The Complexity of Human Computer-Interaction; the case of Online Saving Platforms

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Komplexiteten av Människa Datorinteraktion; fallet om online-sparande plattformar

av

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Abstract
Digital transformation is a concept that has altered the entire technological market space and industries are changing thereafter. Online saving platforms is an industry that was created for the reason of this digital transformation, and that is where this study is focused, specifically on Human-computer interaction (HCI). This study is done with a business to consumer (B2C) perspective and the chosen area focused on finding key instruments and mechanisms to increase business intelligence.

The main research question is formulated as “In what way will human computer-interaction alter the business intelligence on an online based savings platform?”. To answer this question, two sub questions are formulated as followed, “RQ1: What are the key instruments that play a role in HCI when put in the context of online saving platforms? And the second sub question is: RQ2: What are the mechanisms that underlie customers’ visits on online saving platform?”.

The used method is interviews. In total 19 interviews were collected in the form of three pilot study interviews, eight internal and eight external interviews. The interviews were chosen to cover the largest area of importance and therefore, be able to answer the research questions. All interviews were performed on a semi-structured way.

The literature review found four models and frameworks that was further developed in the analysis. They are 4 key elements, Customer Lifetime Value (CLV), 3-image model and TAM Framework. The empirical findings found several important main elements that was analysed together with the literature in the analysis. The conclusion is that an application should be developed in the form of an account and an important community. Dynamic vouchers and voucher back will be offered, and the application can be used both on computer and mobile devices. This will conclude the main findings from empirical studies which was customer loyalty, cost tracking, staying competitive and creating customer value.
Key-words:
Online saving platforms, Human-computer interaction, Digital transformation, Artificial intelligence, business intelligence, customer lifetime value (CLV), TAM Framework, Dynamic vouchers.
Sammanfattning


Huvudforskningsfrågan är formulerad som "På vilket sätt kommer mänsklig datorinteraktion att förändra affärsintelligensen på en webbaserad sparplattform?". För att svara på denna fråga formuleras två underfrågor som följer, "RQ1: Vilka är de viktigaste instrumenten som spelar en roll i MDI, när de skapas en online-sparande plattform?" Och den andra delfrågan är: "RQ2: Vilka är de mekanismer som ligger till grund för kundernas besök på en webbaserad sparplattform?".


Nyckelord:
Webbaserad spar plattform, Människa datorinteraktion, Digital transformation, Konstgjord intelligens, Business intelligence, kundens livstid värde (CLV), TAM Framework, Dynamiska kuponger.
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1 INTRODUCTION

This chapter provides the reader with a background of the subject, including a problem formulation which tells why this study is useful. Thereafter, the purpose with the research questions is presented. Lastly, the contribution, delimitations and disposition are presented.

Since the world wide web was created in 1989 (World Wide Web foundation, 2016) and Google almost a decade later in 1998 (Stanford, 2017), a technological shift has rapidly transformed the market place into a digitilized online platform. This means, that more businesses choose to become online based and go further away from their old business models (Khan, 2016). This is a change that occurred in countless industries. Many businesses have come to a point that they either must change their entire business structure, or they will not be able to survive the future.

People nowadays want to live their life as efficient as possible but in combination with a high sense of control. This means that most people like to have control over their own decisions instead of trusting them to an advisor. Therefore, there is a common used quote, made by the founder of Intel, Gordon Moore, “Change has never moved this fast and will never be as slow again”. Diagram 1 shows change in relation with time for technological, social, business and political changes. It is shown that changes in technological contexts, changes most drastically over time.

Another part that is closely related to the digitalization is human-computer interaction which was developed because of this transformation and throughout this study, it will be called HCI. There are numerous reasons why HCI is important in technical systems and software. The understanding of the human brain and the direct connection to specific software should be developed perfectly and in the most optimal way possible, for wider use. If not, it will not be used. This is a complex subject that not only focuses on the digitalization of the market in general but also the development of artificial intelligence (AI) and HCI.

The digital transformation has not only changed industries but also created new ones (Newman, 2016). This study is researching an industry that was created because of the digital transformation, which is presented as the intermediary between computers and consumers. This industry is called online saving platforms and is created in the E-commerce business. An online saving platform can in general earn revenue on industries regardless size, costs and unprecedented global location, since they lack the requirements of physical stores. These concepts will be further described later in this chapter. This study will therefore search for the importance of communication between humans and computers with the help of Google Analytics. What key interaction mechanisms and pristine instruments are playing the greatest role in development of new technology? And if there are specific aspects to consider, can they increase the business intelligence on an online saving platform?

According to (Dix, 2016), the definition of HCI is “the way in which computer technology influences human work and activities”. This statement is self-explanatory but slightly vague since technology no longer exist in only computers. It also exists in mobile devices, car navigation systems and even household products and much more. One of the most used examples when talking about HCI is the brand Apple. Before Apple launched their first iPhone devices, people did not understand the importance in HCI in mobile phones and many other technical devices (Norman, Miller & Henderson, 1995). This study is mainly addressing the collaboration between Imbull and their end-customers which shows in Figure 1 below.

![Diagram of the collaboration between retailer, Imbull, and customer](image)

*Figure 1. Overview of chosen area of this study & when interviewing people internally and externally. The chosen area is B2C.*
1.1 Company Introduction

The empirical setting of this thesis is a company known as: Imbull. It is a company working under the large concern, Global Savings Group, whom describes their online saving platform as "We are a leading global commerce platform that unites digital models driving purchases on one technology stack to create a winning ecosystem for advertisers, consumers, and publishers". A further company introduction can be found in chapter 5.1.

1.2 Problem Formulation

The acceleration of technological developments is constantly increasing, but the development within HCI stays undisturbed. Since the digital transformation took place, the focus has been on the technology itself and not the HCI. Thus, many systems and products are not developed for the end-users and could be further developed for optimal use. The critical issue to develop online saving platforms with HCI is essential for the future to stay competitive on the market.

When a company is changing their business structure in a way of increasing HCI, possible drawbacks are essential to find, that might be connected to the system development. This is a relatively new industry called Enterprise E-commerce which has grown large in only a few years and therefore created growing pains in the form of technological drawbacks in HCI (Chatterjee, 2002). Now more than ever, companies create entirely online based business solutions, so the mentioned issue will increase in the future. Therefore, it is important for this study to find expectations from the organization. It is also important for strategies and developments to be adopted and accepted. To develop a business into becoming further HCI-friendly is a complicated and complex process. When this study was made, there was a gap between technological companies and their ability to understand the importance of HCI, especially for online saving platforms since this is a not discussed field.

Because of the complexity of new technology being developed on the online saving platforms, the importance of developing HCI-friendly platforms for this field is vital. To understand why these kinds of platforms do not spend more time and effort to develop HCI-friendly platforms, possible drawbacks must be discovered and analysed. Therefore, this study will research where to find the key factors and strategies when developing online based, HCI-friendly platforms and potential drawbacks.
1.3 Purpose

The purpose of this study is to understand what key indicators play a role in optimizing human-computer interactive online-based savings platform.

1.4 Research Questions

To obtain a greater insight how HCI affect the complex industry of online saving platforms, and understand important instruments or key interaction mechanisms, the following research questions is formulated for this study.

*In what way will human computer-interaction alter the business intelligence on an online based savings platform?*

To gain greater insights in the possibilities to increase business intelligence, significant instruments need to be found and analysed. Therefore, this study is researching to find key mechanisms that can provide useful information to answer the main research question.

Thus, this thesis specifically answers the following two sub-research questions:

*RQ1: What are the key instruments that play a role in HCI when put in the context of online saving platforms?*

*RQ2: What are the mechanisms that underlie customers’ visits on online saving platform?*

1.5 Delimitations

This study is addressing HCI on online saving platforms, which is a relatively small industry in the world of IT. In comparison to the complex concept of HCI, the thesis is choosing one case company, Imbull. Furthermore, this study is addressing B2C only and not B2B. This means that no empirical findings or literature were found on the complete value chain, only the relationship between the case company and their end-customers are analysed. Amsterdam is the chosen office to collect primary data, but multiply nationalities will be included. Sweden will be the prioritized country but also some comparisons with other Scandinavian countries will occur, for example Norway, Finland and Denmark.
Additionally, there was no benchmarking done in this study. In order to gain insights in a larger context of online saving platforms, this could have been possible. The benchmark could have been done in two different ways, either on other online saving platforms, for example Aftonbladet or Saleduck. Secondly, it could have been done on similar working companies which is not online saving platforms. Finally, this study analysis Google Analytics and no other parts of Google, for example Map or News. This will probably not change much of the results since the different parts of Google differ from each other, but extended information might have been found if other tools were used.

**1.6 Expected contribution**

This study contributes to the extent of an academic research. Empirical findings are conducted and analysed to answer the research question. This is all explained with the help of literature and frameworks. Human computer-interaction is a complex area that is rapidly growing and being further researched. The reason for this is the importance for the future where computers and humans will interact increasingly. When this study is being produced, technology exist in almost everything the human being is using. From kitchen aids in the morning, cars to drive to work, electric doors to come into the office, and computers where many people spend their entire day. This study’s point of departure is in previously developed frameworks and empirical findings, which is creating new knowledge. This is a contribution to general research regarding this matter, and to companies. HCI is a complex area which proves the importance of this study and more studies in the field. HCI is a field of work strictly developed from the technological transformation, which is a proof of importance since technology is a continuous growing area. Previous research regarding HCI is a broad and complex field, this study researches on online saving platforms where HCI has not been fully researched yet.

Furthermore, another area of contribution within this study is the understanding of key factors in HCI for an online saving platform. This is also put in context in the decision-making process for the organization in terms of adopting these key indicators. Therefore, this study is analysing the process before a technological development has been created, during the process of creation, and after it has come out to society. A case study is conducted with the reason to research about the various ways an online saving platform can use HCI to increase their business intelligence. Therefore, the thesis will provide recommendations with specific key instruments and mechanisms for future research, and technological companies in general.
1.7 Disposition

This report consists of seven chapters, which is shown in the Figure 2 below. Chapter one has introduced the reader to the main subjects that will be further discussed in the study, the problem, purpose and research questions. The second chapter is the methodology and describes how the study was conducted, including the data collection followed by the third chapter which is a literature review. This chapter discusses the theory and presents frameworks that applied. The fourth chapter presents all research question for internal and external interviews, together with an explanation for each question. The fifth chapter presents the results of the study, which is the collected primary data. The sixth chapter is an analysis and discussion based on the previous mentioned results and finally, chapter seven provides the conclusions, implications and recommendations for future research.

Figure 2. Overview of the study with all chapters including information about sub chapters
Chapter two provides the reader with a justification on how important information was found in form of research design and processes. It starts with presenting the research approach followed by chosen data collections and finally, the scientific quality and ethics will sum up this chapter.

