth and the breadth of the structure, and generally, it is preferable to focus on the depth since the user should not have to click on too many links to find what is wanted [11]. The hierarchical structure is demonstrated in Figure 2.2.
2.1. Navigability

2.1.5.3 Linear Structure

The linear structure, also called the tunnel design is demonstrated in Figure 2.3, making the user navigate in a predetermined order from one page to another. Danaher, McKay, and Seeley argue that it eliminates the possibility of the user getting distracted and navigating to another webpage. This structure can be encountered on e-shop websites and reduces unnecessary information and allows the user to focus on only one task [21].

![Figure 2.3: An example of a linear structure](image)

2.1.5.4 Hybrid Structure

The combination of hierarchical and linear structure is called hybrid structure and can be used when it is desired to have a different structure for different parts of the website. The hierarchical structure can enable the user to freely navigate the website and then the structure can switch to linear to enable the user to make a payment in a preorder manner and is a common structure to use for a website with e-commerce [21]. The hybrid structure is demonstrated in Figure 2.4.

![Figure 2.4: An example of a hybrid structure](image)

2.1.6 Lostness

Navigability is hard to evaluate since the user’s opinions and experiences of how a website should be designed varies according to Vaucher and Sahraoui [20]. People have developed very distinct mental models of what they expect to encounter when navigating a site. Furthermore, if the design violates these expectations, the user experiences the navigation harder and is more likely to feel lost [22].
The phenomenon “Lost in hyperspace” is based on three situations a user may find themselves in, which are according to Kalyanaraman and Wojdynski. They stipulate that the situations are [9]:

- Not knowing where to go next.
- Not knowing how to navigate to a location.
- Not knowing where in the overall structure, they are located.

Smith proposes a way to measure lostness with nodes. There are three different types to measure lostness [23]:

- **N**, the number of different nodes visited whilst searching.
- **R**, the number of nodes needed to be visited to complete a task.
- **S**, the total number of nodes visited while searching.

Smith suggests two mathematical definitions to measure lostness [23].

\[
\frac{N}{S}, \frac{R}{N}
\]

**Figure 2.5**: Two mathematical definitions to measure lostness

Smith states that if a user is not lost the value most likely goes towards zero, whilst it is one if the user is lost. When the number of nodes needed to complete a task is divided by the number of different nodes visited, the lostness may result in a greater value than one. This is because the user most likely did not visit enough nodes to complete the task [23].

With the combination of these two factors, it is possible to measure the lostness, L, of the user. As the values of L start from zero and go to one or beyond as the user is lost, Smith states that the calculation can be made with the following formula [23]:

\[
L = \sqrt{\left(\frac{N}{S} - 1\right)^2 + \left(\frac{R}{N} - 1\right)^2}
\]

**Figure 2.6**: The mathematical formula to measure lostness

Smith found that the ideal value of L is zero, as L increases, the lostness increases. If the value of L is smaller than 0.4 the user is not lost, but if it is bigger than 0.5 the user is. The values in-between it more difficult to decide whether the user is lost or not, and more factors need to be taken into consideration. Smith investigated these different cases and decided that the cases where a user gets the value 0.42 or greater for L, suggest that the user is lost [23]. The consequences of being lost at a website will create negative associations for the user according to the author. By improving the navigability, the user will perceive the website more positively and be pleased with the experience [9].

### 2.2 Trustworthiness

The following section discusses what trust is and how a website can be designed to be perceived as trustworthy.
2.2. Trustworthiness

2.2.1 Credibility

The word credibility is defined in the Oxford Dictionary as the quality that something or someone possesses to make people believe and trust them [24]. It is important to understand that when discussing credibility, the discussion is about the perception of credibility because credibility is not something an object or website can possess. In the paper “What makes websites credible” BJ Fogg and others identify that the most important components of credibility are trustworthiness and expertise. This means that an individual takes both trustworthiness and expertise to determine the credibility of an object [25].

2.2.1.1 Expertise

Under the expertise component of credibility, traits such as knowledge, experience and so on have an impact. In short, this component captures the perceived knowledge and skill of the object. Factors such as having clear citations, as well as being clear on the source of the information on the website [25]. Another factor is a sense of professionalism on the website. Therefore, it is important to avoid outdated information, and grammatical- and typographical errors, as well as making sure that the website does not contain broken links as Egger stated [26].

2.2.1.2 Trustworthiness

Within the trustworthy component of credibility, the individual considers factors like the perception of truthfulness and if the source is biased or unbiased. The component captures the perceived morality of the object. To give the website the best chance to be received as trustworthy the developers need to be clear on their policy regarding how user information is shared or protected. To create a highly credible website it must be perceived to have high levels of both components [25].

2.2.2 Design as a factor of trustworthiness

Lindgaard showed that the first impression of a website is formed within 50 milliseconds [27]. Moreover, Lindgaard concluded that the “visual appeal” decided whether the user had a good or bad first impression.

This corroborates with a study conducted by D. Robins and J. Holmes that showed that a website with higher aesthetics is judged to be more credible than a website with less focus on aesthetics. They showed this by asking subjects to rate a website based on credibility and then changing the aesthetics of the website without changing the content and then asking subjects to rate the new website. The study found that an aesthetic change to the website increased the credibility in 90% of the cases. This effect came to be called the amelioration effect of visual design and aesthetics on content credibility and other studies have shown similar results [28]. In a study by Tractinsky et al., a strong correlation was found “between users’ perception of an interface aesthetics and their perception of the usability of the entire system” [29].

Following the fact that aesthetics plays a significant role, it is important to decide what good aesthetics entail. Seckler et al. conducted a study with 194 participants where five factors of aesthetics: vertical symmetry, visual complexity, hue, saturation, and brightness, were investigated. The results showed that all investigated factors affected the perceived
2.2. Trustworthiness

trustworthiness. Furthermore, it was shown that the structural factors of the site (vertical symmetry and visual complexity) had the greatest effect on trustworthiness. “Websites of high symmetry, low complexity, blue hue, medium brightness or medium and high saturation received the highest overall aesthetics ratings” according to Seckler et al. [30]. Another study conducted by Alberts & van der Geest indicated that different colors tried on the same website generated various levels of trustworthiness [31]. By the results of Seckler et al., they concluded that a blue color scheme was perceived as most trustworthy [30].

2.2.3 Usability

Usability is defined as the “Extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use” by the International Standardizations Organization [32]. As mentioned above, Egger described that prominent usability improves a user’s perception of a website's credibility [26]. In the study “Measuring Perceived Website Usability” by Wang & Senecal they conclude how a website can be perceived as usable. They concluded that speed, interactivity, and ease of navigation all provide an increase in perceived usability. The table below describes what attributes of a website increase the perception of the three factors, Speed, Interactivity, Ease-of-navigation [33].

<table>
<thead>
<tr>
<th>Factors</th>
<th>Attributes</th>
</tr>
</thead>
</table>
| Speed                | • The website loads quickly  
                      | • Information is displayed at a fast rate  
                      | • Downloading a page of a website is fast |
| Interactivity        | • The website is customizable  
                      | • The website is tailored to the individual user  
                      | • The website gives feedback to assess the progress when performing a task |
| Ease-of-navigation   | • The website is easy to use  
                      | • It is simple for the user to complete the task they set out to do.  
                      | • It is easy to learn to use the website |

Figure 2.7: Speed, interactivity, and ease-of-navigation table

2.2.4 Prominence-interpretation theory

Fogg and the Persuasive Technology Lab at Stanford University produced the Prominence-Interpretation theory. The theory states that when people evaluate the credibility of a website two things happen. First, the user notices something prominent, and secondly, the user makes a judgment, interpretation, about what they saw. To enable a user to assess the credibility of a website these two events must happen. Otherwise, an assessment cannot be made. In the article, Fogg explains that the prominence component is the likelihood of an element of the website to be noticed by the user. Fogg argues that to enable the user to assess an element of the website it must first notice the element on the website. For example, one website may have an element that users would perceive as good for credibility, but the element is barely visible on the site or not easy to access. In that case, the element will not be taken into consideration while making a credibility assessment because the user has not seen it [34].
Fogg reasons that user involvement while using a website is the most dominant factor that affects the prominence of an element on the website. For example, a user who is searching for an answer to an important question is more likely to notice more elements on a website. Interpretation is a user’s evaluation of an element they have noticed. One element might be interpreted as positive by one user and negative by another depending on each user’s past experiences and culture [34].

To calculate the precepted credibility of a website the theory uses the following formula.

![Figure 2.8: Prominence-Interpretation Theory](image)

### 2.2.5 Three critical events

As mentioned, a website needs to be perceived as trustworthy by its users. Developers can use three critical events to achieve a sense of trust from the users of the website according to Egger [26]. These events occur before, during, and after using the website.

#### 2.2.5.1 Before the visit

Before visiting the website, the user's perception of the website is solely based upon facts and conceptions of a company and the industry where it operates. If the conceptions are good, it will increase the chance that the user will trust the website upon entry [26]. However, if the user does not have any previous conception of the company or industry the importance of the user interface design increases as this will be a lasting first impression. Alsudani and Casey describe that the first impression of a website decides if a user will continue browsing or leave immediately because they found the visual appeal was not good enough. This decision can be made in as little as 50 milliseconds [35]. A good first impression is therefore key to getting the user to stay on the website to even get a chance to create a perception of its credibility.

#### 2.2.5.2 During the visit

During the time that the user is accessing the website is when the company has its best chance to impact the user's perception of the website’s credibility. As previously mentioned, there is a limited time to make the user stay on the website. Therefore, the goal should be to create a homepage with an appealing design and layout. After the first couple of seconds, the user then starts to explore the website. During this time, the usability of the website is the most important to the user [26].

Egger describes that a website that has a prominent level of usability is a website where the user feels in control. To create this feeling of control the website should be developed to be accessible from different platforms, with step-by-step guides on how the user can complete processes on the website, purchasing a product on a website for example. It is also beneficial to give feedback to the user. Avoid only giving the user an error message and instead try to guide the user to avoid getting the error [26].
2.2.5.3 After the visit

Customers highly appreciate confirmation messages after placing an order, both on the website and as an email. The following information should be included in the confirmation message [26]:

- What products have been purchased?
- The total cost of the order.
- To make refunds and tracking possible.

2.3 Method Theory

The method theory aims to present the methods to be used to answer the research question above.

2.3.1 Web application implementation process

The development process of the web application is based on the Model/View/Controller, MVC, and design pattern. MVC is useful when designing the architecture of interactive software systems. When designing the architecture using the Model/View/Controller pattern, the data (model) is independent of the presentation (view), this allows for segregation of code which results in the ability to work in parallel on the back-end and the front-end [36].

- Model: is the partition that contains the application data and handles the core functionality.
- View: is the visual representation of the web application and manages feedback to the user.
- Controller: is used for managing input from the user, it is the partition between the view and the model.

So, to conclude what the model/view/controller design pattern is providing in terms of implementation is that it helps with separating the user interface, the front-end, from the system functionality, that is, the back end. Another advantage of using this design pattern is that it gives more design clarity, and it makes the maintenance of the software easier [37].

2.3.2 The survey methodology

Using surveys is a research style that systematically collects data and then uses this to observe the causation or patterns. To construct a survey of high quality which produces real value there are some established prerequisites. The best surveys are serving a higher purpose of answering a research question. Surveys without a research question tend to produce poor and insignificant data. There are several methods of constructing a survey. The most common one is questionnaires, which means providing a sample group with a set of questions or statements which are to be answered. Constructing a questionnaire of good quality must consider the form of the question, e.g., avoiding ambiguity. Then there are two forms of questions, open ended-questions, and closed. They both serve a purpose, where open-ended questions are better for more insightful data on a topic, but can be difficult to answer for the respondents, and harder to administer and analyze. The closed question questionnaire is most suitable when the responses are known [38].
2.3. Method Theory

2.3.3 Usability testing

The following parts describes how to perform the tests on the users.

2.3.3.1 User tests

To measure improvements in the design and navigability, user tests must be conducted to assess the website. The usability testing aims to gather data to provide valuable guidelines to increase the usability of the product. To clarify what a usability test is, one definition is; a test user is to perform some given tasks in a closed environment, e.g., the web application, while they are being observed, to collect data [39].

2.3.3.2 Sample size

Multiple studies in the field of usability testing, claims that 3 to 5 test users are enough, and that they usually cover 80% of the software interface. Bevan and Barnum investigated this issue, and they concluded that it depends on the individual differences between the tested people [40]. However, 10-12 participants seemed to be a good baseline range, which previous studies already have shown [41].

2.3.3.3 System Usability Scale

When conducting usability testing, two main considerations are at hand. The first and most obvious is that the right method is used. In broader terms, often the best method is to let a user interact with the web application given some tasks and scenarios. When doing this test, there are three main things to look at: the speed of the user to perform certain tasks, the success when performing given tasks, and the satisfaction of the user while using the web application. The collected information thus contains both quantitative as well as qualitative data. The second consideration when conducting usability testing is to make sure that an iterative process is used. This means that after the results of the first usability test have been gathered, the development team should make changes to the web application according to the assessment of the results, and then conduct a new usability test of the new version [42].

One useful usability testing method is the System Usability Scale, SUS. It is a test developed in 1986 by Brooke while working at Digital Equipment Corporation. It contains ten questions regarding the satisfaction of the user. It has been previously used in areas such as user interfaces, Web pages, and Web applications among others. Using the SUS, a Likert scale (which is defined later in the text), should be used to produce the responses from the user.

The ten questions of the System Usability Scale have the following properties, where the odd-numbered questions are positively framed, and the even-numbered questions are negatively framed. Using the scale brings up several benefits. The main one is that the results are easy to gather and easy to analyze. It is a straightforward method both for the test user and the administrator. Another benefit is that it becomes easy to follow the progression of a developed product. If the SUS test is used after every iteration, for example, the development team can see if they are making progress during the implementation. The disadvantages of the SUS test are that it alone is not sufficient as a method of collecting data. For example, when the respondent is answering question number 2, I found the system unnecessarily complex with I strongly disagree, it is hard to know for the administrator what exactly was unnecessarily complex, therefore, additional data collection is needed, such as the critical thinking-aloud protocols [43].
The ten questions of the system usability scale questionnaire are the following [43]:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

There are two main aspects to consider when incorporating the SUS test. One of these is to know the test user’s previous knowledge of the system being tested. Testing the same people is not recommended, since the test group of the first SUS test has prior knowledge and thus it can affect how they respond compared to a person with no prior experience. A new test user might answer question 9, *I felt very confident using the system* with the answer *I strongly disagree*, whereas a test user with prior knowledge might answer *I strongly agree*. The second aspect to consider when making use of the SUS test is that it should be conducted as soon as the tasks are finalized. This provides more accurate responses since the participants remember everything they just liked or disliked regarding the usability [43].

Calculating the results from the SUS task can be complex, and thus the risk of miscalculations. First and foremost, the questions of the test are framed differently as previously described. The odd-numbered questions are positively framed. When answering these the lowest score is derived from the first response, *I strongly disagree*, with a score of 0, the best score is 4 and is given when the respondent answers *I strongly agree*. On the even-numbered questions, the response scores are inverted, which gives the response *I disagree* with the question *I thought there was too much inconsistency in this system*, score 1 for example. This way of responding is based on the Likert scale, which ranges from *Strongly agree, agree, neither disagree* to *Strongly disagree* [43].

2.3.3.4 Critical Thinking-Aloud Protocols

There exists one useful methodology when it comes to collecting data for usability testing, which is called *Critical thinking-aloud*. It is further subdivided into concurrent thinking-aloud and retrospective thinking-aloud. It is a method where a test user is given some tasks to perform within a web application for example, and where the test user is verbalizing his or her thought process during or after the task is complete, depending on whether it is concurrent or retrospective thinking-aloud. Different tasks can be given to the test user such as navigation or workflow. The thinking aloud protocol is thus revealing how the test user is experiencing usability. Another question to be raised when testing usability is whether the test user is performing at their optimum? Concurrent thinking-aloud protocols help with this because it has been shown that given task performance increased by 9% in terms of speed when the user was asked to verbalize the process.

When it comes to which critical thinking-aloud protocol that are to be used, either concurrent or retrospective, can be determined by the nature of the task and what specifically to be tested.
The main advantages of concurrent thinking-aloud are that it can produce a lot of insightful data during the tests, and it is easy for the administrator to point out where in the task the test user deviated from the optimal path, while the downside is that it can be taxing on the test user to perform another task simultaneously, that is, verbalizing. When it comes to the retrospective thinking aloud protocol the upside is that it provides a better overview of the experience of the usability since they are verbalizing how they managed the task after its completion. The disadvantage is that it might not provide the most reliable data since the user has had time to reflect on the experience and might develop rationalizations of why they acted in such a manner.

2.3.4 Prototyping

Beaudouin-Lafon and Mackay define a prototype as a “concrete representation of part or all of an interactive system” furthermore they describe it as a “tangible artifact”. They go on to break up the prototyping techniques into four distinct dimensions [44]:

- The representation describes the structure of the prototype.
- The precision that formulates the scope of which the prototype should be assessed.
- Interactivity describes the degree to which the user can interact with the prototype.
- The evolution outlines the expected lifecycle of the prototype.

Beaudouin-Lafon and Mackay continue by discussing User-Centered Design which is a process where the user is placed at the center of the entire design process all the way through. The use of prototypes in this kind of process is integral for it to work. With the prototypes, the user can get a feel for the product throughout the process which, teamed with iterative design the development process ends up much closer to the user’s preference. It is possible to take one step further and implement the Participatory design where the user is actively involved in all stages of the design process and thus is treated more like a partner. This method gives more of an ongoing feedback loop than just during the testing stages in the more iterative approach [44]. The authors’ name four different prototyping strategies [44]:

*Horizontal Prototypes* are meant to be used when developing an entire row of the design simultaneously. This strategy is often used by sizable software development teams where different skilled designers work on distinctive layers of the design. By contrast, *Vertical Prototypes* are directed at designers that need to implement a functioning system from the user interface downward to the underlying system layer. These kinds of prototypes are generally built to determine the usefulness of features designed else were, like in the horizontal prototype for example. The *Task-Oriented Prototype* is a prototype of the system broken down into the various tasks the user needs to be able to accomplish for the system to work as intended. Only for the most necessary tasks, the designer can incorporate the breadth of the horizontal prototype with the depth of the vertical. The last one is the Scenario-Based Prototype which is comparable to the task-oriented strategy but here the emphasis lies on realistic scenarios plausible in the real world [44].

Furthermore, Beaudouin-Lafon and Mackay go on by describing three processes to develop a prototype [44]:

- *Rapid Prototyping* is a process used when the results need to be established swiftly. This helps during the refining of the design by taking the design through multiple iterations.
2.3. Method Theory

- Offline Rapid Prototyping is when a designer does not involve software during the process often using only pen and paper.
- Online Rapid Prototyping on the other hand involves software and is better suited for prototypes that need a higher degree of precision.

- **Iterative Prototypes** are often used when developing high-precision prototypes. These prototypes are designed with an iterative approach using specialized software tools.
- **Evolutionary Prototypes** are a type of Iterative prototype where the end goal is to evolve into a final version of the system. Here caution is required due to the general incompleteness and lack of robustness in prototypes.
3 Method

The following part will discuss relevant methods to perform the study and the measurements needed to improve the implementation.

3.1 Pilot study

The following will discuss how the pilot study is constructed, which later will be used for the implementation.

3.1.1 Brainwriting

Brainwriting was initially used to generate user stories of the functionality of the web application. During an initial workshop among the development team, every team member contributed with three user stories each, which were then graded collectively as one of three options.

- Necessary functionality.
- Desirable functionality.
- Extra functionality if the resources allow for it.

These user stories made up the product backlog which the development team used as a foundation during the implementation part. The user stories generated in the brainwriting session were then categorized into four main groups, based on functionality.

- User.
- Product.
- Marketing and loyalty.
- Payment solutions.

The aim of grouping the functionality by these categories is to better understand the functionality and structure of the backlog.

3.1.2 Prototype

All prototypes mentioned in this report were developed using different prototyping techniques which are further described in the method theory.

A prototype of the web application was created during the pilot study where a rough first version was constructed. The prototype was used for the first stages of the development process to get an idea of the product that was being developed. As such, the prototype was a horizontal prototype to get an overview of the product while also being a rapid prototype because of all the uncertainties the early stage brings with it. The prototype was first drawn on a piece of paper to sketch it out and then redrawn into the program PowerPoint to be able to store it digitally while still having the ability to make potential changes.
The prototype had only the basic functionality which was decided during the brainwriting sessions. Also, the potential future additional functionalities were taken into consideration during the design process by having solutions for where and how the new features could be implemented.

Then a second prototype was constructed based on the user tests where the given feedback was used as a basis for improvement of the prototype. The second prototype was constructed with the task-oriented strategy where the focus lies on the different tasks the user needs to be able to accomplish. By using the evolutionary process when designing the prototype, it is possible to fine-tune it after each user test, and then when all three user tests are completed the final version of the application would have been developed. The second prototype was to be visually represented using a design program such as Photoshop or Paint.

3.1.3 User tests

The testing included in the iterative process was conducted after each step. Three user tests were conducted, each using the same set of questions and methods. The test groups consisted of 12 to 17 individuals, all students at Linköping University with an age range from 21 to 24[40]. The test groups were changed after each iteration so that no individual participated in more than one test [43].

The test person was presented with two assignments:

- Sign up and log in, go to “my page” as seen in Appendix D.
- Buy an emission allowance for a specified product as seen in Appendix D.

The participants were carefully monitored during the assignments. The number of different nodes visited were noted for each participant performing each assignment as seen in Appendix D. These nodes visited were then used in the calculation of the lostness formula according to Smith as seen in Figure 2.6.

After the tasks, the test leader asked the participants to fill out a survey with 10 questions according to the SUS testing method and the test person answered using the Likert scale [42]. Then the test person was presented with a few follow-up questions:

- **FQ1**: Did you find the log-in process secure? Why/Why not?
- **FQ2**: Would you have been comfortable using the same password here as on other websites? Why/Why not?
- **FQ3**: Did you find it easy to understand how to log in and change your email address? Why/Why not?
- **FQ4**: Did you find it easy to locate the company’s contact information? Why/Why not?
- **FQ5**: After reading information about the service, did the company feel more or less credible? Why/Why not?
- **FQ6**: Was it intuitive to find what you were looking for? Why/Why not?
- **FQ7**: Would you have been comfortable making a payment with your own credit card on this page? Why/Why not?
- **FQ8**: Does it feel like you actually bought emission allowances and made a difference? Why/Why not?
- **FQ9**: Was it easy to edit selections in the shopping cart? Why/Why not
3.2. Implementation

- **FQ10**: Would you recommend this site to a friend?
- **FQ11**: Would you use this site again?

The test leader asked the test user to answer out loud and the test leader wrote down the answers. After the test, the participants were encouraged to use the Retrospective thinking-aloud protocol meanwhile the test leader took notes.

This user test is done to test the navigability and trustworthiness of the web application. Since these areas are, for the most part, subjective to each person the user test was conducted to include different questions and follow-up questions to better grasp the user experience in the given areas. The answers given by the test persons is then used as the foundation of how navigable and how trustworthy the web application is.

3.2 Implementation

The following sections cover how the implementation process was conducted.

3.2.1 Development process

The development process uses different programming languages. The front-end side of the application is built with HTML, CSS, and JavaScript. The back-end side is written in Python. To ease the development, process the framework Bootstrap was used while writing HTML and CSS code, and for JavaScript, the framework JQuery was used. Furthermore, the payment system was provided by a company named Stripe and then integrated into the application. The communication between the front-end and back-end is conducted exclusively through JSON while the back-end was coded by using the framework Flask. Since the MVC design pattern was used, the back-end and the front-end were developed in tandem.

3.2.2 Testing

When usability of the web application was tested, a SUS-test and a critical thinking-aloud protocol was used. Both tests were made during and immediately after the tests. Since the number of iterations was three, this gave rise to three independent test occasions. The test group was different between each of the iterations to increase the quality of the result.

The test user was instructed to verbalize the thought process during the tests. He or she was given several tasks to be completed. After all the tasks were completed a retrospective thinking-aloud protocol was made to better understand what the test user thought about the web application. At the end of each task, the test person was also asked to describe the thought process, allowing for a more comprehensive understanding. Lastly, the SUS test was performed immediately after the retrospective thinking-aloud protocol. These were the 10 questions that can be found in the method theory. From the SUS questions, the median answer is going to be analyzed and the outcome will then be used as a basis for the improvement work on the web application [42].

During the task, the lostness of the test person is also measured. By counting all the nodes visited during the test and then calculating the data using the formula made by A. Smith, further discussed in the theory [23].
3.2.3 Evaluation

The two usability tests together later formed the basis upon which improvement was to be made in the next iteration. The SUS tests were individually evaluated together with the thinking-aloud protocol, for each of the test users. The median test score was also calculated to see if improvements had been made to navigability and credibility.
4 Results

The following episode will present results from pilot study and how that lead to the implementation of the web application.

4.1 Pilot study

The following discusses the results from the pilot study, sections such as brainwriting, prototype and user test are brought up.

4.1.1 Brainwriting

The results from the brainwriting can be seen in Appendix A – User Stories, they are categorized as:

- **Necessary functionality, red.**
- **Desirable functionality, blue.**
- **Extra functionality if the resources allow for it, yellow.**

The user stories where the foundation of functionality seen as necessary for the implementation of the web application. Different colors were assigned to different functionalities depending on the necessity of the functionality. From the 27 different functionalities as seen in Appendix A – User Stories, 6 were necessary functionalities. In Figure 4.1 there is an example of the different functionalities with varying necessity and the color classification.

<table>
<thead>
<tr>
<th>Idea 1</th>
<th>Idea 2</th>
<th>Idea 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packages based on larger emission rights, such as air travel, longer distance car driving, purchase of fossil heavy products</td>
<td>Functionality to send gifts to another person</td>
<td>Visual explanation to show how much CO\textsubscript{2} I have compensated for</td>
</tr>
</tbody>
</table>

**Figure 4.1:** Example of functionality and color classification

4.1.2 Prototype

The first idea of the web application began in PowerPoint where four different views were constructed, a home-, info-, product-, and contact-page. These were rough mock-ups with the main purpose of creating a unified vision to work towards.
4.1. Pilot Study

**Figure 4.2:** Prototype of home page

*Figure 4.2* showcases the prototype of the homepage. A navigation bar is placed at the top so the user can navigate the website. A picture is also presented with a button directing the user to the product page with an invitation to make a difference now. General functionality such as a search feature is always present and a clickable logo directing the user to the homepage.

**Figure 4.3:** Prototype of info page

The info page should present the user with the necessary information for the user to understand the purpose of the product as seen in *Figure 4.3*. Pictures showcasing the problem create a better understanding of the product.

**Figure 4.4:** Prototype of product page

The product view of the web application was created with the vision of filters for different categories and the product is listed as cards beneath. These cards show the amount of GHG that each product holds, as well as the price and a short description. This can be seen in *Figure 4.4*. 
4.2 Implementation

The following chapter presents the implementation of the website in three different iteration stages.

4.2.1 Development process

The development process is explained in the following chapter for the different iterations. The development process of the web application was mostly based on the feedback from the user testing.
4.2. Implementation

4.2.2 Iteration 1

The implementation process consisted of three iterations, where the goal was to implement a fully functional web application to then be tested at the end of each iteration. The development team started by implementing the necessary functionality based on the user stories. Some of these functions were product page, log-in, and sign-up. The aim was to implement a minimum viable product for user tests, to then make improvements to this first web application.

4.2.2.1 Core functionality and design

The core functionality of the web application in iteration 1 was a home page, contact page, product page, carbon dioxide emission calculator, sharing with a friend on Facebook, and by email-view. In further detail, the contact page consisted of some paragraphs of information about NetZ and a contact form where contact can be initiated with NetZ. This can be seen in Figure 4.7. Since trustworthiness was measured, information about the company behind the products was important. The start view also provides the user with a paragraph of the vision of the company and its aims, as seen in Figure 4.8, to make it even easier for new users to gain knowledge about NetZ.

A carbon dioxide emission calculator was also implemented as a feature that aims to help the customer to find out their carbon dioxide emissions based on different factors, such as vehicle, distance, and frequency as shown in Figure 4.9. The results from the emission calculator were shown alongside, to the right.
Log-in and sign-up functionality were also implemented by creating a form to be filled in with the user-specific details. First name, last name, email, and password were necessary to create an account. At this point, no acceptance of any “terms of conditions” were needed to create an account. No re-entry of password either. User details can be changed when logged in. While being logged in, the user can click on the “user”-icon to make changes to the account. The user page can be seen in Figure 4.10. Order history at this stage in the development process was not developed yet, hence, while being signed in and making a purchase, no history on the “my account”-pages was shown.

On the product page, a search function and filter function were implemented to make it easier for a customer to find what they were looking for. The search function is responding dynamically whilst the input is being made. Products were represented by cards, which consisted of title, price, and a short description. These products can be added to a cart, with a “Add to cart”-button. From the cart, an “Order now”-button directs the customer to the Stripe environment where the customer must fill in his or her details to finish the purchase. The cart can be seen in Figure 4.11. The checkout environment was implemented using the Stripe API as is seen in Figure 4.12. When a successful purchase was done using Stripe, a purchased object was created with a unique id and then posted to the database. In iteration one the customer was redirected to the start page without any purchase confirmation, except that one given by Stripe.
4.2. Implementation

**Figure 4.11**: Product view with the cart modal, where filter and search function to the left in iteration 1

**Figure 4.12**: Stripe checkout environment with total price, according to products added to cart in iteration 1

### 4.2.3 Iteration 2

Immediately after user test one, the development team started to analyze the inputs from the tests, to know what to improve in the next iteration. The main improvements in iteration 2 were:

- Name shown on navbar while being signed in.
- More specific purchase details on Stripe.
- Overall color scheme changes.
- Dynamic change of the background image.
- Improved emission calculator function.
- Purchase confirmation page.

#### 4.2.3.1 Core Functionality

To start with, one major difference from iteration 1 was the dynamically changing background image on the start view. Shown in **Figure 4.13** is the fading process between two images, which was implemented using CSS. This was an attempt to further improve the trustworthiness of the web application by trying to provide a more serious first impression.
Another major difference implemented in iteration 2 was the ability to purchase customer-specific products in regards to customer needs. The carbon emission calculator that was first implemented in iteration 1, got a lot of positive feedback from the test group. However, one issue pinpointed by many test users was that the web application was lacking the ability to purchase tailored products. Therefore, the ability to first calculate the customer-specific emissions and then provide the opportunity to make a purchase based upon those was realized. As seen in Figure 4.14, the possibility of compensating for one trip, one week, or one whole year was made possible. When choosing the option to compensate for one week, a product is created and added to the cart. Based on the amount of carbon dioxide emission and the price per kilogram, the total price for that product was calculated. The implementation behind these functions is mainly found in the JavaScript part of the code, with a new function that supports the original add to cart functionality.