2.1 Research Approach

This study empirically concerns a case study at Imbull: a German online saving company located in Amsterdam. The goal of conducting a case study, is to create a large in-depth knowledge on the chosen market. To choose one case study instead of multiple, created possibilities to conduct multiple numbers of internal interviews, and study replicate finding across these interviews. The case study methodology is an approach used on companies to examine processes, events or businesses. According to Yin (2009), the case study methodology is an empirical study of a real-life phenomenon that somehow needs to be investigated. To only perform a case study on one company is a possible disadvantage since the given results could not possible be analysed further and there is a risk for a highly company-specific conclusion. However, if the time would have been extended, more companies could have been added and indulged within this research in order to increase the depth and validity of the study.

As the purpose of the study was to investigate how HCI can increase business intelligence on the online saving market, a case study approach was suited to the purpose of the study and therefore chosen (Collis and Hussey, 2014). The chosen case study provides the research with empirical findings which will enable the study to accomplish appropriate results for companies within this industry.

The study adopts an inductive approach which means that empirical data was collected from the company specifically based on the problem. Theory was then added subsequently for maximum knowledge and understanding (Blomkvist & Hallin, 2014). To be able to form an understanding, a pilot study was done in the beginning of the study. Which also formed a way for future research of the study. Since previous research has proven that case studies perform well in combination with questions starting with ‘How’, the main research question of this study started with “In what way”, which equals the definition of how (Voss et al., 2002).
2.2 Data Collection

Eight semi-structured interviews were performed internally within the company, the same number of interviews where performed externally with the end-customer, and 3 interviews where performed as a pilot study. The reason was to contribute to a discussion of the subject of HCI and the gathered data was closely analysed by the researcher. These interviews will be considered the main method for gathering of an inductive perspective. Therefore, primary sources were considered as the conducted interviews.

The reason to perform semi-structured interviews were to cover the subject phenomenon in the form of prepared questions and angles (Blomqvist & Hallin, 2015). The research questions could be created and iteratively updated during the study (Blomkvist & Hallin, 2014). According to Collis & Hussey (2014) it can be useful to perform semi-structured interviews, for the researcher to have the opportunity to decide new angles where to research further in-depth. It also makes it possible for the researcher to ask supplementary questions to the interviewee.

According to Blomqvist & Hallin (2014) it can be suitable to conduct interviews when "there is an interest in developing a deeper understanding of a phenomenon, when there is a desire to discover new dimensions of what is being studied, and when there is an interest in multiplicity". Therefore, a qualitative case study was the base of this study with in-depth interviews with people from the office and outside. All internal interviews were conducted within the case company, Imbull, and all external interviews were performed with end-customers. The interviews filled the previous explained gap of empirical data which provided with a result to this study. Hence, both the internal and external semi-structured interviews were of great importance. All interviews were recorded and transcribed with the permission from all participants, for the study to reach a valid and reliable result. It was of great importance that each interview was transcribed direct after the performed interview, in order for the possible loss of nuances and personal memory lacking (Bryman & Bell, 2011).

Specific criterions were created in advance of the interviews in order to find suitable participants to ask questions. The criteria for all interviews were to consider the knowledge of HCI. A further specific criterion for the internal interviews were marketing and a large knowledge about online saving platforms. This process was iterative, which means that it should be seen more of a discussion then an interview, and the research questions, purpose and problem formulation were continuously being updated throughout the study. Relevant information was provided, and conclusions were discussed in order to reach the best possible outcome.
The end-customers who performed in the external interviews were found through LinkedIn. The researcher of this study aimed to find participants who undergone online purchase processes with one of Imbull's retailers or through the website of Imbull.

Conceptual frameworks were used in order to develop questions and angles to the interviews. The outline and framework are further described in chapter four. Therefore, a theoretical review and assertive literature were used to form the most suitable questions. The results showed that this study was a qualitative analysis, since there were only interviews being produced with one single-subject research. No survey was created since the lack of possible results. To clarify for further understanding, the picture below shows iterative processes within technological developments.

![Figure 3. Iterative development for a technological system or process. Found: http://www.technologix.ca/methodology/supply-chain-modeling/](http://www.technologix.ca/methodology/supply-chain-modeling/)
2.2.1 Qualitative Analysis Procedure

A data collection was composed in the form of a qualitative analysis, which was performed in a cross-case matter. Patterns could therefore be found by the researcher, after identification of the differences and similarities between internal and external interviews.

Following elements are considered in order to create a data analysis:

- Highlight important key-indicators from the transcription of the interviews to identify observable angles or themes
- Gather empirical findings and create a conclusion from each interview question with the help of a description with identified findings

According to Collis and Hussey (2014), there are three elements that should be considered when using a qualitative data approach. Firstly, the collected and transcribed data had to be reduced, the relevant parts had to be picked out and the parts with no use for the study had to be removed. Secondly, the relevant, chosen data had to be restructured based on respectively interview transcription, for further analysis and remarks of specific themes. The last element focused on collecting the various results from each interview into one merge. Identified angles and themes from the entire data collection were creating the empirical data.

2.2.2 Pilot Study

To gain as much knowledge on the case company as possible, a pilot study was conducted in the beginning of the research. The purpose of the pilot study was to understand the current capabilities and working processes. It is important to make sure of the connection and context of the extent of the study in the beginning of the study (Collis & Hussey, 2013). Working at the company and asking questions during interviews was the introduction to both the pilot study and the preliminary research question, purpose and problem formulation. This included a comprehensive presentation of tools, systems and processes within the business. These presentations were held by managers within Imbull, mostly the manager of team Nordics. To have semi-structured interviews is suitable to gain knowledge at the beginning of a study, since the interviewees can feel more relaxed and able to use their own expressions (Collis & Hussey, 2013). To conclude, the reason for a pilot study was to enable possible areas or fields to analyse and therefore reach a logical problem formulation (Blomkvist & Hallin, 2014). This was done in a both unstructured and informal way and the result created questions that could be brought up in future interviews. The found results from the pilot study are presented in the result chapter for internal interviews. This part led to a confirmation of subject which also includes the chosen research questions that is presented in the previous chapter. In Appendix 1a, there is a list of all people participated in the pilot study.
2.2.3 Literature Study

A literature study was done in order to form a critical and comprehensive review of the existing material in the form of secondary data (Collis & Hussey, 2013). The literature study was iterative. Thus, the study had continuous updates throughout the entire study, which created a foundation of the real situation at Imbull. This was based on books and peer-reviewed articles from the specific chosen area. Other literature came from academic reports, scientific reports, consultancy reports and journals. Online branding and digitalization is a term that is becoming increasingly important for many companies and businesses. Therefore, the number of articles, concerning both HCI and digitalization were plenty. The platform that was used to search for articles were for example Google Scholar and KTHB's Primo and Web of Science. Commonly searched terms and keywords were for example "Online Saving Platform", "HCI", "Big Data", "Digitalization", "AI", "B2B", "B2C", "Google tools", "Online Branding Management", "Fintech Start-ups", etc. In order to obtain the largest possible scope of material, these keywords were searched for both individually and in combination.

Furthermore, the study localized previous research about the specific subject. This could be found in both books and peer-reviewed articles of various sorts. This helped this research, which was a combination between previous mentioned literature combined with new frameworks and theories. These theories and frameworks were later discussed in together with additional literature.

2.2.4 Interviews

INTERNAL INTERVIEWS

To gain useful information and insight from Imbull, there were eight interviews performed within employees at Imbull. All interviews were conducted in a semi-structured way. This was decreasing the risk of forgotten areas or questions. Every interview was lasting between 30-45 minutes and straight after, the transcription was conducted to prevent memory fails. The people from Imbull that were interviewed are shown in Appendix 1b, together with the order of the interviews, their names and market.
EXTERNAL INTERVIEWS WITH END-CUSTOMERS

There were eight external interviews with Scandinavian officials that are not working within this area of profession. This was done to get a complete view of the topic and the existing e-commerce market. The project has been formed for a great understanding of the end-customer and their behaviour, this can only be done if there is one part of interviews with the end-customers that has no previous experience from this kind of profession. The conducted interviews were mainly the primary data received for this study was of great importance to the study. Therefore, the amount and length of the interviews were crucial, and the goal was to get at least eight in order for a valid and most detailed result of the study.

Furthermore, this study was researching for consumers to online websites and thereafter asking for interviews. In Appendix 1c, there is a table presented with people that were interviewed externally for this study.

2.3 Scientific Quality

In this study, the three main basic principles, of reliability, validity and generalizability (Blomqvist and Hallin, 2015) were considered. The methodology therefore follows a clear pattern of objective, systematic and critical approach.

2.3.1 Reliability, Validity and Generalizability

As mentioned, the reliability, validity and generalizability are created throughout three main principles, which are objective, critical and systematic. The objective and critical approach means that there is a consistency that keeps the project on the right path. If there is a constant questioning both to methodology, research questions and empirical data, the results are going to assure a higher level of reliability and validity.

As earlier described, it is important to have a clear logic while developing the project from the mentioned problem formulation. This is an important role in the systematic approach in order to keep the project valid and reliable. It also means that in the entire process of developing this thesis, both for the interviews but also the literature study, the view must be clear and neutral. This will provide a critical approach for the project.

Another way to assure valid and reliable results is by using the well-known method called: triangulation (Collis & Hussey, 2014). Which means, that you look for the same results from
various sources from your empirical data. If this is possible, then the validity and reliability can be assured to be high and keep the risk for biases low. Most part of empirical data that was collected for this study is from interviews of different types. For example, some interviews were conducted internally and some externally.

2.4 Ethics

Ethics is a necessary aspect to consider in research. Therefore, it was important to make sure with the company in advance about the level of anonymousness. Imbull choose not to conceal their name and not to conceal the people that were being interviewed. Therefore, it gives transparency about the entire study for the third-party reader. During every interview, the interviewees were kindly asked if they give permission for audio recording. The audio tape was also immediately transcribed after the interview session in order minimise misunderstandings later. One important part in ethics according to Collis and Hussey (2014), is that the company or the person being interviewed should not be in any harm because of the interview.

2.5 Summary & Conclusions

In chapter two the methodological approach to find relevant empirical findings are defined and will therefore be able to answer the main research question for this study. It also provides a description of chosen method to gather literature, in order to choose the most relevant research design. Furthermore, this chapter also provides the reader with empirical data, collected in the form of semi-structured interviews. This chapter lastly presents a critical review about validity, reliability and ethics performing a thesis as such. In the next chapter the literature review with models and frameworks for future analysing of the empirical findings is presented.
3 LITERATURE REVIEW

This chapter presents the already existing research on the area which created a basis for this study and formed a theoretical framework. This created a summary of already existing knowledge which shows what this study will contribute to the market. First sub chapter is presenting knowledge about HCI, followed by enterprise E-commerce, HCI on an online saving platform and lastly, the concluding remarks.

3.1 Human Computer-Interaction

There are various problematic principles and factors in the daily life of any human being. For example; many people have troubles with opening doors, even though there is a sign saying push or pull, most people have troubles knowing whether to push or pull (Norman, 1990). In the same way, many people experience troubles when using kitchen products like: stoves, water faucets and even switches (Dix, 2009. Norman, 1990). This is not a sign of someone being stupid, this is because the HCI is poorly executed. While designing anything as basic as a door, human psychological factors need to be under consideration, for the purpose to succeed optimally.

Before the internet and technological products were created, people went to physical stores to shop clothes, shoes and other things. If somebody wanted to rent a car, they went to the car
renting shops. If they wanted to go on vacation, employees were there to provide help and advice. This is something still available but to a much less extent.

Since the internet was created and we started to bring technology into every part of our lives, HCI has become increasingly important and Norman (1990) is a person that has researched about this complex area. He found six key mechanisms that is of great importance, when developing HCI-friendly technology. The first factor to consider is visibility, which means that clear and simple signs need to be added, so the human mind understand the message correctly. Many signs of visibility are executed naturally, which means that the human brain does not consciously look at the signs but understands it naturally (Norman, 1990).

Furthermore, another important key mechanism is mapping. This is the gap between what a consumer wants to do and what appears to be possible. One example brought up in the book “The Design of Everyday Things” by Don Norman, is the projector switch with one button. How should the consumer know and understand how to control the projector if there is only one button? This is impossible, which proves the previous mentioned error with mapping. The next aspect brought up in the book was affordance, which is aimed at how to interpret a design of any sort. Therefore, the book illustrates the purpose of affordance, “When simple things need pictures, labels or instructions, the design has failed” (Norman, 1990).

Additionally, another important key mechanism when developing HCI is immediate feedback (Dix, 2009). Imagine a computer program which gives no sign of thinking, processing or saving, this will make the user confused and probably irritated. Therefore, there is an often-used paradox about technology made by Don Norman saying, “The same technology that simplifies life by providing more functions in each device also complicates life by making the device harder to learn, harder to use”. The last important key mechanism to reflect over when designing a HCI-friendly product or service, is to Design for error (Rogers, Sharp, Preece, 2011). Do not assume that the users have knowledge but rather the opposite, assume that there will be errors and focus to solve those problems.

In this era, mankind is depending on computers and its software. Manhours and power are spared with the reason that robots can do the work more precise and efficient. They also work as many hours as man wants (Russell and Norvig, 1995). These six aspects are developed to execute well-working HCI for websites in general, and they will be developed and analysed further on in this study specifically on the online saving platforms. They are important aspects in order to answer the second sub-question; “RQ2: What are the mechanisms that underlie customers’ visits on online saving platform?"
3.1.1 Artificial Intelligence

As this study is being created, a new scientific breakthrough has reached this market, Artificial Intelligence (AI). Artificial Intelligence is when intelligence is shown in technological machines and can be a result of many different product developments (Brynjolfsson, McAfee, 2017). This is also an area that is constantly being under major development and will change how humans live their lives. This kind of a machine can for example be found in cars, in kitchen aids, in your mobile phone and much more (Brynjolfsson, McAfee, 2017). Artificial intelligence will in this report be called AI. The more spoken part of AI today is robots that can read personal aspects that a computer cannot understand (Brynjolfsson, McAfee, 2017). The most important part when developing AI, is to consider human-computer interaction (Carroll, 2017). For this study, AI can provide the customers personal help and assistance, product recommendations and customised searches.

3.2 Enterprise E-Commerce

Widely used terms in HCI are E-commerce, enterprise E-commerce or strategies within E-commerce. Retailer E-Commerce is one of the most revenue making sectors at this moment, with for example Amazon and Alibaba (Pereira, 2017). These concepts were created for the reason of technological developments and has evolved further into a complex area. "E-Commerce is simply any business transaction that takes place via digital processes over a network" (Sharma, 2008). Companies choose to change entire business models and strategies in order to offer e-commerce initiatives to the customers, and because of this reason they transformed the market. The organizational size is no longer as important as it used to be, and many other aspects has changed with this transformation (Sharma, 2008).

According to Bob McCashin, EDS Corporate VP, there are a few important instruments which are relevant in order to succeed with E-commerce. These are accurate in this study since these instruments can be analysed also on the online saving platform which will be done in chapter six. He shares the information about “Customer Care”, which is a list of several strategic business objectives that together form a strategy of how to keep the customer satisfied and loyal in an E-commerce business. This list can be found in the book Enterprise E-Commerce by Peter Fingar, Harsha Kumar and Tarun Sharma (2000), and in the book Identifying key factors affecting consumer purchase behaviour in an online shopping context (Park, Kim, 2003).
● **Improve customer service while reducing costs**
● **Put the customer in control by providing self-service and solution-centered support**
● **Segment customer behaviour 1-to-1 to individualize goods and services, and**
● **Earn customer loyalty to gain a lifetime of business**

For not long ago, personal service could be provided to customers in form of call-centres or physical stores. This has now changed and the ability to reach out to a company has increased which E-commerce. Which means that needed information frequently can be found on the specific platform. Since all customers differs in opinions and desired result, online platforms have made it easier to reach out to a larger customer base by the previous mentioned objectives (Javalgi, Ramsey, 2001).

Another important strategy that is more frequently being seen CLV (Customer Lifetime Value). This is a prediction of the net profit attributed to the entire lifetime value of each customer. This is presented as “The present value of the future cash flows attributed to the customer during his/her entire relationship with the company” (Farris, Bendle, Pfeifer & Reibstein, 2015). This is something that companies are widely analysing in today’s online platforms, since their entire revenue is based on their customers shopping habits and can be explained with the following model (Berger, Nasr, 1998),

\[
CLV = GC \cdot \sum_{i=1}^{n} \frac{r^i}{(1 + d)^i} - M \cdot \sum_{i=1}^{n} \frac{r^{i-1}}{(1 + d)^{i-0.5}},
\]


which in simple terms can be described as, *(Average Order Value) x (Number of Repeat Sales) x (Average Retention Time)* (Ammon. T, 2017).

According to Don Norman in the book "Design of Everyday Things" he explains three images used in order to develop HCI-friendly products or services for E-commerce companies. All three images are important in order for the result to be optimal for the end-users, because if the user does not understand the design at the end, it could have been executed better. Therefore, the user’s model in combination with the design model should collide. These models can be gathered in one picture shown below, Figure 3,
Model 1 - The Design Model

The first model is creating a conceptualizing step for the developer. What is the picture that the designer has in his or her head? Is that picture possible for the developer to create or does it have to be adjusted? This can be an idea of any sort that a developer would like to invent and develop.

Model 2 - The User’s Model

This part of the model is presenting the picture that the user receives in his or her head from the developed system or process. This step is the main part of the model and shows if the picture made from the designer is similar and hopefully identical to the users. If the user does not understand the designer, these two mentioned models will not be identical and will therefore create an error or misunderstanding which can lead to future problems. This is a difficult step of the development and it has created many frameworks, for example: working iterative with agile.

Model 3 - The System Image

The last part of the model is the system itself, in form of the actual physical product. Both the Design model and the User’s model communicate only through the system. Therefore, the two previous mentioned models are extremely important in order for the system image to be as clear and logic as possible for both parts. These three models should always be taken into consideration in development of technological systems. Unfortunately, many businesses do not pay enough attention and therefore the end-users will suffer from it when they do not understand the product.
3.2.1 Online Saving Platforms

To go to a store and make a purchase differs variously from going online, searching for the same item, product or situation. For many people, the feeling or experience that a physical store gives them is not comparable with an online store of some sort (Dabholkar & Bagozzi, 2002). To give one example: Customers that are visiting a physical clothing store are getting a social experience which is missing in an online store (Dabholkar & Bagozzi, 2002). This social experience includes getting service from the employees if needed, and to touch, watch and try things on. The main reason why these two ways of shopping could be compared, is because of the process. Looking at a clothing store, a car-rental, a hotel business or something similar, the process still looks the same if you go to a physical store or online (Chen & Leteney, 2000). You have an idea of what you need. In this case, to rent a car for the next few days. You must go to the store, either a site or a physical store. The second step is to find what car you want and hope for it to be available, lastly you must pay for it. One difference in this is the time consumed on the project. To go online and execute this earlier described process goes faster than to find a store and therefore go there etc (Avery, 1996). The fact that the process online is less time-consuming makes consumers attitude towards shopping online less important.

People nowadays trust their own knowledge and skillset more than ever with the reason of all information available since the internet was launched (Covey, 2006). They rely more on their own analysis than to leave the responsibility in somebody else’s hands that they do not know (Tepper, 2000). Bandura stated already 1994 that “Self-efficacy refers to individuals’ beliefs that they have the ability and the resources to successfully perform a specific task”. Since the internet came, information is much easier to be found on your own and therefore, all the previous mentioned industries have reach a shift. People order their clothes on their own from the internet, book their vacations themselves straight from websites and rent cars from the specific rental shop websites. Instead of interacting between two humans, the interaction is today between humans and computers. There are similarities between call centres and online shopping websites, for example the way of communication from the company to the consumer is not happening live but through a system. This makes the marketing of the platform important to be able to win trust from consumers. In order to do so, it is important that specific, pristine instruments are found in this study.

An online saving platform, like Imbull, is a type of company which may be compared to an online mall with various sales. There is a large variety of stores and the choice lays in the hand of the customer, where to go and what to buy. Another main difference, is the amount of various areas
that fit in one room in a mall, compared to an online saving platform. An online saving platform never lack storage space since they are the intermediary between the specific stores and the consumers. Which means that it can be compared to a mall with not only clothing stores but also car rentals, flower shops, stores where you can plan your vacation, with flights, trains, busses & hotels. The most important aspect is that the price is mostly better online. Another difference between the two platforms is the way for consumers to use self-service. When being in a mall, the customers do not have to go through all other stores, but they can walk straight to the one of your desire, on an online saving platform, you will enter a website where all different industries share the same location. Because of this, you need to make a conscious choice and search for the desired brand or industry. This is a negative aspect since it will increase the time a customer must be on the website undesirable.

Sub-chapter 3.2 brought up the four objectives by Bob McCashin, the CLV framework and the three-image model. This sub-chapter brought up awareness of the differences on the physical and online market. These sub-chapters combined, are creating opportunities to answer the first sub-question of this study; "RQ1: What are the pristine, important instruments needed to enhance human computer-interaction on an online saving platform?". This will be further presented in the analysis chapter 6 of this study.

### 3.3 HCI on Online Saving Platforms

The process between a physical store and the same online store has nearly the identical process (Chen & Leteney, 2000). Also, the marketing in both physical stores and online stores are almost identical. There are signs with numbers, percentage signs or other forms of offers. The difference is the fact that consumers in a physical store sees the signs with numbers but also the product itself. If they are looking for a car, they have the chance to both test sit, and test drive it before taking a decision if they want to buy it or not. If it is regarding a shirt, they can feel the material and quality which can be hard to judge from only an image. To take it further to the online saving platforms, they are not even provided with the image but lone with the sign of commercial. This is a problematic area for online saving platforms.