Furthermore, the checkout function was improved based on the feedback, where some test users were stating that the purchasing process could be even more trustworthy. Therefore, as can be seen in Figure 4.15, the Stripe checkout page is showing the specific products instead of just the total price. These improvements were made in the app route for the checkout session in Python, by appending the items in the cart.
4.2. Implementation

To continue with the main issues in the purchase process, a lot of users thought the possibility to get a purchase confirmation after the checkout was needed. As seen in Figure 4.16, a new view was therefore created with the order details, no matter if a user is signed in or not, where the total price, order number, and the products were shown. Furthermore, a Facebook share button was also implemented to make it possible for the buyer to share the purchase. The purchase confirmation view was made possible by making use of the purchased class and appending the posted purchase with that specific order number. Another minor back-end implementation in regard to this was that a purchase was given a Boolean value whether it was paid or not since the Stripe checkout session was not always successful.

Some other minor issues were fixed based on the feedback such as the icon popping up when a product was added to the cart that can be seen in Figure 4.17. The test users thought it was not clear whether an item was added to the cart or not, so this minor fix was paramount for user trustworthiness.
The sign-up process was also improved based on some feedback from user test 1. Having to enter the password when signing up twice, in the hopes of making the overall experience feel more secure. Another feature in the sign-up process is that the new potential user must first agree to the terms and conditions found in another modal that was shown. Figure 4.18 shows the new sign up page as well as the terms and conditions. GDPR and terms of conditions were mentioned in user test 1.

![Figure 4.18: Improved security when signing up and terms of condition for increased trustworthiness in iteration 2](image)

Lastly, the “my account” view was created to provide a better overview of the user. In iteration 2, the possibility to show purchased products on the “my account” view was not yet fully developed, but the overall visuals that show the name and email were important for the user to know whether they had been logged in or not. This can be seen in Figure 4.19. To make it even more clear that the user was signed in, the name of the user is now shown in the navbar beside the profile icon.

![Figure 4.19: My pages view, and improved navbar when signed in iteration 2](image)

### 4.2.4 Iteration 3

Iteration three of the web application was last version. It was developed by adding improvements and functionality from what the test audience felt improved the trustworthiness and navigability of the web application.
4.2. Implementation

4.2.4.1 Core Functionality

At this point during development, the team was satisfied with the functionality already implemented on the website. The focus for iteration three, therefore, became making improvements to the responsiveness and the design of the web application. Improving the responsiveness of the web application would make the application compatible with different devices with different sized screens etc. This change was necessary to improve the trustworthiness of the web application. In the previous iterations, elements in the HTML code would not match the size of the user's screen size making the web application close to unusable. As seen in Figure 4.20, the CSS code was also updated to improve the design to give each user a better first impression of the web application and through that improved the trustworthiness.

Figure 4.20: Dynamic landing view in iteration 3

Figure 4.21: Navbar while logged in and hover in iteration 3

The navbar was updated with a function that allows it to change the background color, text color and the colors of the icons. This was implemented by using the hover function in CSS and JavaScript function that was activated with “onmouseover” and “onmouseout” events in HTML. This can be seen in the difference between Figure 4.20 and Figure 4.21.
4.2. Implementation

The product cards were improved so that each element within the card would dynamically adjust its size to make sure the elements within the cards were aligned. An event listener “scroll” was also used from the jQuery library to make the search and filter functions stay in the same position while scrolling down the product page. The animation when a product was added to the cart were made longer and the color was changed to make it more visible to the user. As can be seen in Figure 4.22, there was also a function implemented that would show how many products that are in the shopping cart, it was implemented to minimize the risk of users feeling lost in the web application. Buttons throughout the web application were added using the same class whose design later was updated through CSS to make the design have the same theme and be more unified. This was implemented with the belief that it would make the web application be perceived as professional and therefore more trustworthy.

Figure 4.22: New layout for the product view and an updated add-to-cart function in iteration 3

Figure 4.23: Question and answer view in iteration 3

Figure 4.24: Question and answer view (responsive) in iteration 3
4.3 Evaluation of User Tests

The responsiveness of the views within the web was applied by using the “@media” call in the CSS code. This function made it possible to alter specific elements in the HTML file depending on the width and height of the HTML document. This allowed the team to make the web application fit all types of devices and screens to make the web application accessible to everyone as can be seen in the difference between Figure 4.23 and Figure 4.24.

Figure 4.25: My account view with order history in iteration 3

The database was expanded to be able to save previous orders and the contents of paid orders in the user database. The application could then display each user’s order history under the profile page of the web application as seen in Figure 4.25. The total amount of carbon emission rights purchased by the user was now possible to be displayed. This functionality was added after feedback from the user tests that showed that the users would like the option to access their order history in an uncomplicated way.

4.3 Evaluation of User Tests

In the following chapter the evaluation of the three user tests is presented, as well as the calculation of lostness for different iterations.

4.3.1 Iteration 1

In the first test iteration, there were 17 test subjects who answered 21 questions about the website. Questions 1-9 are presented below:

1. “Did you find the log-in process secure?” yielded 82.4% positive responses.

Out of the ones that did not feel secure one answered that there was too little information about how data was stored and no terms of service. Another one said that since nothing changed on the website it was unclear that the log-in had gone through. The third person that responded with “no” said that he would have felt more secure if there was some sort of confirmation process when registering – for example having to put the password in twice.

2. “Would you have been comfortable using the same password here as on other websites?” yielded 64.7% positive responses.

When asked why, several of the negative respondents said that the front page could have given a more secure impression and needed to be developed further. Several of the respondents also said that they never use the same password twice. Others that they always use the same.
3. “Did you find it easy to understand how to log in and change your email address?” yielded 100% positive responses.

The most common reason for this, according to the test subjects, was a “Familiar user interface” as well as “Clear instructions”.

4. “Did you find it easy to locate the company’s contact information?” yielded 94.1% positive responses.

One respondent said that “because contact was a distinct title [in the navigation bar]” it was easy to find.

5. “After reading information about the service, did the company feel more or less credible?” yielded 76.5% positive responses.

Several of the negative responders said that they did not understand what the service entailed and said that they needed more information. Others said that the design of the information page looked outdated. Several respondents thought that the information was credible although, they complained that there were spelling errors that decreased the credibility.

6. “Was it intuitive to find what you were looking for?” yielded 94.1% positive responses.

The one negative response was that the subject found “the search and filter function rather hidden”. Several of the positive responders said that they were used to the layout of the elements.

7. “Would you have been comfortable making a payment with your own bank card on this page?” yielded 41.2% positive responses.

For some of the respondents, the payment page did not show which affected their opinion. Others thought that the shopping cart looked bad which lowered the overall impression. The fact that you could not see products being added to the cart added to the bad impression.

8. “Does it feel like you actually bought emission allowances and made a difference?” yielded 52.9% positive responses.

Out of the negative responses, the most common reason was that the subjects found the concept abstract and felt that what they were paying for should be specified. Others thought that the service felt like greenwashing and did not understand what difference their purchase would make. Several respondents thought that the color hues of the website did not align with the company’s profile as an environmental organization. They would rather see green colors instead of blue.

9. “Was it easy to edit selections in the shopping cart?” yielded 100% positive answers.

All participants found the shopping cart easy to use. Some of the participants commented that numbers disappeared in the cart when more products were added.
In Figure 4.26–Figure 4.31 the result from the responses to questions 10-21 are shown.

**Figure 4.26:** Results of the 10th and 11th question in iteration 1

**Figure 4.27:** Results of the 12th and 13th question in iteration 1

**Figure 4.28:** Results of the 14th and 15th question in iteration 1

**Figure 4.29:** Results of the 16th and 17th question in iteration 1
4.3. Evaluation of User Tests

4.3.1.1 Lostness

As stated in Section 2.1.6 the value of $L$ provides insight if a user is lost when navigating a website. A value larger than 0.42 suggests that the user is lost. $R$ is the minimum number of nodes needed to be visited to perform a task, $N$ is the unique number of nodes and $S$ is the total number of nodes.

<table>
<thead>
<tr>
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Figure 4.32: Measured lostness, $L$, for iteration 1, test 1
4.3. Evaluation of User Tests

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<td>0.00</td>
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<tr>
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<td>0.20</td>
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<tr>
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<td>4</td>
<td>6</td>
<td>0.33</td>
</tr>
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<td>0.35</td>
</tr>
<tr>
<td>Person 12</td>
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<td>5</td>
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</table>

Figure 4.33: Measured lostness, L, for iteration 1, test 2

The Figure 4.32 and Figure 4.33 show no value of L larger than 0.42. The lostness for task 1 for iteration 1 is 0.14 and 0.18 for task 2. The combined average is hence 0.16. In none of the tasks performed were the users lost in the process according to the value of L as seen in the tables above [23].

4.3.2 Iteration 2

In the second test iteration there were 12 test subjects who answered 21 questions about the website. Questions 1-9 are presented below:

1. “Did you find the log in process secure?” yielded 75% positive responses.

Out of the ones that did not feel secure one answered that the registration modal “did not look as professional as the rest of the website”. Multiple respondents said that the password requirements made the log in process feel more reliable.

2. “Would you have been comfortable using the same password here as on other websites?” yielded 58.3% positive responses.

The reasons for the negative responses were that the interface of the website and register process was too simple and respondents were not sure of how their passwords were saved.

3. “Did you find it easy to understand how to log in and change your email address?” yielded 100% positive responses.

The most common reason for this, according to the test subjects, was “A familiar user interface” as well as “Clear instructions”.

4. “Did you find it easy to locate the company’s contact information?” yielded 94.1% positive responses.

The one negative response thought the contact info was easy to find but wanted contact info in a footer on each page in addition to the contact page.
4.3. Evaluation of User Tests

5. “After reading information about the service, did the company feel more or less credible?” yielded 100% positive responses.

The respondents thought the info was clear and explained well what the service entails although, several of them wanted even more information. The information that was there gave the company more credibility. One respondent wanted a link to more information or a section for commonly asked questions.

6. “Was it intuitive to find what you were looking for?” yielded 100% positive responses.

The respondents found what they were looking for due to large headings and recognition of how other web shops look.

7. “Would you have been comfortable making a payment with your own bank card on this page?” yielded 58.3% positive responses.

The negative responses were due to the overall interface of the website. One respondent said that they would have checked the reviews before making a purchase because of the look of the website.

8. “Does it feel like you actually bought emission allowances and made a difference?” yielded 41.7% positive responses.

Several of the respondents wanted more information about what difference the purchase made. They wanted a certificate or other confirmation after the purchase. Several respondents thought they bought a flight and not a compensation for a flight. They wanted clearer information on the product page. Several respondents thought that the color hues of the website did not align with the company’s profile as an environmental organization. They would rather see green colors instead of blue.

9. “Was it easy to edit selections in the shopping cart?” yielded 91.7% positive answers.

Several respondents did not realize when a product was added to the shopping cart. All except one respondent found it easy to edit the shopping cart.

In Figure 4.34-Figure 4.39 the result from the responses to questions 10-21 are shown.

![Figure 4.34: Results of the 10th and 11th questions in iteration 2](image-url)
4.3. Evaluation of User Tests

Figure 4.35: Results of the 12th and 13th question in iteration 2

Figure 4.36: Results of the 14th and 15th question in iteration 2

Figure 4.37: Results of the 16th and 17th question in iteration 2

Figure 4.38: Results of the 18th and 19th question in iteration 2
4.3. Evaluation of User Tests

4.3.2.1 Lostness

Explanation of the tables given in Section 4.3.1.1.

**Figure 4.39:** Results of the 20th and 21st question in iteration 2

<table>
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**Figure 4.40:** Measured lostness, L, for iteration 2, test 1

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<td>Person 2</td>
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<td>0.00</td>
</tr>
<tr>
<td>Person 3</td>
<td>4</td>
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<td>0.20</td>
</tr>
<tr>
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<td>4</td>
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</tr>
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</tr>
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<tr>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Figure 4.41:** Measured lostness, L, for iteration 2, test 2
The Figure 4.40 and Figure 4.41 show no value of L larger than 0.42. The lostness for task 1 for iteration 2 is 0.11 and 0.14 for task 2. The combined average is hence about 0.13 which is about 28% lower than in iteration 1. In none of the tasks performed the users were lost in the process according to the value of L as seen in the tables above [23].

4.3.3 Iteration 3

In the third test iteration, there where 12 test subjects who answered 21 questions about the website. Questions 1-9 are presented below:

1. “Did you find the log-in process secure?” yielded 100% positive responses.

The subjects mentioned terms and conditions as well as password constraints as reasons for their answer.

2. “Would you have been comfortable using the same password here as on other websites?” yielded 91.7% positive responses.

The one negative response was motivated by that the subject disliked the error message when their password did not meet the requirements.

3. “Did you find it easy to understand how to log in and change your email address?” yielded 100% positive responses.

The most common reason for this, according to the test subjects, was a “Familiar user interface” as well as “Clear instructions”.

4. “Did you find it easy to locate the company’s contact information?” yielded 100% positive responses

No new information was said.

5. “After reading information about the service, did the company feel more or less credible?” yielded 100% positive responses.

No new information was said.

6. “Was it intuitive to find what you were looking for?” yielded 100% positive responses.

The subjects motivated their responses by that they enjoyed the simplicity of the interface.

7. “Would you have been comfortable making a payment with your own bank card on this page?” yielded 100% positive responses.

All respondents thought the design of the website increased the credibility of the company and would therefore be comfortable making a payment.
4.3. Evaluation of User Tests

8. “Does it feel like you actually bought emission allowances and made a difference?” yielded 83.3% positive responses.

Out of the negative responses, the most common reason was that the subjects found the concept abstract and felt that it would be more specified exactly what it is that they would be paying for.

9. “Was it easy to edit selections in the shopping cart?” yielded 100% positive answers.

All participants found the shopping cart easy to use.

In Figure 4.42-Figure 4.47 the result from the responses to questions 10-21 are shown.

**Figure 4.42**: Results of the 10th and 11th question in iteration 3

**Figure 4.43**: Results of the 12th and 13th question in iteration 3

**Figure 4.44**: Results of the 14th and 15th question in iteration 3
4.3. Evaluation of User Tests

4.3.3.1 Lostness

Explanation of the tables are given in Section 4.3.1.1.
4.3. Evaluation of User Tests

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**Figure 4.48**: Measured lostness, L, for iteration 3, test 1

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<td>4</td>
<td>4</td>
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<tr>
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<td>4</td>
<td>4</td>
<td>4</td>
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<td>0.00</td>
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<td>Person 12</td>
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</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td>0.02</td>
</tr>
</tbody>
</table>

**Figure 4.49**: Measured lostness, L, for iteration 3, test 2

The *Figure 4.48* and *Figure 4.49* show no value of L larger than 0.42. The lostness for task 1 for iteration 3 is 0.05 and 0.02 for task 2. The combined average is hence about 0.03 which is about 67% lower than in iteration 2. In none of the tasks performed were the user lost in the process according to the value of L as seen in the tables above [23].
4.3. Evaluation of User Tests
5 Discussion

In the discussion, the results from the user testing were evaluated and discussed from the presented theory. The results were evaluated for each of the different iterations.