An online saving platform is changing the process, and mostly increases the steps. The increased steps are a result of adding an option for the consumers to look for. Furthermore, add a discount code and therefore get a rewarding, more inexpensive price. It is proven that customers are more likely to use a technology the easier and more effortless it is (Venkatesh, 2000). So how can a website that is making the shopping process longer provide value for the customers? And
furthermore, how can companies see it as an opportunity to collaborate with a platform as such, when it requires them to lower their prices? These are all brought up further in chapter 5 with the empirical findings. They will together provide this study with support to prove that the empirical findings collected the answers to the main research question; “In what way will human computer-interaction alter the business intelligence on an online based savings platform?”.

One example made by Rich Melmon, Partner in The McKenna Group, explains what consumers desire when entering an online based platform. These are explained as the four key elements, to build a loyal customer base and should all be further analysed also for online saving platforms to increase their business intelligence (Fingar et al, 2000).

- **Personalization** - “I want it my way, with my needs, driving the system’s responses to me”
- **Self-service** - “I want to explore on my own, select on my own, and troubleshoot on my own”
- **Immediacy** - “I want the information now, I want the product now”
- **Intimacy** - “I want it to feel like a two-way process, I want to know that my actions are being used by the company to learn what I want, I want my feedback to register with the company, and I want tangible evidence that I’m in the loop”

Since the platform itself does not provide the consumers with a product or service, but only the intermediate, HCI is of great importance for an online saving platform. There are significant factors concerning Internet shopping, for example: *product information, form of payment, delivery terms, security*, etc (Gefen, Karahanna, Straub, 2003). If the consumers have a pleasant experience, the carry-over effect will create an arousing memory of the platform. This effect can show in the ways of more likely increased purchases, both in amount of times and basket sizes. It is also proven that consumers with a previous pleasant experience often browse more, and seeking out to unplanned categories (Menon & Kahn, 2002). This is based on well-developed HCI and will consequently create increasingly business intelligence on the platform.

Therefore, the previous mentioned four aspects by Rich Melmon can be combined with the so-called TAM framework. TAM stands for Technology Acceptance Model and was developed by Davis, F. D and Bagozzi, R. P in 1989. It has since then been further developed in different industries and in this study, it will be further developed within the online saving platform.

TAM is a framework that is described as the interactive purpose of new technology, determined by the attitude of individuals towards using new technology. It can originally be described as two aspects, “usefulness” and “ease of use” (Gefen, Karahanna, Straub, 2003). Lately “enjoyment” has been added (Monsuwé, Dellaert, Ruyter, 2004). “Usefulness” can be described as the users’
awareness for enhancement of performance in the case of usage of new technology (Davis, 1989, 1993). Which means: the individuals' perception, concerning the result of an online shopping experience. “Ease of use” can be defined as the level of effortlessness, regarding a new specific technology (Davis, 1989, 1993). This is further focused on the process itself and therefore, it can be described as the process that is leading to the final online shopping result. More specifically, this step is focused on the beginning of an interaction between a customer and the system (Davis, 1989, 1993). Lastly, Enjoyment is describing the TAM Framework. This aspect is explaining what feeling the experience is giving the customer and why they should choose online shopping. If the experience was pleasant or even arousal, there is an increased chance for a second visit and the trust for the website will become larger (Gefen, Karahanna, Straub, 2003). Which in turn could lead to un-planned shopping and further searching on the platform, as shown in the figure below.

![Diagram](image)

*Figure 6, Presents the used framework, TAM*
In 2002, O’Cass and Fenech extended the framework adding seven new key characteristics that together created five new main factors. These are the factors that can be described as HCI factors for online shopping habits and is the reason for consumers to start using the Internet as the main medium for shopping, regardless product or service. These five factors are: “consumer traits”, “situational factors”, “product characteristics”, “previous online shopping experiences” and “trust in online shopping”. These can all be further developed on the online saving platform.

Consumer traits can be described with four factors which are: age, gender, education and income (Burke, 2002). Together are these four factors the answer to why every specific consumer is shopping online. The last factor, income, is according to Lohse et al., (2000) showing that consumers with a yearly income of $75 000 or above, tends to shop more online. This can be discussed since many online shoppers argue for the low prices as a main reason for shopping online. Trust in online shopping is another of the previous mentioned factor, which is widely discussed and of great importance, this factor is dependent on previous shopping experiences. How can the perceived experience from a physical store be able to be created on the internet? So far, there are help buttons and search features which can provide online shoppers with the feeling of being in a physical store (Lohse & Spiller, 1998). Are these features enough for the customers in order to give them the right feeling and trust?

One of the most important parts of HCI on online saving platforms is the trust between consumers and the system (Egger, 2000). There is a lot that can be further optimized, but if the systems are not trustworthy for the consumers, they will not use the platform. Today, there are so many websites where to go shopping online so there is no reason for a consumer to stay at a website they do not trust. Which shows the importance of HCI on online platforms in general.

There are five aspects that can conclude the main differences between online shopping and shopping in physical stores. Firstly, the consumers can easily and efficiently browse various platforms for a specific product or service to find the best suitable option. Second, it is easier for an online consumer to create a comprehensive review about a store, brand or product since there is a lot of knowledge to find. Third, consumers can easily compare products availability and prices online, which is more difficult to accomplish in physical stores. Fourth, if the consumers are looking for sensitive product or services, the internet is giving you anonymity. The fifth and last is verifying that internet shopping is less time-consuming and therefore a better option for consumers that is under time pressure. An online store is also open 24 hours per day which makes it easier for people working “normal” business hours.
One of the largest concerns regarding online saving platforms is loyalty. According to Cyr (2000), online shoppers are multi-channel shoppers which means that it is not enough to have one platform where to turn. This is an issue for an online saving platform since they want all customers to go back to one specific platforms, theirs.

### 3.4 Concluding remarks

In order to gain insights into how HCI can affect online saving platforms, literature, models and frameworks were presented and used. These literature studies and models were earlier applied on the online shopping market but not specifically on the online saving market. This study therefore used the previous mentioned models and methods and thereafter further analysed and applied them onto the online saving platform, Imbull.

Four main models where used in order to gain the largest possible insight and therefore create a valid and trustworthy result in the next chapter. Firstly, the CLV model was used to see the consumers lifetime value for Imbull. Thereafter the three-image model by Don Norman was presented, showing how to prevent mistakes in early stages of a process. Afterwards, four key elements created by Fingar et al (2000). It was presented showing elements within HCI that is creating a successful online platform. Lastly, the TAM framework was brought up in order to go further into the physical aspects of consumers behaviour on online platforms.

The next chapter will present the internal and external interview questions, together with a declaration for each question.
4 THE INTERVIEW QUESTION DESIGN

This chapter presents the questions that were used to create the interviews for this study. The specific questions were formulated in accordance to both the literature theory and the earlier presented research questions of this study.

4.1 Introduction to interview question design

In order to enhance the qualitative research, the interview questions below in 4.2 were formulated. In accordance to the literature, the questions have been derived with the aim to answer the earlier presented research questions of this study. The purpose of presenting the interview questions in a separate chapter, instead of in the method, is for the reason that they were formulated after the literature and theoretical review was conducted.

The questions were formulated in a general way to obtain wide range of answers and to be able to connect it with the literature. The questions were made in a semi-structured way, which made it possible to add necessary questions during the interview and contribute to a further personalized interview. Since there were both internal and external interviews performed, these two answers could be used as a benchmark to each other. They could be compared by analysis of themes that emerged when collecting the answers and conducting the research. The internal and external questions were not identical with the reason of required background knowledge for specific internal questions.

4.2 Interview questions

The internal and external questions will be presented in numerical order.

1) **General internal questions:**
   - Explain Imbull as a company
   - Explain your position in the company (how long have you worked, etc.)
   - How could Imbull evolve?
   - How would you increase the interaction between customers and Imbull’s system?

1) **General external questions:**
   - What do you know about Imbull?
   - How often do you shop online (think clothes, shoes, hotels, car hire, holidays, food, etc.)?
   - Do you shop more or less often in physical stores?
• Do you prefer shopping on your mobile or desktop?
• If you have an account where you have already filled in all your information, do you prefer shopping on mobile or desktop?

The reason for these asked questions was to get a picture of the interviewee. For example, with previous experience and general view of the company.

2) **Internal & external question:**
• How would you explain the concept of human computer interaction?

To ask both types of participants this question, it was a transition question from general and becoming more specific to the subject. The question was asked identical for both internal and external participants. Since the main subject in this study was HCI and online saving platforms, these questions were of great importance as an indication of level of knowledge.

3) **External question:**
• How would you explain the concept of saving platform?

This was a chosen question only for the external participants since knowledge about an online saving platform is a well-known area for the internal participants.

4) **Internal & External questions:**
• What are the biggest differences (both positive and negative) between an online based platform like Imbull and physical stores?
• What are the biggest differences (both positive and negative) between an online based platform like Imbull and other online stores?
• What type of effect do you think HCI has on an online saving platform?

These questions were asked both to the internal and external interviews. The purpose was to get answers specifically about HCI on online saving platforms and what differences there is in physical stores and online retailers.

5) **External question:**
• If there had been a way for you to customize the page yourself, how would you do this?

**Internal question:**
• *Do you think it would be possible to increase customer satisfaction and number of visitors if the customers themselves could customize the website to the desired layout and focus on selected companies?*

This question was asked with the same aim, but it was asked differently for the reason to see if an account and application would be possible or necessary. As described in the literature, it is important for customers to be able with self-service and to take their own decisions.

6) **External question:**
• would you use this platform more if you could customize it according to your preferences?

**Internal question:**
• *What do you think are the main HCI aspects of Imbull to think of when the website is being developed?*
• *How does Google analytics help analyse customer behaviour and how could it improve?*

To go deeper into the subject of HCI on online saving platforms and the first sub-question, these questions were asked to make the participant think outside the box and formulate an answer that could be further analysed in the next two chapters. The answer to these questions will provide an understanding of how customers think of the platform, and how the company reason when developing Imbull.

7) **External questions:**
• *How often do you look for discount coupons on the internet?*
• *Can you describe the difference between a discount code and a deal?*
• *Is your shopping more or less controlled if you see discount signs in physical stores?*

**Internal questions:**
• *Is there any other way to analyse customer behaviour?*
• *What trends can be shown on the market at this moment?*

This question highlights the topic of customer behaviour which will provide useful information for the results and analysis. Furthermore, it will provide the reader with an answer of how Imbull utilize their systems, which will lead to conclusions if there is a better way to optimize them or not.

8) **Only asked questions to internal participants:**
• *What is Imbull’s biggest obstacle?*
Do you think this looks similar to all online saving platforms or specifically at Imbull?

- What are Imbull's greatest concurrent?
  - Do you think this looks similar to all online saving platforms or specifically at Imbull?

This question is asked to obtain an understanding of the current market and the view of the future. It will also give insights on how open Imbull is for changes and for new technology that could benefit them and therefore also create possibilities for the company.

4.3 Summary

Chapter four have summarized internal and external interview questions and stated the reason for each question to this study. The presented questions have been formulated for a qualitative research approach. The found empirical results from the internal and external interviews will be presented in the next chapter.
This chapter explains the empirical findings from the conducted interviews with the employed ways and methods clarified in chapter two. There were both internal and external interviews, which both gave significant findings which will be presented. The chapter starts with an overview, followed by five main areas that were discovered, loyalty, differences between online platform & physical retailer, cost tracking, staying competitive and creating customer value.

The empirical findings were collected through internal and external interviews creating primary data. The results of the interviews and collected material intended to answer the main research question: "In what way will human computer-interaction alter the business intelligence on an online based savings platform?". Those interviews brought up five different main words that are presented as sub chapters. These were five words that were covering a large part of the research area and therefore it was of great help to find answers to the research questions. These following sub chapters are: “Loyalty”, “Cost Tracking”, “Staying Competitive” and “Creating Customer Value”, and they will together contribute to get the answer on the research questions.

The adoption of human computer-interaction within an online saving platform shows to be significant but simultaneously dependent to the business context together with the company's characteristics. However, many participants were not educated enough to be able to analyse its effects on the customers. This was a large drawback in the results of this study.

*Figure 7. The figure presents the main findings from internal and external interviews*
5.1 Overview of the Case Company

Imbull was founded by the Global Savings Group in Munich, Germany 2012 (Imbull, 2017). Since then, it has increased with both offices around the globe and markets. In the Amsterdam office, you will find multiple markets represented by different nationalities, for example: Sweden, Norway, Finland and Denmark. This study centres on the Swedish market. Imbull has at this point around 100 employees working in Amsterdam, and Global Savings Group has 400 working employees worldwide. Except of Amsterdam, there are 9 other offices in the world and 24 nationalities represented in total. The mission of Global Savings Group, that permeates all different affiliates and out to the partners is, “We connect brands and retailers with shoppers around the globe and offer the best destinations for savvy online shoppers”. Global Savings Group has partners with over 20.000 different retailers worldwide.

Imbull and GSG are working with online discount codes for various industries. They can be described as the intermediate between the customers and retailers, for example: Zalando, Hotels.com, Jotex and AVIS. A discount code can be created in different ways; either they are specifically created between a retailer and Imbull, so no other competitor is allowed to use it, alternatively, there are codes created by the retailers for everyone to use and Imbull is then marketing the code on their website for further publicity and marketing for the specific retailer. The customers can find everything from fashion & accessories, travel & hotels, sport and electronics, which shows the variety in different industries.

Consumers can also find a “deal” on the platform of Imbull. A deal is something that can be used without a specific code and is the most popular type of voucher created and found at online saving platforms today. This can for example be, “Zalando has 70% on all sportswear this week”. The biggest competitors for Imbull on the Swedish market is Aftonbladet and Expressen. These two companies have major platforms that most Swedish people recognise, because they produce news as main purpose and not only vouchers. Therefore, they created trust for their platforms and the number of visitors to their website is high. This makes it easier for these companies to get a higher rank on Google, also for the coupon sites. This study has, as described before, chosen to focus on the Swedish market, which means that these are the only competitors that will be presented in this report.

To find these described vouchers in the form of discount codes and deals, there are two websites in Sweden. Both are developed and created completely in-house and they keep the same layout with the reason of unconscious recognition by the consumers. The first website is called
Cuponation.se and is a standalone website which only presents vouchers. The second one is called: Tradera.se/rabattkoder and is a part of the Tradera website.

The case company is working with two different communication channels on the value chain. The first one is business to business (B2B), which is communication between Imbull and retailers. The second one is business to consumers, (B2C), which means communication between Imbull and end customers that is using the discount codes. In both cases of B2B and B2C, Imbull is working completely digitalized and in total, they are collaborating with over 400 different retailers only on the Swedish market and is therefore considered as one of the largest online saving platforms that gathers all different coupons in one place. The vision is, that the customer gets the best possible price on the market simultaneously as the retailer get more traffic to their website. This area of industry was unimaginable for only a few years ago. Before Google Analytics and similar tools were being used, it was difficult to prove if a platform like Imbull contributed with increasingly streams of people to the retailers’ websites, but that is no longer the case.

According to Global Saving Groups website, their strategy is “to create a winning ecosystem for publishers, advertisers and consumers”. Their objective is “to help consumers get inspired while saving time and money, to help advertisers to get the most out of their marketing spend and accelerate purchases throughout all steps of the consumer journey and to help publishers to monetize their outstanding content and create value from their premium audiences” and the solution is to use their “unique technology stack, which enables the Global Savings Group to operate more than a hundred digital assets, bringing together audiences with publishers and around 20,000 advertisers in more than 20 countries around the world”.

### 5.2 Human Computer-Interaction

The knowledge about the term human computer-interaction was overall low or not existing for the internal and external interviews. When the researcher described the meaning, everybody understood the concept and had an example. The internal interviews had examples from Imbull and the external interviews had examples from their daily life. This proves the importance in developing the online saving platform of Imbull to a further HCI friendly platform. On the asked question if HCI has a big effort on the customers behaviour after defining the meaning of HCI, 100% of the interviewees answered “yes”, both internally and externally.
Therefore, the results from both internal and external interviews showed lacking knowledge about HCI, but simultaneously showed importance of HCI on an online saving platform for this specific reason.

5.3 Enterprise E-Commerce

The primary data was collected throughout internal and external interviews. After the interviews were transcribed and the results were formed, there were two concepts that were brought up as the main results. The two main results that were formed from the interviews where: Loyalty and Cost Tracking. These two aspects were chosen for the reason of optimizing the CLV and 3-image pictures on an online saving platform and will be further explained in the analysis chapter. All concepts are broad and complex which indicates the importance of HCI on online saving platforms.

5.3.1 Loyalty

In order to succeed with an online saving platform, results from the primary data have showed a few main solutions, all connected to HCI. The first part for Imbull is to create possibilities for the consumers to create a personal account. This is possible for online shops like H&M or Zara but is not yet possible for customers at Imbull. Imbull, and many other similar companies, are working with a strict focus to get high search hits on Google, but they do not care enough about the customers that are visiting the platform. Interview participant I6 is citing:

“It is always easier to take care of old customers, rather than finding new ones”.

This is also stated in the literature by Bob McCashin. One of his four key aspects were:” Earn customer loyalty to gain a lifetime of business”. A solution is needed that will increase customer loyalty and simultaneously keep high Google searches. This will be further analysed in the next chapter. Interview participant I4 is citing:

“It is always more profitable in the end if there are loyal customers”.

It is extremely important that Imbull only provide 100% working and legal codes. If there are codes that has expired or do not work, consumers will lose trust in the platform and will not come back on a regular. This will affect the company a lot, since online saving platforms already is a market that people in general have low confidence in. In order to create loyal customers as
described earlier, the provided codes have to be the best on the market, in combination with always giving the lowest possible price.

For a customer to become loyal, step one is to have a knowledge about the brand or platform which is explained in the literature review with TAM Framework. As of today, results from the primarily data shows that the basic knowledge for the brand is extremely low. Interview participant I6 is citing:

"The more knowledge a customer has about a product, the bigger the chance is that they will buy it".

As described earlier, most online saving platforms are focusing mainly on the high search hits on Google. This leads to the results that consumers have no knowledge and no feeling for the company itself, which is creating disloyal customers. It was difficult to find external interviewees that had knowledge about online saving platforms. Interview participant I6 is adding:

"We need to be marketing ourselves through Word of Mouth".

To gain a loyal customer base, it is important to trigger the consumers in the form of competitions. Something that gives a reason for the consumers to choose the website before searching for specific codes. This is closely connected with giving the consumers the chance to earn points to their account when they use codes from Imbull. This would create an urge to stay at the same site and furthermore gain the largest possible amount of points. This could be compared to platforms like Hotels.com, SAS airlines or Waze. In other words, if you are a big spender, you will also receive big rewards. If the consumers are then doing a return, the points will also be returned. In this way, it can contribute with a decreasing return rate for the retailers which is a created value made by Imbull.

Last proposal from the given results is to create something called Voucher Back. This is a concept that is unlocking better coupons the more a consumer buys. This would be connected to the individual account and therefore the consumers would have a reason to use Imbull in all occasions when they want to shop online. These great unlocked codes could then be discussed in the community which would make other customers intrigued to use more codes and gain better ones themselves. This can be compared to games that has different levels depending on how good of a player you are.
### 5.3.2 Cost Tracking

An essential factor for an online saving platform, as with most other companies, is to earn revenue, but the process might occur in a special way. To track consumers that are using the codes presented on the platform, a process called cost tracking is executed. The more last clicks that is being provided on the platform, the more revenue will be earned. A last click simply means that the customer is on the platform when the purchase is being done, and the online saving platform will therefore have the last click of the tracking link. The second step is the collaborative companies that are paying for Imbull to provide the consumers with codes from the specific brand. Analysing customer behaviour on the platform is therefore an important part, since this is the only possible data presented to the collaborative companies that the traffic is increasing to their websites. A figure is shown below to make clear what can be done with Google Analytics to track customer behaviour on any website,

*Figure 8, represents when the customers are the most active on the platform for the last 30 days*

Based on the results from the interviews, it shows that personal codes would help Imbull to increase their brand. This means that the codes are provided straight from the retailer and it is therefore easier for Imbull to track the link and provide the last click to the customers.

Lastly, the primary data showed that cost tracking is difficult, mainly because of the number of devices that most consumers use today. It is common that a consumer has both a phone and a desktop and with only those two devices, the cost tracking is almost impossible for an online saving platform with todays' solutions. Therefore, it is essential to find a working solution to be able for an online saving platform to track the users regardless of the device. One solution to this would be to use time- or device pressured codes. This means that the code only works either for a limited time, so the users do not have time to change device. Alternatively, that the code only works for the specific device the consumers is using now.
5.4 HCI on Online Saving Platforms

The internal and external interviews showed results about the importance of HCI on Online Saving Platforms. There were two main concepts brought out from the primary data, which were *Staying Competitive* and *Creating Customer Value*. These two concepts are brought up in order to analyse them further in the next chapter together with already mentioned frameworks from the previous literature chapter. Staying competitive is focusing on working processes at the case company, Imbull, and Creating Customer Value is focusing on what to improve in order to increase the HCI and therefore also create a greater customer value on the platform.

5.4.1 Staying Competitive

In the work of creating an increasingly customer base that is loyal to an online saving platform, it is important to stay competitive. This involves not only new innovations but also to keep up the work with processes from before which are proven to work. Firstly, it will be important for Imbull to stay competitive on Google search hits. This means that it is important to be the first hit on Google when a consumer is searching for a discount code, this is the optimal way to invite new customers to the platform. Simultaneously, it is important for Imbull to further analyse the use of Google Analytics to analyse the customer behaviour furthermore and from that information decrease the guessing of useful Key words. As mentioned earlier, it is also important that all existing codes on Imbull platform is correct and working. It can sometimes be a difficult middle way to write good content that will attract most customers simultaneously as providing the correct content. The goal to stay competitive should be to provide the best codes, with lowest price and largest retailing area. If this is not possible for every retailer, the worst-case scenario should be to at least provide equally good codes as the other online saving platforms.