5.1 Discussion of Results

In this part, the results of the user tests are discussed from a navigable and trustworthy perspective. Here the method used is also highlighted, mainly explaining how it may have influenced the result and how such influence could be avoided in other tests. The primary purpose of the discussion is to analyze the outcome of the user tests and explain the results using the theory presented previously. The aim is also to give a transparent view of the reasoning behind some of the most significant decisions regarding the web application.

5.1.1 Iteration 1

The following chapter discusses the result from iteration 1 when it comes to navigability and trustworthiness.

5.1.1.1 Navigability

As an effect of Kalyanamaran and Wojdynski’s theory on navigability’s three dimensions, the website was from the beginning designed to have all the standard website functionalities situated in the usual places to follow the norm of websites. This is seen e.g., with the logo being situated in the top-left of the screen and the shopping cart is represented with an image of a physical shopping cart whilst also being placed in the top-right corner of the screen. This was well appreciated according to the user tests, when faced with questions regarding the navigability of the site like “Was it easy to understand how to log in and change email?” a considerable amount of test persons answered along the lines of “Yes, because everything was where you’d expected it to be”. Because of the overwhelmingly positive feedback, this type of “standard” placement of functionalities was something that didn’t change much throughout the iterations [9], [14].

The navigation bar with the most important links on the site was placed on the top of the screen as suggested by the principals of Murano and Lomas also indicated by K. Farkas and B. Farkas. The links were also given descriptive names to reflect where the user would go if he or she was to click on the link. This was also supported in the user tests where the question “Was it easy to find the company’s contact information?” was asked, and 94.1% answered “Yes”. One test user even underlined K. Farkas and B. Farkas theory by answering the follow-up “Why?” with “Because contact was a distinct title [in the navigation bar]” [15], [18].

Cappe and Huang are strong advocates of search bars on websites which was also taken under consideration during the development of the NetZ web application. Unfortunately, the only functional search bar during the user test was the one on the product site which diverges from Cappe and Huang’s theory of having a search bar for the whole site [16]. Knowing this but with time constraints the choice was made to only develop a search bar on the product page which was deemed to be the most useful place for a search bar. According to the user tests conducted the search bar was a real boost to the navigability of the product page. After being asked to find
two different products on the product page the test persons were asked the question “Was it intuitive to find what you were looking for?” once again 94.1% of the test persons answered “Yes”. A substantial number of the test persons mentioned the search bar as a reason why they answered yes, which indicates the authenticity of the theory presented. A more developed search alternative would not be more effective for the website, as the amount of functionality was not very extensive.

According to the measuring of lostness, the users of the website were never lost. The highest reported value of lostness from the user tests in iteration 1 were 0.33 and 0.35 for test 1 and test 2 respectively as seen in Figure 4.32 and Figure 4.33. According to Smith, a user is lost when the value is over 0.42, therefore the users were never lost while navigating, leading to good results in the first iteration. The first test included general navigation throughout the website whilst the second was to the user’s ability to make a successful purchase. Several users had trouble with general navigation due to misleading titles. This resulted in an increase in the total number of nodes visited when measuring the lostness and therefore increased the lostness. On the second test, the users were not able to see when an item was added to the cart, leading to an increased number of visited nodes and a higher lostness. With minimal alteration, it was therefore possible to lower the measured lostness [23].

The low lostness also originates from different reasons. It partly deviates from the fact that the navigation bar exists, making it easier to navigate to different parts causing fewer new nodes to be visited. The simplicity of the web application also has an impact as there are not that many nodes that can be visited. Thus, leading to a lower result of lostness as the risk of making an error decrease.

The web application is built with an overall hybrid structure according to the theory presented by F. Farkas and B. Farkas. This was made to make it easy to navigate both when searching for information and when making a purchase. When using the web application, you start from the landing page which has more of a hierarchical structure with a navigation bar to help you navigate around the webpage. Once you go to the product page and proceed to checkout you will be navigating more of a linear structure instead [21]. This type of structure seems to be a favorable way to go according to the test persons, whilst not getting explicit feedback on the web application structure, the test persons seem to be overall satisfied with the site structure and seem to find it navigable for the most part. This is shown in the test results e.g., 100% of the participants answered “Yes” when asked “Was it easy to understand how to log in and change email?” and when presented with the statement “I found the system unnecessarily complex” the average score of the test group was a 1.29 on the Likert scale.

There were also some parts of the web application that the test persons would like to see improvements on. For example, many felt that it was difficult to know when you were logged in. For example, one test person wrote “It would be nice with a proper response so it is clear that you have logged in”. The test group also felt that it was not entirely clear if you had added a product to your shopping cart when clicking the button as there was no indication other than the products displayed in the shopping cart once you clicked on it.

Due to the user tests showing the users were practically never lost and due to the website not having too much depth in terms of its hierarchical structure and linear structure the choice was made to not implement breadcrumbs. This was not seen as a valuable addition to the website in terms of navigability in contrast to the time it would take to implement [16].
5.1. Discussion of Results

5.1.1.2 Trustworthiness

When asked the question “After reading the information about the service, did the company feel more or less trustworthy?” 23.5% of the test group answered that it felt less trustworthy. Also, 58.8% answered that they would not feel comfortable making a purchase with their own card. Based on the results it was clear that the website was not perceived as trustworthy.

One opinion was that it was unsure if the company had good intentions or not. Many felt that it could be connected to greenwashing. A big reason for this may have been the lack of information about the company and that the information was perceived as unserious. In iteration 1 there were several typographical errors on the website. This was something that the test group took notice of and commented on. These errors made the website feel unserious and as mentioned, Egger states that a sense of professionalism is a principal factor for seeming trustworthy [26]. There was also a wish to get more information about both the company itself and the impact of the service. As BJ Fogg declares the perception of truthfulness is one component of trustworthiness [25]. If it is an insufficient amount of information, it is harder to make a proper assessment of the truthfulness of the company. It may also create a feeling that the company is withholding information for whatever reason. Since 23.5% felt they trusted the company less after reading the information it was clear that the information was both inadequate as well as badly written.

According to BJ Fogg another important factor is to display a clear user information policy [25]. Due to lack of time, this was not implemented in the first iteration. The test group was asked if they felt safe enough to use their usual password and some answered that they did not and pointed out that this was because there was no policy. However, some users also stated that they never use the same password twice for security reasons. Since it is recommended to never use the same password twice, 100% should have answered that they would not feel comfortable to use the same password. If that where the case, then it would mean that it was a good result that only 35.3% answered that they did not feel safe using the same password and that our web application is perceived as very trustworthy. However, it seems like it is common to use the same password and some users even answered that they always use the same password. In that case the result is not as good and shows that we could increase the trustworthiness for the web application. A common opinion was that the design of the website looked old and outdated and therefore was not trustworthy. According to Egger outdated information can lower trustworthiness and according to the study, an outdated design has the same impact [26].

That the design had an impact on the trustworthiness was confirmed by the test group. In the test group, 35.3% answered that they did not feel safe using the same password as they use on other sites, and half of those stated that the main reason was the design of the website. It should be noted that less time was spent on design in the first iteration and instead focused on functionality. The users also stated that aside from bugs, the design was the main reason they did not trust the website.

Seckler et al. claim that low visual complexity and high vertical symmetry are the most important when it comes to a good design [30]. However, pictures were chosen as backgrounds for many of the views, which resulted in high visual complexity. The test groups stated that this made the website look busy and that there was too much to focus on. When it came to symmetry the intentions were to have high symmetry but due to lack of time, all visual elements did not align, leading to lower symmetry and a messy look. This was also something that the users
noticed and considered that it impaired the look of the website. The front page was designed with a blue hue because according to Seckler et al it is more aesthetically pleasing than any other color [30]. However, the test group disliked that it was blue and not green. The reason it should have been green is that green is strongly connected to eco-friendliness and ecological sustainability. This shows that there is not one color that works for every situation. There are other factors than aesthetics that should be considered when choosing a hue to improve the design and trustworthiness.

According to Wang & Senecal that the three factors, speed, interactivity, and ease-of-navigation all have an impact on perceived usability [33]. No one in the test group had any remarks on the speed of the website therefore it probably was adequate and met the basic demand from the users. When asked about navigation only 5.9% of the users answered that it was not intuitive to find what they were searching for. From the discussion, almost everyone agreed that it was easy to navigate mostly because everything was located where the user expected it to be. Neither navigation nor speed was a problem, however, the users had big problems with the interactivity of the website. The main issue was that there was almost no feedback from the website on any task performed by the user. The test group brought up that it was not clear whether you had been logged in or not, no order confirmation after purchase, no confirmation after changing email, and not clear if you had successfully added a product to the cart or not. These remarks really pinpoint the importance of an interactive website, and that omitting feedback has a big impact on the website’s trustworthiness.

Trustworthiness is according to Fogg affected by prominence and interpretation. Interpretation is hard to influence since it can vary greatly among users. However, prominence, that is the likelihood that an element gets found by the user, is something very important to consider when designing according to the result [34]. Even if the trustworthiness was impaired by the content and design the opposite can be said about the placement of elements. The users stated that everything was where you would have expected it to be. This was something that made navigation easier and therefore increased the trustworthiness of the website.

Three critical events on the website are before, during, and after the visit, where the report have focused on during and after since it is these that the website can affect [26]. The biggest impact was made during the visit. There was limited feedback to the user and no guides available, however, the only remarks were on the feedback. Most users felt that it was easy to use the website even without guides. The homepage had some design flaws that the users also had problems with so a good first impression is of great importance. After the visit, it is also important to give the user feedback according to Fogg. In this iteration, no confirmation message was implemented which the test group had issues with. It made them feel unsure about if they had bought something which did lower their trust in the website.

5.1.2 Iteration 2

The following chapter discusses the result from iteration 2 when it comes to navigability and trustworthiness.

5.1.2.1 Navigability

Given the overall positive feedback on the navigability of the website in iteration 1, there was not much work to do regarding the navigability between user test 1 and user test 2. Although the explicit feedback given on some lacking functionality was taken into consideration. For
example, the user's name was displayed in the navbar when the user was logged in and a “+1” icon was shown when the user added a product to their shopping cart. Some minor improvements were also made that may have helped the navigability of the web application. The answers to the question “Was it intuitive to find what you were looking for?” increased to 100% “Yes” for example. Unfortunately, the answers to the statement “I found the system unnecessarily complex” went up from 1.29 to 1.33 although this is a marginal small increase. For the most part the answers on the test went in a positive trend from iteration 1 to iteration 2. The statement “I thought the system was easy to use” went from 4.29 to 4.50 and the statement “I found the system very cumbersome to use” improved from a 1.53 to a 1.08.

During the second iteration, the results with measuring the lostness improved. The overall value decreased from 0.16 to 0.12 and the highest values recorded were 0.27 and 0.33 for test 1 and test 2 respectively as seen in Figure 4.40 and Figure 4.41. These results were expected to decrease from iteration 1. None of the users were lost according to Smith as the value was less than 0.4. The combined value for both tests decreased by 28% from iteration 1 as it became clearer for the users how to navigate and find the information page about the website with a new design on the navigation bar. The lower lostness in this iteration can also be explained by implementation where the user was told when something was added to its cart. Hence, it leads to a lower number of nodes visited while performing the task since they do not visit the cart as often. Through the second iteration of measuring lostness, it was concluded that more adjustments could be made to make it easier for the user to navigate. For example, a number representing the amount in the cart, dropdown to make information clearer and more popups when completing a task [23].

5.1.2.2 Trustworthiness

To increase the level of expertise all typographical errors were removed as well as change the title in the navigation bar from “Contact” to “Info”. However, no new information was added, instead, all information about who created the company was removed and what was left was information about the concept itself. The result of this was ambiguous. In the first iteration, the test user thought it was too little information. However, when removing it completely no one remarked that there was no information about the creators. Removing the information seemed to make the user not think about it at all. Instead, the users wanted more information about the concept. On the other hand, in this iteration, 100% of the users trusted the company more after they had read the information, even if they felt that there were too little information and wanted more information. Hence the trustworthiness seems to depend more on typographical and grammatical errors and not on the information itself [26].
5.1. Discussion of Results

For the design, only small changes were made in the second iteration and instead focused more on functionality. However, the background pictures were removed on some views to lower the visual complexity. On the front page, a slide show was added with other nature pictures but made the pictures dimmer and more discrete. This was preferable according to the users. For the symmetry and alignment of elements, issues were still encountered. Even if bugs and not all the functionality worked as it was supposed to, the test group said they did not trust the website mainly because of the design. Compared with the first iteration there were fewer bugs that did not have a lot of impact, so instead the design issues become more important to the user and had a bigger impact on the trustworthiness of the website.

In this iteration, a lot of improvements in interactivity and feedback were made. By adding feedback to tasks the users thought it was easier to understand what happened and that increased the trustworthiness of the website. However, enough feedback was not added to all the tasks, for example, many users did not notice the cart icon that popped up when adding a product to the cart. This was still an issue among the users. It is not enough to only have feedback on some tasks, the user needs constant feedback to be completely satisfied. If they do not get it, they feel insecure which lowers the trust of the website.

5.1.3 Iteration 3

The following chapter discusses the result from iteration 3 when it comes to navigability and trustworthiness.

5.1.3.1 Navigability

For iteration 3 no major improvements were made to the navigability, only minor changes like changing colors could be credited to the improvement of the navigability. The test results regarding the navigability from iteration 3 were in line with the results from iteration 2 or, in some cases, minor improvements on the results from iteration 2.

The measured lostness from the final iteration decreased significantly from the prior ones. From the first to the last iteration the average measured lostness decreased by almost 80% from the two tasks. The highest value for task 1 and task 2 respectively was 0.14 and 0.20. Therefore, no user was lost in this iteration as well according to Smith. The values were expected to decrease as well, as the improvements were based on where they struggled with finding the correct nodes. Test 1 got a lower score thanks to changes in finding the information about the website which was included in the task. A dropdown menu with information regarding the page was implemented, hence, making it easier to find that information. As for test 2, it got clearer when an added item was in the cart. In iteration 2 changes were made so that the user got a pop-up when an item was added. In iteration 3, the total number of items in the cart was made visible all the time, leading to no extra nodes being visited multiple times and lowering the total lostness. Through this, the general score decreased significantly and lead to a lower measured lostness through user testing [23]

Figure 5.2 shows the lostness overtime for the different iterations. As seen in the lostness greatly decreases over the iterations, especially from iteration 2 to 3, where more design elements were added. Making it easier for the user to navigate.
5.1. Discussion of Results

5.1.3.2 Trustworthiness

In iteration 3 the focus was on the design as well as continuing to improve feedback to the user. In this iteration, the users liked the design and thought that it increased the trustworthiness. The slide show still existed on the front page which increased the visual complexity, but it was enjoyed by the users. On the product page, great changes were made to the product cards, and they were made more symmetrical, something many had a problem with, in iteration 2. A green hue was added instead of a blue that Sekler et al recommend since green is associated with climate. Sekler et al state that “Websites of high symmetry, low complexity, blue hue, medium brightness or medium and high saturation received the highest overall aesthetics ratings”. Even though the higher visual complexity and a green hue the design was liked by the users [30]. However, high symmetry was obligatory. If anything was the slightest bit unsymmetrical the users thought, it had a negative impact on the design and the trustworthiness.

As a lot of new functionality and views was added during the development, it was feared that it may have a negative impact on navigability that could lower the trust. However, due to a clear structure and good prominence, this did not become an issue. The users generally thought it was as easy to navigate in the first iteration as in the last and therefore it did not lower the trustworthiness of the website.

As Figure 5.3 shows the trustworthiness of the website has increased from iteration 1 to iteration 3. Not many felt it was secure using their credit card in iteration 1. In iteration 3 almost all users felt that they trusted the website enough to use their credit card to make a purchase.
The positive test results in trustworthiness are extra valuable since the product is of such a nature that makes it hard to know if it has ever been delivered. There is a problem with our product in the way that it is essentially just a promise from our side that we will buy something and then not use it or sell it. This makes it almost impossible for the customer to verify that the product they bought really “exists”. Because of this, the trust of the customer is of utmost importance for the business model to work and therefore it is superb that the trustworthiness of our web application ranks so high in the conducted user tests.

5.2 Discussion of Method

The following section discusses the method used in the study and what possible consequences it may have had on the results.

5.2.1 Iterative Design Methods

The following section discusses methods linked to the iterative design.

5.2.1.1 Brainwriting

One method used at the beginning of the development process of the website was brainwriting within the development team to generate user stories about the functionality of the website. These user stories were included in the product backlog, which made the foundation of the website. A shortcoming of this method could be that the development team’s perception of how a website should be structured was the focus instead of establishing the foundation primarily upon the theory provided in the theory section. This could affect the reliability of the method and a consequence of this might be that elements that could make the website even more navigable and trustworthy are missing from the design if those features were not mentioned in the iteration stages. Although most features of both the user stories and the feedback from the test users aligned with the content provided in the theory section, some theory is not included in the design of the website. However, this can also be because these theories are perceived as unnecessary to this website.

5.2.1.2 Prototyping

By using the evolutionary process when designing the prototype, the website developed gradually with the input of different test users in three iterations. With this method, caution is required since the prototypes are based on incompleteness and lack robustness [44]. Quite rightly, this was perceived as a disadvantage since many features had to be changed at the end of the implementation process to give a coherent overall design. One improvement to this method could be to establish clearer guidelines earlier in the prototyping stages on how the overall design features should be.

5.2.1.3 User Test Methods

The following section discusses methods linked to user tests.

5.2.1.4 Age Range

Three iterations with user tests were conducted in the development phase, each with 12 test
users since this would produce a statistically significant result [41]. One shortcoming with the user tests could be that the test users constituted mostly of students from Linköping University around 21 to 24 years old. Because the website targets young people, the testing could have been more trustworthy if people were within a wider age range to receive more comprehensive feedback on the website. Since the development team is within the age range of most of the test subjects, the method’s reliability and replicability could be questioned. With both older and younger test users, the feedback may have been different, which could have resulted in designing the website differently.

5.2.1.5 Critical Thinking-Aloud Protocol

There are two ways to the critical thinking-aloud method. Either it is conducted concurrently or retrospectively, or both. If both these ways are combined the quality of the usability test increases [44]. However, only the retrospective approach was used in this study, which could be a shortcoming. Since the retrospective approach constitutes of the user giving feedback verbally after the test is conducted, he or she might have forgotten some aspects already compared to if the user would give feedback concurrently while conducting the test. This could contribute to making this method less reliable since the changes for the next iteration mainly depend on the feedback from the test users. However, this method provides a better overview of the test user’s whole experience [44] but one improvement could be to use both these methods.

5.2.1.6 Validity and Replicability

The validity of this study could be questioned in terms of the developed website lacking a range of features and not being sufficiently comprehensive to fully examine what makes a website navigable. With more features and different pages, the results of the study may have become more valid however, this was not possible due to limited time and the nature of the website not being that complex. The replicability of the study can be considered high due to the comprehensive method description of both how the testing was conducted and what questions were asked.

5.2.1.7 Source Criticism

The sources for this study have been carefully selected and are dominated by academic and peer-reviewed articles. A difficulty regarding sources dealing with web design is that the internet develops in a fast-paced manner and something that was regarded as navigable and trustworthy a few years ago might not be so today. For example, the perceived navigability of a website depends among other things on the user’s mental model of how the content should be organized this mental model can change over a few years. This could make some content of older sources irrelevant and even misleading. Especially since, according to Egger, outdated design can lower trustworthiness [26]. Therefore, it is important for this study to carefully consider what content from how old sources are being used. This was done by comparing theory from sources with today’s mental models of how websites are designed. The non-scientific sources have served as a foundation for the motivation of this study with figures from sources such as “Konsumentverket” and “Naturvårdsverket” rather than serving as a foundation for the implementation of the website. Therefore, these sources can be considered appropriate for this study [9].
5.3 Project in a Wider Perspective

Today’s generation is the first to experience the effect of climate change and the last able to do something about it. The web application enables people to directly face the greatest challenge of our time.

As stated earlier the larger bulk of emissions comes from heavy industries and not from household consumption, from this it is concluded that change in our behavior is not enough. Through the European trading system for emission allowances, a tool can be created where the industries could be affected by people. The exact how-to is explained in a different section of this report but essentially there is a cap on how much emissions can be produced inside the European Union and by taking these allowances out of circulation, the cap can be lowered and therefore the total amount of emitted gases lowered as well.

The product is not challenged until it is commercialized, because of the charity-like model and main purpose of doing good there is little to no argument for a higher margin than necessary. Through both ethical and social aspects, it is firmly believed that the product benefits all except those who intentionally want to hurt today’s generation.
6 Conclusions

This study has been describing the background, theory, methodology, evaluation, results, and ultimately a discussion. The research question being answered is “How can a web application be structured to be perceived as navigable and trustworthy?”. The main conclusions drawn from the results and discussion based on the research question were the following:

- Firstly, the purchase process, adding products to the cart, then checking out using a bank card for payment is very important for the trustworthiness when implementing a web application. Especially in this case where the products were not previously well known.
- Furthermore, information about the company behind the web application, the aim of the company, and its products were also paramount for trustworthiness. However, although the content itself of the information is important, the most important aspect regarding information was that it is typographical and grammatically correct, this also coincides with previous studies such as Egger [26].
- Another important aspect that the test users pinpointed when it came to trustworthiness, was the mental model’s users have of how a website should be designed. The web application was following a common design when it came to navigate the web application, that is, all the buttons and pages were placed in unity with their expectations. This is also mentioned in previous studies such as B. W. Wojdynski and S. Kalyanaraman’s three dimensions of website navigability [9].
- The fact that the design aligned with the common mental models of the test users also contributed to the navigability of the website, since it is easier for users to navigate when they recognize the design from other websites.
- Symmetry and color choice tended to affect the overall experience for the user. From the theory blue was chosen as the main color. Feedback from test groups pointed towards the purpose of the website was a bigger factor and with a strong connection to the environment, green was more preferred.
- According to the calculation of lostness the users were never lost in the tasks in any of the three iterations. This is thanks to the websites simple structure and being easily navigable. Further measures were taken to lower the lostness for the web application. For the specific tasks, the lostness was lowered thanks to the product amount always being shown by the shopping cart, a dropdown in the navigation bar making it easier to navigate and better improved layout [23].

6.1 Potential Future Studies

Two main issues that could further be studied, is the purchasing process, which is now implemented using Stripe’s checkout page. For example, how could the trustworthiness change based on how the checkout session is structured, is one question to be asked. From the open forum questions, there were some test users that mentioned that having a third-party payment page such as it is implemented now, contributed to the trustworthiness. However, an embedded checkout form was not implemented, so the test users did not have the ability to compare the two checkout implementations.
6.1. Potential Future Studies
Bibliography


Appendix A – User Stories
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<th>Idea 2</th>
<th>Idea 3</th>
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<td>Show certificates on when signed in</td>
<td>Show how much the company and the customers have helped the environment</td>
<td>Able to see how much your friends have climate compensated</td>
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<td>Payment by Swish</td>
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<td>What the diploma symbolizes and how it contributes to a greener earth</td>
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1. Introduction

Since 1990 the emission of greenhouse gases from Sweden has decreased by 29 percent, households are to thank for most of the improvement with companies and industries still to blame for the greater part [1]. In 2020 the different sectors of industry were together responsible for 31 percent of Sweden’s total emissions [2]. Consumers have for a long time and are continually interested in the environment [3], but as said, the industries are not keeping up. How can we enable consumers to force the industry’s hand?

1.2 Vision and business idea

Our vision is to create a new digital climate compensation tool for consumers. Our business idea is based on offering a new digital trading portal where individual consumers can compensate for their impact by buying emission allowances. With the current system, there is a cap on allowances which opens the opportunity to deny others the emissions if bought and not used [4].

1.2 NABC

Analysis of Netz regarding needs, approach, benefits, and competition are handled in the following episode.

1.2.1 Need

During the period 2008–to 2017, the environmental impact of consumption in Swedish households has decreased by 21 percent per person, and environmental interest continues to increase [3]. The average Swede has made a change in his consumption and is still willing to do more. Today's technology and society, however, lead to certain necessary emissions, and the individual consumer's willingness to make sacrifices can lead to emissions despite better alternatives. A need for a new tool where you can compensate for your emissions instead of reducing them has been identified. If this opportunity is communicated in the right way, Swedes can continue to do their part to achieve the climate goals.

1.2.2 Approach

Today the EU ETS offers a “cap and trade” system meaning a cap is set on the total amount of allowed emissions, with the cap being reduced over time. And within the allowed amount it is possible to buy and receive emissions allowances, enabling trading within the system [4]. Using the cap on this system it is possible to deny other actors the ability to use the number of emission allowances bought through our website, and therefore creating a tool to compensate and have an impact without changing your actions.

Each allowance is a right to emit one ton of carbon dioxide or an equivalent amount of nitrous oxide or perfluorocarbons [5]. To put one ton of carbon dioxide in perspective, today the average lunch for a Swede emits 1.8kg of carbon dioxide [6]. Therefore, it is reasonable to assume that a consumer is not interested in buying a whole emission allowance. Our idea is to offer smaller packages that for example represent the emissions of an average lunch, your electricity usage, or even the use of your car. As a company, we buy emissions allowances
matching the total order value, including in our customer’s buyers’ contract that we vow to never use or sell these allowances, and the consumer receives a digital certificate of compensation for the ordered amount.

To expand our reach, we will offer the possibility to share your compensation on social media. This is also an opportunity to raise awareness about climate change through our target audience.

1.2.3 Benefit

Our product is created to enable consumers to do their part in creating a better tomorrow, as stated earlier there is an increasing interest in the environment. Through our product, this interest can be turned into action and therefore satisfy the customer’s need or guilt to do something. By receiving a digital certificate customers will be able to show others their good deeds and thereby increase their social status. However, the real benefit is of course for our planet, the product will affect not just our customers but everyone else as well. By decreasing the total emissions, we help to work towards the sustainable development goals set by the UN. Investing in our product, therefore, means creating a better, healthier environment that will increase the life quality for everyone which is a definitive reason to buy our product.

1.2.4 Competition

Main competitors are Miljöbörsen and Klimatkompensera. Miljöbörsens idea is more of a portal for consumers to buy emission allowances through, and they are only offering purchases of whole tonnes. Klimatkompensera does not compensate through emission allowances. rather they invest in different charities focused on climate-smart projects, they base their product on a consumer’s average emissions.
Our website will combine the better part of both described ideas with compensation working through emission allowances and products based on the individual consumer.
2. External analysis

In the following chapter an analysis of Netz regarding the external analysis is done with the help of a PESTEL

2.1 PESTEL

![PESTEL analysis figure]

2.1.1 Political Factors

A political factor that could affect our company is that industries that are responsible for a large share of carbon emissions are opposed to climate laws. According to The Guardian, the five largest oil and gas companies have invested more than €200 million since 2010 in lobbying with the purpose to delay, control or block climate policies [7]. To increase their own profits companies like these are willing and able to spend countless resources to undermine climate policies like the system of emission allowances. Since our product is dependent on this system these powerful companies and their political influences are a definite threat.

The EU ETS works with an emission cap that specifies how many allowances will be available that year and is decided by the politicians in the EU [4]. If the cap is set too low, it means there will be a shortage of allowances on the market. Without allowances to buy our company will not have any product to sell. However, if the cap is set much higher than the actual emissions emitted by industries our product could lose its value for customers since it won’t have any impact on total emissions. Therefore, the EU must set the cap to an amount where it is not impossible to buy allowances but also is not an excessive amount on the market.
2.1.2 Economic factors

Because our target audience mostly consists of students, we need to consider their economic condition. The Swedish Board of Student Finance (CSN) has decided that students at most can get 3 360 SEK in grants and 7 728 SEK in loans over four weeks [8]. That means that our average target audience has 11 088 SEK to work with at a given month and these finances should cover all living costs. Because our target audience has limited funds, we need to consider this when pricing our product. If we were to price our product too high, our target audience would most likely choose a cheaper alternative.

Another economic factor that affects the sales of emission allowances is the Swedish taxes. According to the Swedish tax authority’s legal guidance about VAT on trading emission allowances from 2010, it was decided that emission allowances should not be a part of the exceptions from tax liability for financial transactions. Therefore, our company would be liable to pay a VAT of 25% [9].

There is also an economic problem that the price of an allowance is unpredictable and unstable. Since the system works with the free market the price varies depending on supply and demand [4]. If our prices mismatch the current price on the market customers could feel mislead and lose their trust in our brand. Therefore, we need to constantly update our prices to keep customer satisfaction and credibility in our company.

2.1.3 Social Factors

When consumers consider whether to purchase a product, their choice is often affected by their desire to be socially accepted. Consumers have social needs, and these needs are derived from how others behave [10]. According to the Swedish Consumer Agency, there is a rising social trend to contribute to a smaller climate of affection [11]. These two social aspects bode well for our idea of selling emission allowances to private consumers.

When marketing our product, it is relevant to analyze if there is a seasonal effect on our customer’s purchasing habits. To further analyze purchasing habits, it could be relevant to research the swede’s travel habits when discussing the sales of emission allowances since the two are somewhat connected. According to the Central Bureau of Statistics, the most common form of travel in Sweden is by car, and the most common route is to and from work/school/occupation [12]. Since most educational institutions have seasonal breaks, and all workplaces let their employees take out vacation days, which are usually taken around the same time as the seasonal breaks, it can be concluded that the sales of emission allowances to climate compensate for your travel habits, are seasonal.

2.1.4 Technological factors

Our target audience is very technologically advanced compared to the community and the Swedish Internet Foundation reports that 100% of students have a smartphone they regularly use. They also report that 9 out of 10 swedes use the internet every day [13]. Therefore, our choice to sell our product through a web application is a very viable option. We are also very aware that technological and environmentally friendly innovations could render our business obsolete, but since this would also further our goal and vision of a healthier environment, we do not necessarily see it as a bad thing.
2.1.5 Environmental factors

The selling of emission allowances directly to private consumers will further help us as a society, in our quest to fulfill the environmental goals set by the United Nations 2015. We can directly connect our idea to at least 4 out of the 17 goals that the UN set. These are [14]:

- Sustainable industry, innovation, and infrastructure
- Sustainable cities and societies
- Sustainable consumption and production
- Fight climate change

2.1.6 Legal factors

To take part in the trade of emission allowances, our company would have to submit an emission report every year and hand it over to the Swedish Environmental Protection Agency. This report would then be subject to a review by an independent part. If we were to not follow the rules or hand in our report late, this could lead to fines [15].

Since we provide a service to the consumer, we are obligated to follow the Swedish Commercial Legislation, especially the consumer services act. This means that if our service is provided with any faults, the consumer can legally withhold parts of the payment, demand faults to be corrected, or cancel the transaction [16]. Faults do not only mean damaging our brand and our credibility but are also a loss of income.