5.4.2 Creating Customer Value

To create customer value can be defined in many ways but it comes down to if the platform is contributing to the consumers life in a positive way. For an online saving platform, this sub chapter is important because of two reasons. Firstly, the end customers must feel that this platform is important enough to increase the number of steps of the process. Secondly, the retailers must see the contribution what online saving platforms creates to their brand. The interviews provided primary data about how to create customer value on an HCI based platform like Imbull. Firstly, 40% of the internal interviews mentioned that Imbull is creating customer value by always having the most popular retailers that are most frequently asked for, regardless interest, style or price level. They furthermore interjected the importance of latest, newest and
The largest retailers provided on the platform. As described in earlier sub-chapters, it is important to always provide the “best” codes.

The biggest difference between a good and bad online saving platform, according to interview participant I5, is to keep the platform daily updated with new content. He is citing:

“the consumers need to see that we update our content as frequently as daily!“.

It is a fact that many retailers are ending the relationship to online saving platforms because of the look of them. If a site is not well updated or looking like spam, retailers no longer want to associate their brand to that platform. This will only create bad publicity which will lead to a decrease of customers that want to visit the website. The external interviews proved this by stating that they would not make a purchase from a website that looks like spam. Interview participant I2 is quoting:

“Users trust less in not serious looking saving platforms”.

Another part of online saving platforms that would create major value for the customers which is still not developed is HCI-working virtual dressing rooms. In order for the customers to receive the same feeling they receive by visiting a physical store is to be able to see the clothing, shoe, accessory etc on themselves. The interviews show that online saving platforms would create customer value if AI is further developed into the market.

Lastly, the interviews are showing that an application would create further customer value since the number of visitors that are using their mobile device has increased drastically on all markets. Furthermore, the external interviews are saying that they would shop more if they had an account which could be used on all kinds of devices. An answer to the question: why there is no application existing already, interview participant I4 cited:

“I do not think that any of our competitors have an app, mainly because it is expensive to develop but also because nobody else has proven that it actually works”.

This itself is a reason to develop an application. Looking at the market today, many industries have gone from having physical stores, to being digitalized to finally be developed into an application. This is proven with the numbers collected from Google Analytics, and can be seen in the figure below,
Figure 9, represents the percentages of customers using mobile device, desktop and tablet.
Chapter six presents an analysis from the results of internal interviews, external interviews, and the found literature review. The theories & frameworks from the literature review, previous research, methodology, and the empirical findings of this study are all connected and analysed, which presents an answer to the main research question and the underlying research questions.

6.1 Overview

The results of this study show that a further developed HCI is needed on online saving platforms. Only if this is done, it will stand future competition. Many researchers have identified the different areas needed for consumers to shop online. There is a main difference between online shopping behaviour and this study since online saving platforms are the middle hand between consumers and online stores. Therefore, the results in this study differs from these specific stores or websites and can be seen as a development from it. An online saving platform can be analysed in various ways and to gain the largest insight and therefore create a trustworthy result, four different existing models were analysed and applied from the online platform to the online saving platform as presented in the previous chapter.

Human Computer-interaction

HCI is the redline of this study and therefore both the literature and interviews had a strict focus on it, which resulted in six words describing HCI. They are visibility, naturally, mapping, affordance, immediate feedback and design for error. These words have been described earlier in the literature chapter but will be further analysed in this chapter.

Enterprise E-Commerce

The first model is called CLV and is calculating the Customer Lifetime Value. This is something that many online stores are working with it and should also be applied on the online saving platform. In order to create an accurate result from this model, Google analytics was used together with Microsoft Excel.

The second model that was applied on the online saving platform was the three-image model created by Don Norman and thereafter analysed and further developed with this study. It consists of three images, one from the developer, one from the user and one from the system itself. The goal with this model is to in an early stage collide the three images and find a way to collide all three. The images should as quick as possible be identical to each other.
These models were discovered and described in the literature chapter. In the result chapter, there were also important aspects brought up for this study. Two areas are chosen which are: *Loyalty* and *Cost Tracking*. These are covering the importance of HCI on online saving platforms and will be developed with the previously mentioned frameworks.

**HCI on Online Saving Platforms**

The third model that was taken from earlier studied HCI and thereafter applied to online saving platforms where four key elements created by Fingar, Kumar, and Sharma. They show the main aspects on how to use HCI for online platforms and where further analysed on online saving platforms. The results of the interviews and collected material intended to answer the main research question: *"In what way will human computer-interaction alter the business intelligence on an online based savings platform?".*

Lastly, the TAM framework was used to get a deeper phycological knowledge about consumers behaviour in online shopping situations versus physical store shopping situations. This framework was firstly analysed on the online savings platform and thereafter the results were able to provide a result to the main research question.

The primary data was collected from the interviews, which provided this study with two main aspects in order to increase business intelligence with HCI on online saving platforms. They are *Staying Competitive* and *Creating Customer Value* and are analysed in this chapter together with the found literature frameworks.

*Figure 10. Shows an overview of the complex layout with results from both literature review and empirical findings*
6.2 Human Computer-interaction

In most performed interviews, Google Analytics was brought up as the number one tool when analysing customers' behaviour on the platform. This is interesting results since the overall knowledge was low when questions about HCI were asked. When the researcher explained the concept, the general level of knowledge was high. This proves that the term and knowledge is not developed and known enough throughout the company, but the general point of view is that HCI is extremely important for the future of the platform.

In the literature chapter, six elements where brought up that concerns HCI on online platforms. These were visibility, naturally, mapping, affordance, immediate feedback and design for error. They were all brought up in various internal interviews which proves that there is an unconscious knowledge about HCI.

These elements could all be further developed on an online saving platform. Visibility on an online saving platform means that everything should be clear for the customers. Interview participant I2 cited:

"I don’t even think all consumers understand the difference between a code and a deal".

He also stated:

"I don’t think there is barely anybody that recognise the name Imbull or Cuponation".

This is a difficult aspect on a website where people in general stay for less than one minute. No participant of the external interviews knew the difference between a deal and a code which proves this fact. These two questions were asked during the external interviews and nobody could clearly state the difference between a code and a deal. This proves the statement of interview participant I2.

A solution to this could be, as earlier described with a reward system for the customers. This would create possibilities to receive answers to the questions of how customers are behaving on the online platform of Imbull. This would show results not only were the platform is not visible enough, but also where it needs mapping, affordance and immediate feedback. According to the interview participant I1, I2, I3, I6 and I8, the only thing being made at this moment on the platform is to write good context that does not look like spam. According to the external interviews: E2, E3,
E4 and E8, the outlook of the page is crucial if they want to make a purchase. Sometimes there are different colours used, but overall, nothing is done for maximal visibility and mapping.

The last element is called *design for error*. This is interesting since interview participant I2 brought up how low the knowledge is about Imbull, from the customers. And additionally, the understanding of the platform. Even though, there is nothing being taken under consideration. Interview participant I6 cited:

> *“Imbull is not thinking about the future, they are too focused at turning out fires right now”.*

This element needs to be both taken under consideration in the future and right now.

### 6.3 Enterprise E-Commerce

The result of this part of the analyse were able to answer the first research question:

> *“RQ1: What are the key instruments that play a role in HCI when put in the context of online saving platforms?”.*

There were two models described in the literature chapter, which will be further developed in this chapter along with the results from the empirical findings. The first model is called CLV which stands for Customer Lifetime Value. According to the literature chapter, this means that every customer that is making an online purchase, can be analysed as a “good” or “less good” customer. This analyse is difficult and every so often impossible for a physical retailer to use, without combining it with online solutions. The CLV framework is multiplying three elements to calculate if the customer is giving or taking revenue. $\text{CLV} = (\text{Average order Value}) \times (\text{Number of repeated purchases}) \times (\text{Average retention time})$. For an online saving platform this is an important aspect since Imbull earns revenue completely on the customer behaviour. Since they are providing the customers with better offers then the retailers, this means that it is important to track the behaviour in order to find the “good” customers.

The second model that is used from the literature and further developed in this chapter is the three model images, which can be found in the literature chapter under 3.2, Enterprise E-commerce. This was explained as three separate models that optimally should be identical in order for the technology to have been developed in best possible way. The first image was from the developer, which is mostly a model of the idea what the develop would like to present in the
end. The second model is the customers image. If these two models are not identical, there is something that the developer must make clear or change.

The third and last model is the image of the result. This model is important for an online saving platform for the customers to understand the platform in the best and most efficient way. According to interview participant I2 and I4, a customer spends maximum one min on the platform which can be seen from Google Analytics in figure I11 and I12 below. The reason for this is that the customer only visits the website to find a code for the specific purchase for a retailer which was proved by 100% of the external interviews. Since the time is limited, it is important that everything is clear for the customers how to move around on the page and how to receive the desired code or voucher.

These two frameworks have been further developed on the online saving platform together with the primary data, collected through the interviews. Two main aspects were composed from the interviews that were further used together with the frameworks. These two aspects are "Customer Loyalty" and "Cost Tracking". Together these models, frameworks and aspects are creating important key instruments that are playing a role, and therefore answers the first sub-question.

Figure 11 and 12. A representation of average time spent on the platform of Imbull
6.3.1 Customer Loyalty

CLV

The first step for Imbull is to be able to analyse the customers entering the platform. In order to use the CLV framework, customers need to come back to the website. Thus, Imbull has a focus to get high Google hits, which means that they do not calculate how the customers behave on the site in an optimal way. With the help of Google Analytics and the CLV framework, Imbull could start analysing which customers are good to focus on and therefore spend extra time and effort on, and which customers are not useful.

As the figure below shows, the vertical axis is presenting the time in weeks, and the horizontal axis is representing the percentage of users that is coming back after visiting the platform. The percentage is constantly decreasing, and has gone from 100% to 3.3% in a week.

With a created community, it would create opportunities for Imbull to see the movements and the behaviour of the customers on the platform. This could in turn, show the CLV values for each customer. With that information, Imbull could start rewarding the customers with a high CLV value. These are also the customers that are showing the highest loyalty, which are shown earlier to be more rewarding for a company like Imbull then to only focus on high search hits on Google. This should not be shown to the customers but only internally.

Figure 13. A representation of user loyalty to the platform of Imbull
3-IMAGE MODEL

In order to create loyalty, it is important with HCI on the online saving platform. With the three-image model, it is easier to see customers’ expectations on a platform like Imbull. This can be crucial since customers do not spend a long time on the platform according to Google Analytics.

One important aspect is to have regularly end-user interviews. This is already performed by Imbull but can be done in a much further extent. Another idea was discussed during both the internal and external interviews, which would increase loyalty and simultaneously increase customer value in the form of three identical models by the three-image model. The idea was to create a form of bonus system for customers making a purchase from the platform of Imbull that gives points for the people grading the platform. The requirements would be that the consumer should spend a minimum amount of time on the platform in order to receive the question. Thereafter, the consumer would get a question asking, did you make a purchase or not? Followed by a few questions about HCI on the platform. Hopefully, the results show what level of understanding the customer has about the platform. As a reward, next time the customer would enter this platform, they would get a discount code of a few percentages which would also increase the loyalty from the customer, since next time they are looking for a discount code, there is a reason to go straight to Imbull to find it.

This could be done in two ways. Either, the discount is provided by the retailers which means that the customer gets rewarded with a discount code to a specific retailer. Secondly, the discount code could be provided by Imbull, then it could be on the entire platform which might increase the interest to stay on the platform and look around and therefore also make unplanned purchases.

The goal with this reward system is mainly to increase the three images to become one identical image, to increase the community feeling and create loyal customers and increase the curiosity from the consumers to look around further on the website and not only look for one specific code or discount.

6.3.2 Cost Tracking

CLV

Furthermore, it is also important for an online saving platform to constantly analyse the cost-tracking, which can be done in various ways. One result from the interviews shows the importance of seeing how many customers that are providing Imbull with the last click. A last
click means when a consumer is making a purchase from Imbulls platform. They must enter the platform to find a discount code, thereafter they must stay on the website and complete the purchase with the voucher from Imbull. That is contributing to the last click.

Another way to contribute to the last click is for Imbull to have personalized discount codes that can only be used by Imbull and no other online saving platform. In this case, Imbull will get the last click no matter how the purchase procedure looks like, as long as the discount code is being used. As described earlier, CLV is a useful framework if the goal is to measure the importance of the customers. By Cost-tracking the customers, it is also making it possible to create dynamic vouchers, which is earlier described in the previous chapter. Dynamic vouchers mean that each customer is being traced and that the software of Imbull would be able to see the value of their cart. If there is a customer with 10 euros in their cart, Imbull could create a voucher saying, “Get free shipping for purchases above 15 euros”. The amount is just above the customers cart, which increases the possibility that they will add one thing to the cart in order to get free shipping. This is a way of developing the CLV framework. What this software system should do is to analyse each customers CLV and if the value is high, the customers will get better voucher discounts. Dynamic vouchers are still a relatively untouched area on online saving platforms but according to the interview participant I2, I4, I5, I6, I7 and I8, this will be the only way to go in the future. The reason for cost tracking in the first place is for the online saving platforms to prove to the retailers that because of discount codes, the traffic to the retailers’ website increases. Instead of keeping the focus at the retailer, cost tracking should be further analysed on the online saving market.

As described at the beginning of this study, people today get increasingly impatient with everything around them. Most people want to get the instant feedback regardless the concern. This is something that can be seen also in this business area and can create large problems. Most online saving platforms are relatively young companies that are still in their creating or developing phase, simultaneously many retailers are receiving decreasing margins, which is pushing their business against harder constraints. Instead of waiting to see the results, many retailers want to see results right away from online saving platforms like Imbull. Results from the interviews are showing that many retailers with very tight margins decides to remove collaborations like online saving platforms or influencers. According to the interviewees, the main reason is because the retailer has the impression that they can survive without online saving platforms, and it is easy to quit a collaboration.
3 IMAGES MODEL

When businesses began to develop their platforms in a more digitilized way, encountered problems came along the way. The amount of data that was available and gathered was uncontrollably large. Therefore, one of the most important aspects for online platforms is how to use the available data in an optimal way. This has created an area of business called Big data. For not long ago, numbers where creating awe in the online world. This has changed, it is no longer a shock when Google presents news when they are processing 24 petabytes of data daily, or that there are 400 million tweets being created every day on this planet (Mayer-Schönberger. and Cukier, 2013). The problem with Big Data is how to process and store it in the most efficient way in order for a company to use it to maximal extent. Big Data is a concept, meaning digitilized stored information. The amount of this information is usually around the size of terabyte or petabyte which makes it extremely difficult to handle because of its complexity. This size of data can be compared with playing songs on a mobile device. To play one petabyte of songs would take one person 2000 years to finish (McKenna, 2015). Therefore, previous database methods are no longer an option to evaluate and analyse the information. Big Data is therefore used in combination with a so called VLDB, which stands for very large databases. This study has for that reason analysed one side of the value chain, B2C. The HCI in the chain between the case company and retailers, like Zalando and Nelly, has not been analysed.

One way to handle the enormous amount of existing data is by using Google Analytics. As described earlier in this chapter, this is a tool that is useful for online saving platforms. In order to cost track consumers behaviour on the website, all data has to be gathered and then executed in the right way. With Google Analytics, the employee can see how most consumers are moving on the website, where they click, how long they stay and much more. This is helpful in the sense of trying to find and create a system image that is identical between both the developer and the users model. In a combination with the earlier described user interviews, in the form of a reward system, it is possible to create the most optimal platform for online saving markets.

6.4 HCI on Online Saving Platforms

There is one model and one framework used in this sub-chapter. The model consists of four main elements and is only called for the four elements model in this study. The second framework is called TAM and they are further explained in this chapter, together with empirical findings from chapter five. The model of 4 main elements are describing how to succeed with HCI on an Online Platform. These are further developed and analysed for an Online Saving Platform.
There are two main aspects that were found from the internal interviews which will be taken into consideration for both aspects above. The first one is "Stay Competitive", which means that not all processes have to be new or changed. It is important to analyse what processes that are working and choose the most important ones to keep. This aspect is answering the first research question that was presented in the first chapter:

"What are the pristine, important instruments needed to enhance human computer-interaction on an online saving platform?".

The second aspect is called "Created Customer Value", and this focuses on how to make the customers want to visit the platform. This is where this study is answering the main research question:

"In what way will developed human computer-interaction increase business intelligence on an online based savings platform?".

6.4.1 Staying Competitive

4 KEY ELEMENTS

The four main elements that were earlier described in the literature review are:

- **Personalization** - “I want it my way, with my particular needs, driving the system’s responses to me”
- **Self-service** - “I want to explore on my own, select on my own, and troubleshoot on my own”
- **Immediacy** - “I want the information now, I want the product now”
- **Intimacy** - “I want it to feel like a two-way process, I want to know that my actions are being used by the company to learn what I want, I want my feedback to register with the company, and I want tangible evidence that I’m in the loop”

These four elements are proven to have been successful HCI aspects to consider on an online platform, and they can be further developed into the online saving platform. In order to answer the first sub-question;

“What are the pristine, important instruments needed to enhance human computer-interaction on an online saving platform?"
internal and external interviews were done simultaneously as the literature review. When this study was conducted, the customer can easily search the platform and search for the desired retailers. The platform receives high Google search hits, and Google Analytics is used in order to find the optimal keywords to continuously increase these Google hits. It is important to highlight the working processes within the industry as well and not only focus on developing all areas with new technology and software, this process is working and should be kept as a main focus.

Another successful process for an online saving platform is the **Self-service**. All consumers will be given the chance to alone search the platform, select individual retailers and so on. This can be overwhelming when entering a physical store and sometimes get multiple employees attention asking if there is anything they can help with. Furthermore, there is an aspect that has already been brought up earlier in this study but can be brought up here as well, the instant feedback.

One of the elements that has been proven to work on a HCI friendly online platform is **Immediacy**, which has been described earlier. Customers have increased their impatience and as of today, want the information as quick as possible. For an online saving platform like Imbull, this is possible since no physical stores exists. An online platform is open and available 24 hours per day which means that it is up to the consumer when they want to make a purchase and from what destination. The only negative factor in this process is mostly if the retailer has a long delivery time. **Interview participant 16** cited: "**For most people, it is nicer to shop online. You can almost find a free delivery coupon whenever, receive the product straight to your home, try it out in your house and not with 1000 other people, and if it’s not 100%, you just return it without to even have to go back to the store**".

Considering these facts, the internal interviewees answered that two of the four main elements could be improved. This means that the processes are working but could be optimized. The platform is not providing the customers with personal service.

To be personal and give the customers the feeling of individual service is a difficult task to fulfil. **Personalization** and **Intimacy** could therefore be further developed. One solution would be to create a virtual dressing room. This is a solution for retailers that is selling products like clothing, shoes or accessories. For an online saving platform, the earlier discussed community would be another solution where the consumers could go in and rate the codes and deals.

They could also recommend discount codes or deals to their friends in the network or maybe even create their own. There would be possibilities to change the website in the way that each
customer prefers. This would give the feeling of intimacy since each customer is provided with a profile that can be changed. The HCI aspects in this network is not only graphic solutions with different colour and layout options, but also providing the customer with the possibility to choose specific retailers that sounds interesting. For example, a young man or women might not be interested in baby products if they do not have a child and so on.

Figure 14, shows empirical findings for the 4 key elements on Imbull
TAM FRAMEWORK

Technology Acceptance Model is shortly called Tam Framework and has been developed in this study for the online saving platform. TAM Framework is based on three main aspects and thereafter five sub categories. These are Usefulness, Ease of use and Enjoyment, and thereafter "consumer traits", "situational factors", "product characteristics", "previous online shopping experiences" and "trust in online shopping".

The TAM Framework does not only contain changes for an industry like Imbull, but also how to see specific parts that are already working successfully and therefore should stay the same. Ease of Use is one aspect that can be described as something that Imbull should focus on in order to stay competitive. This element is focused on the process and how users find new technology effortless or not in the first step. The more effortless a new technology is, the larger is the chance that they will firstly try it out and thereafter, stay with it. This can be referred to situational factors, product characteristics, previous online shopping experiences and trust in online shopping which are aspects from the TAM Framework.

All these aspects can be drawn to a certain process where Imbull is very successful and should keep focus on. Which is something all online saving platforms should keep a strict focus on and therefore also Imbull. This is particularly the high google hits. As the picture below describes, the ranking on Google is in general high and in order to find new customers, it is important to stay that way also in the future. Imbull can improve their numbers when it comes to top three which means that they are mostly competing against Expressen and Aftonbladet. The problem concerning this area is the trust that consumers already have to these two platforms.

![Figure 15. Shows the ranking on Google for Tradera](image-url)
Usefulness is an aspect that is better suited for the other element collected from the primary data and will not be developed further to stay competitive. Lastly, enjoyment is describing the experience that each customer has every time they enter the platform. This concerns trust in online shopping, previous online shopping experiences and consumer traits. All three involves the impression of the website and the experience a customer received by choosing to shop online. If earlier experiences were satisfying, and this time sustaining as well, this could lead to unplanned purchases or searches. One way to reach a successful Enjoyment factor for Imbull would be to develop dynamic vouchers. In this way, the customers would be able to change the platform individually as they wish and therefore also search for more stimulating products and categories.