2.2 SWOT

The SWOT analysis distinguishes and describes strengths, weaknesses, opportunities, and threats for the company
2.2.1 Strengths

Our product is flexible and comes in many different packages. The customers can choose to buy our product through pre-existing packages, by personalizing the product based on their carbon dioxide emissions or have a monthly subscription. With this flexibility, the customer doesn’t have to buy whole emission allowances but can adapt the product to fit their financial situation, which makes our prices competitive. Since the product will be sold through a website it is accessible anytime, anywhere. Our website is user-friendly regarding navigation and design. That together allows everyone to buy our product. In addition, both our product and company will be socially and ecologically sustainable.

2.2.2 Weakness

Our main weakness is that the company is now on the market and therefore lacks a trademark and a reputation. Customers may find it hard to trust our business and products. Since they receive service and not an item it is harder to confirm that we have delivered what we promise, therefore they must rely on our word. The product is bought from suppliers, and we can’t create it ourselves. This means that the company depends on suppliers that can deliver the product, however, there are many potential suppliers on the market, and thus we are not reliant on a single supplier. The company has no funding and therefore no resources. No additional costs can arise. The company has low-profit margins which is a weakness but also a necessity. With a low-profit margin, it is hard to grow or develop the company, however, to gain trust from customers it is essential to have a low margin. Since we offer our customers charity, they expect their money to be invested in charity and nothing else. To be seen as a serious, legitimate company, increase our trademark as well as gain the trust of customers we mustn’t have high margins or make big profits.
2.2.3 Opportunities

There is a huge trend of climate awareness in society that our company could take advantage of. Customers value ecological sustainability and become more conscious about their ecological footprint. By buying our product they can compensate for their carbon emissions and lower their ecological footprint. The trend is only growing stronger and that increases our target audience.

2.2.4 Threats

There are already several other competitors, that offer the same or similar products, established on the market. Our company will compete with every company that offers climate compensation for individuals. However, most competitors offer other types of compensation, e.g., planting trees or investing in projects that develop sustainable solutions. A few companies already offer individuals climate compensation through purchasing emission rights. Each year the number of emission allowances decreases to lower the total amount of emitted carbon dioxide. Fewer allowances will lead to higher completion among all companies to get a hold of them. As already mentioned, we depend on suppliers that we can buy allowances from, and higher competition will aggravate our possibilities to acquire allowances. Our target audience has in general a low income and therefore a bad financial situation. We need to keep our prices low to appeal to the target audience or they won’t be able to buy our product. This also means that we need to attract a lot of customers for us to make a good profit.
3. Marketing goals and strategy

The following episodes target Netz future ambitions to succeed as a company.

3.1 Marketing goals

We intend to become an everyday tool for consumers to take responsibility for their emissions. This will be done through a portal designed to offer compensation for everything from dinner at home to a whole family’s monthly usage. Our goal is that the website will have at least 200 unique visitors daily and 4 000 allowances sold in total in two years.

3.2 Marketing strategy

Our marketing strategy is to be niche towards people who cares about the environment and climate change. Especially does that believe the big industries are responsible for climate change and want to impede their influence on the environment? Our products will appeal to their need to doing a change and create a better tomorrow whilst their action also punishes the industries. Few competitors try to appeal to the same need among customers, however, none of these offers a product that can match ours in term terms of accessibility and customization.

3.3 STP

An analysis regarding segmentation, target, and position is done on Netz in the following episode.

3.3.1 Segmentation

Geographically we are limited to the EU because we have chosen to work through the EU ETS system. Other geographical segments could of course use our service but could feel like our effect on them is not equal to those in the EU due to the distance to where the real-world effect is.

Behavioral segmentation is relevant when our product is targeted to people who want to do more but cannot, or in some cases when they can do more but are not interested in changing their way of life. The two different groups have one thing in common, both understand their role in making a better tomorrow. This is important when you consider that our product is more of a “feel good” where you do not receive anything physically.

Demographically our segment can vary greatly. People of all ages show an increasing interest in climate change, however, it’s more common among younger people. Ethnicity or gender is of no meaning, rather it all comes down to attitude towards what you are willing to sacrifice and your economic situation. They need our product is supposed to satisfy is not vital or even important for your everyday life. For some, it may be important to do everything they can, even if it costs money. But for those with already tough budgets, another strain that does not contribute to their direct wellbeing might be de-prioritized.
3.3.2 Targeting

Our main target group will be young people that have an interest in improving the environment. Young people are the group that has the biggest interest in the climate. As mentioned before all students have regular access to a smartphone and are therefore easy to reach with digital marketing.

We will try using the same communication to reach both those who already do everything they can but want to do more and those who do not want to change their behavior but still want to make a change. Since we do not have large economic recourses, it would be too costly to specialize our marketing towards the different segments. Instead, our campaigns aim to reach and attract as many as possible.

3.3.3 Positioning

We differentiate ourselves by offering an easily operated tool that enables you to act and make a change without changing the way of your own life. Instead, our customers can compensate for their emissions through financial means, big or small. Our platform will be the springboard for people that wants to take responsibility for their emissions.
4. Market mix

The market mix for the company is handled in the following episode.

4.1 Product

We offer customers to buy emission allowances from companies so that they never will be used. The product is sold in different packages such that the customer can choose a fitting one. We will offer premade packages that compensate for the emission of relatable, everyday occasions. There will be a function where the customer can calculate carbon emission from their transportation and then compensate for that emission, making the product more personal. It is also possible to subscribe monthly and automatically pay a selectable amount for customers that want to save time. This makes our product flexible and possible to adjust according to individual clients’ needs and can therefore attract a wider range of customers.

4.2 Price

Our target audience has a poor financial situation; therefore, we need to adjust our prices accordingly. Our prices will be as much as the emission allowances do at the time of purchase with a 5% profit margin and 25% taxes. We also need a low margin to be perceived as credible and not as profit-driven. If customers don’t feel that most of their money will be used for climate compensation, they won’t perceive the product as valuable and won’t purchase it. A low margin is no problem with almost no initial or ongoing cost to cover. An initial investment of 50 000 SEK is enough to cover all costs and all profits will be invested back into the business. The breakeven point is estimated to be in month 8 and is illustrated in the following figure.

The customer doesn’t need to buy a whole emission allowance but can choose the amount themselves, with a minimum of 50 SEK for each purchase.
4.3 Place

The customers will buy and receive the product from a website. The website will be available anywhere in Sweden and can be accessed by anyone. This makes both handling of inventory and distribution of the product very easy. The domain address, we will buy, and use is netz.com.

4.4 Promotion

To reach customers we will use a marketing channel that is already well established among our target audience. Therefore, our marketing will work through social media. After you have bought a compensation package from us the option to share this purchase will become available. This is called Word-of-mouth marketing on social media and to achieve this, it is also important to deliver a product with quality and value to guarantee customer satisfaction [17]. Much like the trend on Facebook, where people often opt for different fundraisings on their birthdays or around Christmas instead of gifts, it is important for consumers to somehow make a change in the world. But what is more important is that their friends on social media can see it. This will work to our advantage when establishing our brand and service on the market with the benefit that it will not cost our company anything. If one customer can trigger new customers, then we will quickly have a cascading effect with rapid growth. Even if it usually takes a lot of rescores to get such loyal customers that word-of-mouth marketing is possible, we believe that the customers’ need to share their good deeds will be enough.

Our company will also have its account on different social media platforms. Through these accounts, we will be able to reach customers and promote our product for no added expenses. It is vital that our company is perceived as sustainable by our customers, or it will lose credibility among customers. Therefore, we can’t use unsustainable marketing channels for promotion. We will not use any posters or any type of printed ads since it creates waste and emissions.

By modeling our website according to search engines algorithms, we can ensure a good placement for a keyword search. This will increase the number of visitors to the website and help us reach out to more customers [18]. Using SEO will require working with optimization but have no added costs.

4.5 People

Our employees are all volunteers but still possess great skills and important characteristics. The developers are competent and able to create a user-friendly, well-designed website. Employees in customer service need to be service-minded and have the competence to solve the customers’ problems. All our employees also need to share our vision to work for a better planet and exhibit these values in their actions. If they do not our credibility as a legitimate company can be questioned.

4.6 Process

Our website will be designed in a way to make all processes as simple as possible for the customer. In just a few clicks the customer can complete a transaction. Registration is completely optional, and the registration process requires a minimum of information from the
customer to make it faster and easier. There are a lot of products the customer can choose among; however, products are easy to find and possible to search for. Our website makes climate compensation easy.

4.7 Physical evidence

All our operations are done through our website. Therefore, a user-friendly, Good-looking website is a key to success. All information that the customer needs will be presented clearly on the website. If the customer has additional questions and/or problems, customer service will respond in no more than 48 hours.
Bibliography


Appendix C – User tests
Questions

Kändes inloggningprocessen säker? *
- Ja
- Nej

Vartför/varför inte? *
Lång svarstext

Hade du varit bekväm att använda samma lösenord här som på andra hemsidor? *
- Ja
- Nej

Vartför/varför inte? *
Lång svarstext

Var det enkelt att förstå hur man loggade in och bytte email? *
- Ja
- Nej

Vartför/varför inte? *
Lång svarstext

Efter att ha läst information om tjänsten, kändes företaget mer eller mindre trovärdigt? *
- Mer
- Mindre

Vartför/varför inte? *
Lång svarstext

Var det enkelt att hitta kontaktinformation till företaget? *
- Ja
- Nej

Vartför/varför inte? *
Lång svarstext
Var det intuitivt att hitta det du sökte? *

- Ja
- Nej

Varför varför inte? *

Lång svarstext

Hade du varit bekväm med att göra en betalning med ett eget kontokort på den här sidan? *

- Ja
- Nej

Varför varför inte? *

Lång svarstext

Känns det som att du faktiskt köpte utsäljningsrätter och gjorde skillnad? *

- Ja
- Nej

Varför varför inte? *

Lång svarstext

Var det enkelt att redigera val i varukorgen? *

- Ja
- Nej

Varför varför inte? *
## SUS Questions

### 1. Jag skulle vilja använda tjänsten frekvent *

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### 2. Jag tyckte att tjänsten var onödigt komplicerad *

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### 3. Jag tyckte att tjänsten var enkel att använda *

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### 4. Jag tror att jag skulle behöva hjälp av en teknisk person för att kunna använda den här tjänsten *

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### 5. Jag fann att de olika funktionerna i tjänsten var välintegrerade *

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### 6. Jag anser att det fanns för mycket inkonsekvens i tjänsten *

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### 7. Jag föreställer mig att de flesta skulle kunna lära sig att använda tjänsten pådigt snabbt *

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### 8. Jag ansåg att systemet var besvärligt att använda *

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Answers iteration 1
Kändes inloggningssprocessen säker varför / varför inte?

Do you find the login process secure?

No 17.3%

Yes 82.4%

Cleant
Smidigt och känns familjärt, dvs liknar andra sidor
Lösenordet var stjärnor när man skrev det
Gav mig inget riktigt intryck att information sparas väl etc. En simpel modal utan info.
Därför att den såg ut som en standardprocedur
Relativt solid
Rättare sagt; typ. Men det skulle nog vara bra med en ordentlig respons på så att det är tydligt att man loggat in. Som det är nu så händer det liksom inte så mycket.
Kändes standardmässig, gick smidigt
Den såg bra ut
Den kändes säker eftersom man skulle ange lösenord och det syntes inte vad man skrev in
Den såg väldigt strukturerad och ”professionell ut””, ända problemet var att man inte loggas in direkt genom att klicka tab efter man skrivit in lösenordet.
Den var väldigt enkel att använda men kändes som att det inte var så många steg. Inga rutor om man var säker eller att man behövde skriva in lösenordet flera gånger kom heller upp.

Den såg ut som det brukar se ut:)

Smidigt, enkelt, säkert eftersom inlogningssidan ser proffsig ut

För ändamålet känns det säkert. Annars kanske få in en tvåfaktorsinloggning

Bra och tydlig interface

Kanske att man skulle vilje upprepa sitt lösenord en gång till

Hade du varit bekväm att använda samma lösenord här som på andra hemsidor varför / varför inte?

Would you be comfortable using the sa...

Framsidan kunde ge ett tryggare intryck

gör aldrig det, har inte med er sida att göra

Yess litar på att ni har en sjukt avancerad kryptering

Ungefär samma svar som ovan. Vanligtvis är en typ terms of service etc något som ger lite tryghet

inloggningsgrejerna såg ut som standard. ger förtroende.

Utseendet kändes inte så utvecklat

Använder aldrig samma lösenord överallt ;)

Designen på hemsidan gör att den känns gammal och lite sketchy

Eftersom det kändes säkert

Yess använder alltid samma lösenord

Yess använder nästan alltid samma lösenord. Reflekterar inte jättemycket över vilka hemsidor det lösenordet används i.

Enkelt att komma ihåg lösenordet om man kör samma på alla sidor

Kändes säkert

Yes eftersom om jag har samma lösenord på sidor är det till grejer som inte kan påverka mig så hårt, exempelvis företags sidor eller liknade, har unika lösenord på saker som Appel-ID och Mail.

Har aldrig tänkt på att byta lösenord

Lättare att komma ihåg, inget speciellt med denna hemsida

Kändes säkert att använda samma som vanligt

Var det enkelt att förstå hur man loggade in och bytte email varför / varför inte?
Knappar låg där man är van vid att de brukar ligga
Till en början var det lätt men lite svårt att hitta vart man bytte lösenord
Logga in och registrera sig var tydligt och låg på ett "vanligt" ställe. Även att ändra info. Kanske någon popup om att man har bytt lösen/email hade varit bra.
sakerna fanns där man förväntade sig
Tydliga instruktioner
Helt ok lösning, hade kanske varit bra med en text som sade "min sida" eller dylikt för att göra det ännu tydligare.
Väldigt lätt, kändes likt andra hemsidor
Det hittades lätt inne på kontoinställningar
Det stod tydligt
Det gick smidigt och var relativt tydligt.
Var tydligt hur man hittade på hemsidan och profildelen var tydlig hur man ändrade
Tydligt, såg ut som det brukar se ut på hemsidor, alltså där man intuitivt ollar först.
Bra namn på flikarna
Sålänge man fattar att man ska klicka på profil-ikonen så går det lätt
Tydligt skrivet med kontohantering och fält
Det var lätt att se var man hittade kontoinformationen eftersom det var högst uppe i menyn

Var det enkelt att hitta kontaktinformation till företaget varför / varför inte?
Yes tydligt fält kontakt
Knappar låg där man är van vid att de brukar ligga
Knapp som var lätt att hitta
Kontakt låg också på ett bra ställe. Något som jag kanske tänkte på var att färgen till knappen (gäller även för frågan ovanför) var lite mörk och stod inte ut

Tydlig kontaktknapp som var väl placerad

Bra kontaktsida

"Kontakt" gör saken ganska självklar :)

Låg bra placerad på hemsidan, lätt att hitta

Eftersom kontakt var en tydlig rubrik

Det fanns en tydlig länk till kontaktinformationen

Kontakt var nästan först (efter startsida) vilket gjorde att man snabbt hittade det.

Vet inte exakt om det var den som stod under kontakt. Kändes som att det var mer kontakt till er istället för kontakt till andra företag.

Stod kontakt längst upp, alltså väldigt tydligt och synligt

Bra namn och symboler på flikarna

Hittades bland huvudrubrikerna så kändes som en rimlig placering

Tydligt skrivet "kontakt". Ibland står kontaktuppgifter även längst ner på startsidan men detta fungerade.

Bra att det är högst upp på sidan

Efter att ha läst information om tjänsten, kändes företaget mer eller mindre trovärdigt varför / varför inte?

![Efter att ha läst information om tjänsten, ...](image)

Samma

Mys med miljö <33

Det känns som ni gör en bra gärning för miljön

Ger lite mer info om företaget som gör att man känner sig säkrare och att sidan verkar mer seriös

Man fick lite info helt enkelt. Kändes ju inte mindre trovärdigt i alla fall.

Utvecklas mer

Tydligt mål och info. Dock borde ni ändra stavfelet "Lingöpings universitet" till "Linköpings universitet", stavfel drar tyvärr ner trovärdigheten något.

Designen på den sidan gör att sidan känns ännu mer sketchy

För det fanns mail, telefonnummer och adress

Det kändes troligt förutom att det stod Lingöpings universitet

87
Tyckte att det var lite oklart var själva produkten faktiskt var. Det kändes lite luddigt i beskrivningen. Men målen för företaget var väldigt tydliga.

Hemsidan kändes trovärdig, hade dock velat ha ännu mer information istället för personernas rekommendation som stod

Bra språk ökar trovärdigheten. Verkade seriöst
tydlig och saklig information som ger en bra överblick över vad företaget gör vilket gör att den känns trovärdig. Om man skulle vilja höja nivån ännu mer kanske man skulle kunna lägga in en bild på personerna bakom sidan så man får ett ansikte på personerna vilket jag hade tyckt skulle vara med trovärdigt.

Relevant och viktig företagsidé. Men kanske byta typosnitt så att det ser ännu mer seriöst ut
More trovärdigt, mer tydligt inriktat och beskrivet mot vad en hållbar framtid innebör. Vilka är de nio studenterna?

Det var bra information och inte för mycket så man tappade intresset.

<table>
<thead>
<tr>
<th>Var det intuitivt att hitta det du sökte varför / varför inte?</th>
</tr>
</thead>
</table>

| Nej | 5.9% |
| Yes | 94.1% |

Filtrering kunde tagit större yta
Knappar låg där man är van vid att de brukar ligga
Det hade varit bra med en knapp "produkter" istället för att bara klicka på sökknappen
Lätt att hitta produkter och att söka efter produkten.
Skrev in ett nyckelord i sökrutan och hittade vad jag letade efter. Kändes naturligt.
Filter och sökfunktionen var ganska gömd
Bra med filtrering och sök ;)
Lätt att hitta. Kanske ha ännu mer filtreringsfunktioner dock om ni skulle ha fler produkter. Sökfunktion fungerar bra
Eftersom det var lätt att hitta det jeg sökte och navigera i varukorgen
 Det var lätt att hitta vad jag sökte eftersom det stod tydligt, jag tycker dock att det borde vara tydligare när man lagt till en produkt, jag tryckte i två gånger
Enkelt att hitta! Stort problem är att man inte får någon confirmation på att det man vill köpa har lagts till! Även så att om man ändrar antalet Produkten man vill ha för snabbt laggar hemsidan.
Allt var tydligt och enkelt att hitta de olika delarna. Fanns dock ingen bekräftelse på att man lagt till saker i varukorgen
Stod tydligt produkter högst upp.
bra sökfunktion
Produkter fanns bland huvudrubrikerna
Skrivet produkter
Yes men det hade kunnat vara tydligare på startsidan vad ni har för produkter

Hade du varit bekväm med att göra en betalning med ett eget kontokort på den här sidan varför / varför inte?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>47.1%</td>
<td>52.9%</td>
</tr>
</tbody>
</table>

Som jag nämnt tidigare - designen av hemsidan gör att jag drar mig för att använda den och betala med mitt kort

För att det såg säkert ut

Det såg ut som en vanlig hemsida där man betalar

Som innan ser hemsidan seriös ut och enkel att hitta på, de tekniska delarna ger lite osäkerhet.

Var väldigt enkelt men hade velat bli vidarebefordrad till en bank id bekräftelse

Kändes trovärdigt

Brukar inte handla av sidor som inte verifierar betalningen genom bank_ID

Layouten i varukorgen kändes lite sådär och lite buggig när jag tog bort en produkt. Drar ner intrrycket

Om jag hade varit manad att köpa hade jag använt mitt kort men interfacet kändes lite "skumt" då det inte stod att jag la till något i kundvagnen utan behövde se det manuellt.

Tycker det ser ut som det brukar göra

Känns det som att du faktiskt köpte utsläppsrätter och gjorde skillnad varför / varför inte ?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>52.9%</td>
<td>47.1%</td>
</tr>
</tbody>
</table>

Det känns som att jag köpte en resa, lite oklart att det är just utsläppsrätter

För att det kändes bra
För att det stod att jag gjorde det
Man kan vara ännu tydligare med någon form av text som ger den som köper lite hype eller liknande för att man gör något för klimatet.

Stod att jag köpte utsläppsrätter så hade hoppats på de
Hände inget när man hade köpt. Hade varit kul om det kom up en ruta när man köpt, där det stod typ tack för att du hjälpt till eller något

bra förklaring om vad produkten innebar

Nja, hade kunnat vara najs att visa hur mycket skillnad man gjort efter betalning. Hur mycket man kompenserat för och vad man har räddat hade kunnat vara najs

Yes!

Men hade svårt att förstå vad produkten innebar helt och hållet men det kanske var poängen också haha

Var det enkelt att redigera val i varukorgen varför / varför inte?
Did you find it easy to edit your order i…

Tydligt och bra

Knappar låg där man är van vid att de brukar ligga
allt fungerade bra och var lätt att hitta

Lätt att ta bort, men bra att tänka på det som skrevs ovan
responsivt och intuitivt. Stod NaN dock. inte bra

Tydlig varukorg

Tydligt och bra :)

Gick väldigt smidigt, fungerar som det bör

Det var enkelt att klicka på krysset

Det stod väldigt tydligt om man ville minska/öka antal eller ta bort produkten helt

Formatet är bra och enkelt att förstå, men som tidigare nämnt laggar det om man klickar för snabbt

Var tydlig plus och minus tecken för att lägga till/ta bort

Tydligt, som det brukar va på hemsidor

smidiga val och tydliga figurer

Det var tydliga knappar för varje val jag skulle göra
Enkelt att både minska antal (till följd av att jag tryckte på samma produkt flera gånger) och ta bort produkter helt.

Det var lätt att redigera! Det enda var att sifforna för hur många vi hade i varukorgen försvann när jag hade två olika paket.

| Jag skulle vilja använda tjänsten | Jag tycker att tjänsten var onödig/ komplex | Jag fann att de olika funktionerna i tjänsten var välintegrierade | Jag anser att det fanns för mycket inkonsens i tjänsten | Yesg föreställer mig att de flesta skulle kunna läsa sig att använda tjänsten | Jag föreställer mig att de flesta skulle kunna läsa sig att använda tjänsten | Jag ansåg att systemet var besvärligt att använda | Jag kände mig självsäker i användandet av tjänsten | Jag hade rekommenderat sidan till en vän | Jag skulle använda sidan igen |
|-------------------------------|-----------------------------------------------|----------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 3                             | 2                                             | 4                                                         | 1                               | 2                               | 3                               | 5                               | 4                               | 2                               | 2                               |
| 4                             | 1                                             | 5                                                         | 1                               | 5                               | 5                               | 1                               | 5                               | 1                               | 3                               |
| 5                             | 2                                             | 3                                                         | 1                               | 4                               | 2                               | 5                               | 5                               | 2                               | 5                               |
| 3                             | 1                                             | 4                                                         | 1                               | 2                               | 2                               | 5                               | 4                               | 2                               | 2                               |
| 2                             | 1                                             | 5                                                         | 1                               | 4                               | 2                               | 5                               | 4                               | 2                               | 4                               |
| 2                             | 2                                             | 3                                                         | 2                               | 2                               | 2                               | 5                               | 4                               | 2                               | 4                               |
| 3                             | 2                                             | 4                                                         | 1                               | 3                               | 2                               | 5                               | 4                               | 3                               | 3                               |
| 2                             | 1                                             | 4                                                         | 1                               | 4                               | 2                               | 5                               | 4                               | 2                               | 4                               |
| 2                             | 1                                             | 4                                                         | 1                               | 4                               | 2                               | 5                               | 4                               | 2                               | 4                               |
| 5                             | 1                                             | 5                                                         | 1                               | 5                               | 1                               | 5                               | 1                               | 5                               | 1                               |
| 5                             | 5                                             | 1                                                         | 5                               | 1                               | 5                               | 1                               | 5                               | 1                               | 5                               |
| 5                             | 1                                             | 5                                                         | 1                               | 5                               | 1                               | 5                               | 1                               | 5                               | 1                               |
| 3                             | 1                                             | 4                                                         | 1                               | 4                               | 1                               | 4                               | 5                               | 2                               | 4                               |
| 4                             | 1                                             | 4                                                         | 1                               | 3                               | 1                               | 4                               | 5                               | 1                               | 4                               |
| 5                             | 1                                             | 5                                                         | 1                               | 4                               | 5                               | 1                               | 5                               | 1                               | 5                               |
| 3                             | 1                                             | 5                                                         | 1                               | 4                               | 5                               | 1                               | 5                               | 1                               | 4                               |
Vet inte

Det var var jag förväntade mig av en inloggningprocess, enkel. Inget speciellt som jag tänkte på som upplevdes osäkert.

Kändes inte osäker

ja säkert att använda epost.

Kändes som vilken annan seriös hemsida liksom

Angav ej email 2ggr.

Hemsidan tvingade mig göra ett "säkert" konto. Frågan är om mitt lösenord hashas tillsammans med en salt? Det hade varit väldigt säkert

Krav på versal+gemen+siffra i lösenord.

Kändes som vilken annan hemsida som helst

Behövde konfirmera lösenord. Lösenordet hade krav på längd och specialtecken

Osäker på om lösenordet kunde sparas på något sätt eller visas

Ganska, såg inte lika "proffsigt" ut som det gör när man loggar in på en riktig sida

Hade du varit bekväm att använda samma lösenord här som på andra hemsidor varför / varför inte?

Yesg har ett speciellt lösenord för oviktiga sidor
Yesg tycker att gränssnittet är lite för simpelt för att jag helt skulle kunna lita på att de som står bakom sidan bryt sig tillräckligt för att bygga en säker hemsida. Men det var helt klart okej och känner mig ganska säker.

Vet inte ens vilken hemsida jag är på gör alltid det.

Yesg är inte jättenoga med sånt där, mendet kändes seriös

Seriöst intryck

vill ha en process där man får ett engångslösenord för att byta lösenord. Nu kan man byta direkt på hemsidan vilket ger en bild av att mitt lösenord sparas direkt i en databas

Inget behov av att ha annat lösenord

Ingenting konstigt med inloggningssprocessen, kändes tryggt

Därför att denna inloggningssprocess var lika seriös som alla andra seriösa sidor

Osäker på hanteringen av lösenord på mindre ”officiella” webbsidor

Var nojig över att ni skulle kunna se mitt lösen

Var det enkelt att förstå hur man loggade in och bytte email varför / varför inte?

Var det enkelt att förstå hur ma…

Var det enkelt att förstå hur ma…

Yes 100.0%

Mina sidor hade en tydlig drop-down meny

Allt fanns där jag förväntade mig, enkel process att ändra kontaktuppgifterna på den sidan.

Yesg är smart

det går att hitta enkelt, men skulle kunna finnas en beskrivning som man direkt kan klicka på för att skapa konto.

Lät, standardformat

Tydlig/typisk ikon på vanligt ställe på skärmen.

Byta EM-silver var givet. Att logga in var inte lika simpelt men man förstös rätt fort vart man skulle trycka. En knapp där det stod ”logga in” direkt i menyn hade underlättat!

Enkla instruktioner

Tydligt, inga oklarheter

Det var intuitivt att trycka på avataren uppe vid ens namn

Fungerade som de flesta andra hemsidor!

Tydligt
Var det enkelt att hitta kontaktinformation till företaget varför / varför inte?

Kontakt rubriken i navbaren syntes

Kontakt fanns synligt i huvudmenyn i typ alla vyer så det var enkelt att hitta.

Brukar vara där, dock brukar kontaktinfo och länkar till sådana sidor ligga längst ner på sidan

fanns en om oss.

Formatet

Typisk utformning

Tydlig knapp i navbar

"om oss" är väldigt tydligt

Rimligt med kontaktinformation under Om oss

Missade först att det fanns en om oss rubrik uppe i navbaren men när jag väl såg den kändes

det ju rimligt att trycka på den

Pedagogiskt

Det var ganska tydligt, borde finnas kontaktinfo längst ner på varje flik också

Efter att ha läst information om tjänsten, kändes företaget mer eller mindre trovärdigt varför / varför inte?

Det var väl skrivet och kändes officiellt

Net Z lät lite kryptisk i början men när ni förklarade vad ni gör kändes det bättre och mer

tryggt.

Fattade vad det handlade om

ofta om det finns info är det trovärdigt.

Det var en bra och lättförståelig interface.

Kort och tydlig info. Hade gärna blivit hänvisad till mer utförlig info om önskas plus kanske
en ruta med "snabba fakta" med detaljer i kortformer (siffror). Målbild för företaget.
Gav känslan av att ju inte var vinstdrivande. Kändes genuint för miljön:

Enkel och rimlig förklaring

Fick en tydligare bild av företaget

Ni förklarar hur tjänsten fungerar vilket är gör att det känns seriöst

Intressant och relevant nisch inom hållbarhet

Läste inte

Var det intuitivt att hitta det du sökte varför / varför inte?

Det var stora och fina rubriker

Allt fanns där jag förväntade mig, inget steg i köprocessen som kändes onödigt eller förvirrande.

Yes

finns en flik som heter produkter

Det va det första som kom upp

Lätthittat under produkter

Tydlig knapp på framsidan

Stor text och tydlig bild

Var inte svårt att hitta, tydligt

Det var tydligt att det stod produkter i navbaren

Fungerar som många andra hemsidor

Lätt att hitta

Hade du varit bekväm med att göra en betalning med ett eget kontokort på den här sidan varför / varför inte?
Stripe är pålitligt enligt min uppfattning
Eftersom jag togs till en sida som verkade seriös med att ta emot betalningar.
Inget bankid???
använder hellre klarna
Om det fanns tidigare köp hade jag, interfacen är seriös
Ger seriöst intryck. Bekanta ikoner vid betalning. Hade gärna enkelt kunnat klicka på
produkten och läsa mer om den innan jag köpte den.
Gedigen process som kändes trygg
Förutsatt att jag visste att det inte var en testsida, absolut
Fick en liten känsla av att hemsidan kanske inte är den mest påkostade eller väljorda
hemsidan på internet, vilket gör det lite otryggt att lägga in mina egna bankuppgifter
Stripe känns legitimit
Känns inte helt etablerat ännu
Såg lite B ut, hade nog kollat era reviews

Känns det som att du faktiskt köpte utsläppsrätter och gjorde skillnad varför / varför inte?
Känns det som att du faktiskt köpte

Det var en trevlig fågel vilket kändes miljörelaterat
Yes men skulle kanske behöva mer fakta på vad mitt köp har för faktiska konsekvenser.
Trodde jag köpte en resa till spanien
nej, jag köpte en flygresa till maldiverna så inte så bra kanske
Det är svårt att ta på! Man kanske skulle vilja få ett certifikat av något slag
Bekräftelse av köpet efter genomförd betalning.
Hade varit trevligt att se hur många utsläppsåter som finns kvar efter mitt köp. Något typ av diagram som minskar iom mitt köp. Hur vet jag att något har hänt?

Hade kunnat vara någon fin gif/bild/animation med något miljörelaterat

Tror det behövs lite mer information om vad som faktiskt köps på produktsidan, så man inte tror att man köper en flygresa t.ex.

Därför att jag hade varit inne och läst på om oss sidan så jag visste vad det var jag köpte

Kändes kanske lite för "enkelt", skulle kanske vara bra med lite mer information om mer konkret hur just den produkten påverkar utbudet av utsläppsrätterna och kanske mer siffror/statistik? More ingående liksom!

Kändes bra

Var det enkelt att redigera val i varukorgen varför / varför inte?

Var det enkelt att redigera val i varukorgen

Yes 91.7%
No 8.3%

Det var lite ointuitivt att jag lagt till en grej. (Yesg såg det inte första gången). Annars var det lätt att ta bort och öka antal.

Alla knappar verkade fungera utmärkt :)

Funkade

man kan klicka på varukorgen och ta bort

Lättanvänd! Dock behöver ni gröra det tydligare att man faktiskt lagt något i varukorgen?

Enkelt att hitta varukorg och redigera antal av vald produkt i varukorgen

Tydligt. Dock var det inte lika lätt att se att man hade lagt till i varukorgen. Hade varit bra med en popup ”du har lagt till… i varukorgen” inte bara ett litet +1 i hörnet

Mycket enkelt!

Lätt och tydligt

Supertydligt med plus och minustecken

Jättesmidigt

Det var lätt, tyckte det var lite otydligt om en vara las till i varukorgen eller inte

Jag skull e vilja använda tjäns
Jag tyckt e att tjänsten var onöd
Jag tyckt e att tjänsten var enke
Jag tyckte att jag skull e behö
Jag fann att de olika funktionerna i tjänsten var komfort
Jag anser att det fanns för mycket införrän
Yesg föreställer mig att de flesta skulle ansåg att syster met var besvä
Jag föreställer mig att de flesta skulle ansåg att syster met var besvä
Jag kände mig självsäk er i använd andet
Jag behövde lära mig män ga
Jag hade rekommenderat sidan till en vän
<table>
<thead>
<tr>
<th>ten frekv</th>
<th>igt komplex</th>
<th>I att använda</th>
<th>va hjälp av en teknisk person för att kunna använda den här tjänsten</th>
<th>välintegrerade</th>
<th>kvens i tjänsten</th>
<th>kunna lära sig att använda tjänsten välligt snabbt</th>
<th>kunna lära sig att använda tjänsten välligt snabbt</th>
<th>rligt att använda av tjänsten</th>
<th>saker inna n jag kunde använda mig av tjänsten</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>4</td>
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<td>4</td>
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</tr>
</tbody>
</table>

**Answers iteration 3**
Kändes inloggningsprocessen säker varför / varför inte?

Lite oklart att det fanns sparade uppgifter från annan inlogg/gammal

godkänna villkor
krav på lösenord
skriver in lösenord två gånger
Liknade inloggning på andra större hemsidor. Försökta använda lösenord 123 först vilket nekades. Det var också förtroendeinvandande.

Den såg ut som inloggningssidor brukar göra, enkel och tydlig

Såg ut som en inloggningssida

Standard inloggningssprocess, inga konstigheter. Eventuellt byta konfirmera --> bekräfta

Gillar modals!

Det kändes på riktigt!!

var tvungen att göra ett kompletterat lösen vilket är bra

Lösenord koll+ krav

Bra att ni säkerställer att lösenordet man väljer måste vara ett visst antal tecken etc.

Tydlig röd tråd för att skapa ett konto och lägga till inloggningssuppgifter - högt krav på lösenordet (gemener, versaler, siffror osv.)

Hade du varit bekväm att använda samma lösenord här som på andra hemsidor varför / varför inte?

![Diagram](image)

Som många andra registreringar

hemsidan verkar legit!

Hemsidan ser proffesionell ut, hade inte reflekerat mycket mer än så.

Bra krav på vilket lösenord man måste använda vilket gör det mer tillförlitligt

Haha alltså jag hade det egentligen, nu gjorde jag inte det för jag vet ju inte exakt hur just ni har programmerat det... men egentligen hade jag varit bekväm med det

Känns säkert

Gillade inte den där feltexten om lösenord (6-20 tecken osv.), kändes osäkert

Hemsidan kändes säker och pålitlig

för jag gör ofta det

70% säker

Min uppfattning var att hemsidan kändes trovärdig vid inloggningssprocessen, så därmed skulle jag inte anse att det vore ett problem.

Läst GDPR-avsnittet och känner mig därför trygg i att lösenordet kommer hanteras varsamt och inte spridas till fel personer eller dylikt.

Var det enkelt att förstå hur man loggade in och bytte email varför / varför inte?
### Var det enkelt att förstå hur man log…

Tydligt och intuitivt, likt många hemsidor jag är van vid

<table>
<thead>
<tr>
<th>Tydlig ikon med profilknapp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gjordes just så som jag intuitivt förväntade mig att det skulle fuggera</td>
</tr>
<tr>
<td>Logga in knappen var tydligt placerad. Sen var ikonen för ens egen profil enkel att känna igen så man hittade snabbt var man gör ändringar till profilen</td>
</tr>
<tr>
<td>Var lätt egentligen, men jag slarvade till det och försökte logga in istället för att skapa ett konto innan jag hade ett konto (så något kanske kan göras tydligare där)</td>
</tr>
</tbody>
</table>

Kändes enkelt

Best practice val av menygrejer

Det framgick tydligt för att det stog tydligt

Yes men kan bli böttre

Det stod tydligt var man skulle logga in/byta lösenord, vilket underlättade processen.

Tydlig röd tråd - syns väl på startsidan var man gör detta och hur det går till. Inte en komplicerad process, väldigt tydligt.

### Var det enkelt att hitta kontaktinformation till företaget varför / varför inte?

Var det enkelt att hitta kontaktinform…

<table>
<thead>
<tr>
<th>Tydligt och intuitivt, likt många hemsidor jag är van vid</th>
</tr>
</thead>
<tbody>
<tr>
<td>låg under tydlig kategori &quot;om oss&quot; med dropdown</td>
</tr>
<tr>
<td>Tydligt och enkelt att hitta i och med att &quot;Om oss&quot; alltid syns. det stog tydligt ”om oss” i menyn</td>
</tr>
<tr>
<td>Tydliga rubriker på rimliga ställen</td>
</tr>
<tr>
<td>Kontakta oss fliken gör all skillnad</td>
</tr>
<tr>
<td>Låg under om oss, tokrimligt</td>
</tr>
<tr>
<td>Brukar ligga under info</td>
</tr>
</tbody>
</table>
för att det fanns där man förväntar sig att de ska va
Tydligt
Tydlig och lättläst "menubar".
Inte många klick bort och väldigt tydligt var man borde klicka för att ta sig fram till informationen.

Efter att ha läst information om tjänsten, kändes företaget mer eller mindre trovärdigt varför / varför inte?

Bra info
företagets motiv blev tydligare
Upplevdes allvarsamt och kunnigt. Mycket text känns också seriöst haha
Professionellt skriven text och dessutom intressant idé vilket gjorde det mer trovärdigt
Ganska utförligt beskrivning, kunde varit tydligare vilka som stod bakom sidan och varför
Kändes nice och rimligt. Underlättar att tjänsten har ett "högre syfte"
Såg FN:s globala mål, kändes safe
Jättebra text och informativ
för att de var bra formuletat och tydligt känns bra!
Bra beskrivning
Eftersom tjänsten är relativt ny och jag inte varit bekant med den sedan innan, ökade min trovärdighet för hemsidan då ni tydligt förklarade informationen kring hur utsläppsrätterna fungerar osv.
More trovärdigt, väldigt proffsig text och förtroendeigivande.

Var det intuitivt att hitta det du sökte varför / varför inte?

Var det intuitivt att hitta det du sökte?
Både sökord och kategorier gjorde det intuitivt

inga problem öht

Kändes som att jag kunde filtrera fram sökt produkt på flera och intuitiva sätt.

"Produkter” hittade man enkelt. Sen var sökfunktionen lite gömd kanske till vänster

Yesg såg sökfunktion snabbt och sökte, fick rätt resultat direkt

Tydlig produktflik

Sökfunktion, dock lite märkligt med tickboxes

Allt föll sig naturligt

bra sökfunktion

Stämde överens med filtrering

Det var lätt att hitta produkterna, och varukorgen uppdaterades på ett snyggt sätt direkt när man lade till flera varor.

Enkel design, få klick för att komma dit jag ville och bra sökfunktion.

Hade du varit bekväm med att göra en betalning med ett eget kontokort på den här sidan varför / varför inte?

Hade du varit bekväm med att göra…

Stripe känns legit så framförallt därför inte nödvändigtvis hemsidan även om den är som vilken som helst

snygg design, kändes legitim

Stripe framställs som en säker tredje part.

Betalningssidan såg bra ut/som såna sidor brukar se ut så det kändes säkert

Layouten på själva betalningssidan kändes seriös, vet inte om jag älskar att man kommer till en ny sida dock

Nice med en extern betalningsplattform typ

Tredjepart är nice, fin landing page

Den kändes säker

kom till en annan sida. kändes legitimt

Lite sådär mellansida men kändes ok tillförlitligt

Då ni använde Stripe, som är en väletablerad betaltjänst, kändes betalningsprocessen trovärdig och bekväm.

Trygghet, enkelhet och bra information vid funderingar.
Känns det som att du faktiskt köpte utsläppsrätter och gjorde skillnad varför / varför inte?

Känns det som att du faktiskt köpte...

<table>
<thead>
<tr>
<th>Yes</th>
<th>83.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>16.7%</td>
</tr>
</tbody>
</table>

För det är inför jag fick samt utsläppsrätter en ett begrepp jag känner till sedan innan så jag förstår hur det är möjligt. Kanske annorlunda för någon som inte känner till begreppet sedan innan
tydlig sida med bilder efter utsläppsrätten var inhandlad. gav bra feedback.
Vet inte riktigt vad jag egentligen betalt för eller vart pengarna går någonstans.
Yes eftersom info om tjänsten ståg tydlig!
Kändes väl lite för abstrakt typ. Inte så himla tydligt vad som händer.
Yes typ men hade gärna haft ännu mer information på produktsidan ang utsläppsrätterna
Örnen!! 10/10
Hade varit nice om det framgick någon form av bevis på att företaget faktiskt köpt
utsläppsrätter
för om man läser så står det vad man faktiskt köper
Kändes bra
Det tycker jag, vet inte om det var hemsidan i sig som gjorde det men det kändes som att jag köpte utsläppsrätter mestadels för jag betalade för dem.
Yesg genomförde ett köp och fick ett faktiskt värde givet på vilken skillnad jag gjorde.

Var det enkelt att redigera val i varukorgen varför / varför inte?

Var det enkelt att redigera val i varu...

| Yes | 100.0% |

Enkelt och simpelt
tydligt kryss för att ta bort
Intuitivt
Tydliga knappar om hur man tar bort etc
Tydliga symboler och liknande

Enkelt att kunna ta bort varor utan att behöva gå in på ny sida!

Röd knapp! Dock ändrades ordningen lite, så lite weird

Jättetydligt

för att det var enkelt

Enkla val

Var enkelt att öka/minskar antal varor med +/- knapparna, eller att helt enkelt ta bort saker från varukorgen med en tydlig knapp

ett klick bort!

<table>
<thead>
<tr>
<th>Jag skulle vilja använda tjänsten</th>
<th>Jag tyckte att tjänsten var onödig komplex</th>
<th>Jag fann att de olika funktionerna i tjänsten var välintegrerade</th>
<th>Jag anser att det fanns för mycket inkonsekvens i tjänsten</th>
<th>Jag föreställer mig att de flesta skulle kunna lära sig att använda tjänsten</th>
<th>Jag ansåg att systemet var besvärligt att använda</th>
<th>Jag kände mig själv säker i användandet av tjänsten</th>
<th>Jag behövde lära mig många saker innan jag kunde använda tjänsten</th>
<th>Jag hade rekommenderat sidan till en vän</th>
<th>Jag skulle använda sidan igen</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
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<td>5</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
Appendix D – Lostness
**Test 1**

a. Registrera ett konto = logga in  

b. Ändra email  

c. Logga ut  

d. Logga in igen  

e. Hitta infosidan  

f. Läs infon

**Test 2**

Uppgift: Gör ett köp  

a. Utgå från startsidan  

b. Leta upp produkt "Flygresa London-paketet", lägg i varukorgen  

c. Lägg till "Golflunchen-paketet" i varukorgen  

d. Ta bort den Golflunchen-paketet ur varukorgen  

e. Köp produkt "Flygresa London-paketet"  

Uppgifter:  
epost: test@gmail.com  
betalkort  
kortnumret: 4242 4242 4242 4242  
utgångstid: 06/24  
cvc: 884  
Namn: test testsson  
Land: sverige  
Spara inte betalkort för senare köp

**Results Iteration 1**

<table>
<thead>
<tr>
<th></th>
<th>Test 1</th>
<th></th>
<th>Test 2</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>N</td>
<td>S</td>
<td>L</td>
<td>R</td>
<td>N</td>
<td>S</td>
</tr>
<tr>
<td>Person 1</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>0,27</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Person 2</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>0,14</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Person 3</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>0,14</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Person 4</td>
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<td>6</td>
<td>6</td>
<td>0,00</td>
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<td>5</td>
</tr>
<tr>
<td>Person 5</td>
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<td>6</td>
<td>6</td>
<td>0,00</td>
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<td>6</td>
</tr>
<tr>
<td>Person 6</td>
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<td>6</td>
<td>0,00</td>
<td>4</td>
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<td>4</td>
</tr>
<tr>
<td>Person 7</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>0,19</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Person 8</td>
<td>6</td>
<td>7</td>
<td>9</td>
<td>0,26</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Person 9</td>
<td>6</td>
<td>8</td>
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<td>0,25</td>
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</tr>
<tr>
<td>Person 10</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>0,33</td>
<td>4</td>
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<td>4</td>
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<tr>
<td>Person 11</td>
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<td>6</td>
<td>7</td>
<td>0,14</td>
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<td>7</td>
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<tr>
<td>Person 12</td>
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<td>0,00</td>
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<td>5</td>
</tr>
</tbody>
</table>

Average 0,14  
Average both tests 0,16
### Results Iteration 2

<table>
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<tr>
<th>Test 1</th>
<th>R</th>
<th>N</th>
<th>S</th>
<th>L</th>
<th>Test 2</th>
<th>R</th>
<th>N</th>
<th>S</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person 1</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>0,19</td>
<td>Person 1</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0,00</td>
</tr>
<tr>
<td>Person 2</td>
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<td>6</td>
<td>6</td>
<td>0,00</td>
<td>Person 2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0,00</td>
</tr>
<tr>
<td>Person 3</td>
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<td>6</td>
<td>6</td>
<td>0,00</td>
<td>Person 3</td>
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<td>4</td>
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<tr>
<td>Person 4</td>
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<tr>
<td>Person 11</td>
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Average both tests 0,13

### Results Iteration 3

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Average both tests 0,03