6.4.2 Created Customer Value

4 KEY ELEMENTS

- **Personalization** - “I want it my way, with my particular needs, driving the system’s responses to me”
- **Self-service** - “I want to explore on my own, select on my own, and troubleshoot on my own”
- **Immediacy** - “I want the information now, I want the product now”
- **Intimacy** - “I want it to feel like a two-way process, I want to know that my actions are being used by the company to learn what I want, I want my feedback to register with the company, and I want tangible evidence that I’m in the loop”

The earlier described four main aspects are also developed together with the other characteristic from the interviews, Created customer value. When analysing these aspects together with collected primary data from the interviews, it partly provides this study with an answer to the main research question asking for HCI aspects that will affect the business intelligence. Firstly, all interviewees had as a goal for an online saving platform to always provide the customer with the most desired retailers, regardless interest, industry or price class. This can be thought of as the Self-service element. In order for an online saving platform to be successful, it needs to provide a large variety of industries for all types of customers.

Secondly, it is important to always create the best codes on the market. This will provide the customers with immediacy. The third and fourth aspect can be developed into one solution in the form of an application. To create customer value that is intimate and personal can be problematic, an application with personal options would solve this issue. Personal options can be virtual dressing rooms, but also just one-on-one chat boxes where the customers can ask questions. If they are looking for a vacation, they will be provided with the feeling of sun on their skin and sand.
between their toes. If they are looking for a rental car, they will be provided with something that will fit just them. Are they looking for something safe for the family or something sporty and fast? This will all be provided on the same platform and therefore be very time efficient for the customers. Virtual dressing rooms are therefore only one aspect to the development to a further personalized and intimate relationship between Imbull and their customers.

Lastly, an aspect that was found both in the literature and collected from the interviews, were the missing aspects of an application for mobile devices. Both interview participant I2, I4, I6 and I8 were describing the constantly increasing numbers of mobile devices being used and therefore also decreasing numbers of computers being used while searching for discount codes or deals. Most external interviews proved that correct saying that they used their mobile device increasingly. Since the mobile phones are becoming further developed and the screens are becoming larger, it created possibilities for an application. When the question was asked: why no app had been developed already, the answer from interview participant I4 was:

"I don’t think any of our competitors have one either, because nobody has proven it to work".

This means that there is a huge opportunity to develop a successful application. If the market does not develop an application since nobody else has proven it to be successful, it means that nobody has neither proven it to be a failure. Looking at the number of mobile phone users, it would create customer value if there was an application developed on the online saving platform.

![Diagram](image)

*Figure 16, shows results from internal and external interviews of how to create customer value with the help of the 4 key elements*
TAM FRAMEWORK

It is of great importance that Imbull will start focus on Creating Customer Value. This is the most important aspect of them all since revisits are lacking and it seems that the customers do not have a reason to come back to the site. For this to change, Imbull needs to create a reason for customers to revisit the platform and thereafter also increase the trust for the platform. HCI in this case can help tremendously by the TAM Framework that was earlier described in the literature chapter with three main aspects: Usefulness, Ease of use and Enjoyment and five sub categories: “consumer traits”, “situational factors”, “product characteristics”, “previous online shopping experiences” and “trust in online shopping”.

Furthermore, to create customer value, Imbull should create an application. This application should involve dynamic and individual choices of both layout and specific retailers. Which would increase the Usefulness to go specifically to the platform from Imbull and not another online saving platform. Since data from various markets the last month has showed a dominant mobile device usage, the application would make it easier for the customers to use the platform. It would also create enjoyment for the customers if the application had a possibility to create accounts. This would make it possible to create a community where the customers can get a virtual shopping experience even better then in reality. The trust would increase for a community like this as long as the vouchers are correct and working, and the platform does not look like spam.

While developing an application it is still important to think of in what way it will affect the business intelligence for Imbull. Therefore, it is of great importance to also develop a strong community which will intrigue the customers to become a part of it, which would include creating an account. According to the internal interviews (2, 5 & 7), the most problematic part for an online saving platform is to track the customers. This means that if a customer is visiting one of the retailers’ online shop, then going to Imbull to find a discount code and then they leave, it is impossible for Imbull to receive the last click and therefore also get paid for providing the voucher. By creating a community, this would simplify the process of providing Imbull with the last click, and also to make it easier for Imbull to create personal vouchers for their customers.
This chapter presents the conclusion of this study regarding the research questions. This chapter also presents the implications for industry and literature as well as recommendations for future research.

7.1 Main Findings

The purpose of this study was to investigate how developed HCI can affect industries, specifically online saving platforms and if there were any specific key instruments that should be used in order to succeed with a HCI friendly platform. The main research question was formulated as,

- In what way will human computer-interaction alter the business intelligence on an online based savings platform?

To answer the main research question, the following two sub questions were formulated and analysed,

- RQ1: What are the key instruments that play a role in HCI when put in the context of online saving platforms?

There are two types of customers. The first type of customer is shopping with a mission, they are problem solvers. The goal is clear and the reason to use the internet is for the reason of availability, low prices, and time efficiency. The second type of customer is looking for an experience, fun, fantasy, arousal, sensory stimulation & enjoyment. They are the experience seekers and they normally do not have a specific product or service in mind, which often concludes in unplanned purchases. The two key instruments that was found for online saving platforms to always consider are the 4 key elements and the TAM Framework. The 4 key elements are explained in the literature review and is with empirical findings in the analysis. The problematic aspect to this is that customers are increasingly impatient and spoiled. Therefore, they are requiring personalization, self-service, immediacy and intimacy. This relates to a technological matter, whereas the TAM Framework could be referred to a more organizational matter which could be defined as attitudinal.

The results of the study have identified two related empirical findings in form of key instruments to enhance HCI on online saving platforms. In terms of staying competitive and creating customer value, there are created barriers in terms of enhancement of HCI which prevents from optimal development. Both must be highlighted and considered as critical factors affecting the platform.
Most found barriers are counted as behavioural, which means that risk is created in the form of propensity for change and rationality. Further, barriers of organizational characteristics have been found in terms of important instruments. If these key instruments are constantly under consideration, the main research question can be analysed and answered. The business intelligence would increase and with the help of Google Analytics and AI, it would be possible to analyse exact numbers of this.

- **RQ2: What are the mechanisms that underlie customers’ visits on online saving platform?**

The empirical findings of the study presented two main mechanisms, where online saving platforms needs further attention. Firstly, *Customer Loyalty* is in a general low for the entire market. This means that the possibilities are increasing for Imbull to create a new revolutionary platform. This can be introduced by a solution from the researcher, where the customer themselves could adjust their account with both layout and favourite retailers or styles. In this case, it would be possible to add features like push notifications or text messages whenever a new code is launched, since the consumer is choosing only interesting retailers for them. This answer the main research question of how HCI can alter business intelligence on the online savings platform.

Secondly, *Cost Tracking* is a problematic area where the entire industry is dependent of an optimal working technology which can track their customers behaviour and purchases. This could be done with the help of the 3-image model, which is reassuring basic understanding of the product, and CLV which is a measurement of customer lifetime value. A solution from the researcher for optimized cost tracking, would be to develop *dynamic coupons*. This means that the system uses earlier described AI and is therefore smart enough to analyse the consumers basket size and specific products or services it contains. The system can thereafter provide every individual consumer with a personalized code that is useful for just them. They can also adjust the code for the consumer to spend just 10-20% more than planned to gain a discount code. This solution combined with the previous mentioned solution is answering the main research question.

Therefore, the main research question is answered and simplified in figure 17, shown below. The figure is showing what key instruments that should be considered while developing an online saving platform. Which is: TAM Framework, 4-key element, staying competitive and create customer value. The figure is also showing what mechanisms that underlie customer’s visit on an online saving platform. Which is: CLV, 3-image model, loyalty and cost tracking. Therefore, the figure in total is mainly showing in what way HCI can alter business intelligence on an online saving platform.
Figure 17. Shows an overview of the complex layout with results from both literature review and empirical findings which answers the main research question

7.2 Implications

A contribution has been presented in the form of knowledge and perspectives within industrial, research case company, and sustainable implications. These implications are the base of the presented recommendations of future research.

7.2.1 Industrial Implications

The results from the study has shown a lacking knowledge of HCI both in general and on online saving platforms. Thus, these findings also prove a dependency of HCI in order to create an optimal platform. This highlights the importance of HCI for online saving platforms. This is a knowledge gap which providers of an online saving platform needs to understand better in order to present the implications of using HCI on online saving platforms. Thus, providers of online saving platforms have to reassure consumers of the platform, that they are in compliance with the platform in order to gain the best possible shopping experience.

Additionally, organizations of online saving platforms need to consider proper discussions about the basic knowledge about HCI internally and externally, since both types of results has appeared as a demand and a need. By current organizational systems, these needs and demands are not
being met. There are needs and demands of conducting efficient platforms, which can present secure data for the customers. This can be enabled by an application with dynamic vouchers and reward systems.

Furthermore, recommendations regarding online saving platforms is to conduct a proper assessment in customer loyalty. To enable loyal customers will increase the business intelligence, and thereby evaluate and collect the most useful data that would be appropriate for online saving platforms. Further, this could be done by tracking customers behaviour and award loyal customers in the application. The applications purpose will be to act as a fundamental support in terms of distribution and clarity of knowledge and understanding for both customers and employees.

**7.2.2 Case Company Implications**

The case company has already started a new project in order to present dynamic vouchers to their customers, and it has received successful results on the market and is continuing to grow. Furthermore, the customer base must become further loyal instead of Imbull to continuously find new customers. In order to reassure that customers will become loyal to the case company; an application should be developed, and benchmarking tools should be used from other online companies like Hotels.com or Ways. A community should be created with reward systems and possibilities to earn bonuses. Therefore, recommendations to the case company is to continuously educate the employees in HCI and Google Analytics, which provides them with tools to analyse customer behaviour. This will also create a further loyal employee base within the company, which increases the knowledge inside the case company.

Furthermore, it is of great importance for a company that is providing online discount codes to develop a system that is tracking consumers behaviour and therefore also their last clicks. By adding key interaction mechanisms like creating a community this will be possible. It will increase customers knowledge about the company and platform, which will make it possible to create personalized vouchers. A community in the form of accounts will both create customer value that is not existing at this moment, and furthermore stay competitive on the market since this is a new development that does not exist for an online saving platform.

Lastly, another recommendation is to use the presented important instruments in the form of CLV, 3-image model, 4 key elements and TAM Framework which has been developed on the online saving platform in this study.
7.2.3 Research Implications

The research implications were found in the form of a knowledge gap. This gap was identified between online saving platforms and HCI, where the lacking knowledge about HCI is resulting in concerningly poor communication levels. These results concern in an environmental and organizational context, which forms a foundation for further research from this perception.

Furthermore, this study confirmed previous research concerns regarding lacking knowledge about HCI within online saving platforms. By concluding and conducting a study as such, studies regarding HCI on the online saving platforms are further researched and developed, which provides updated results and findings with particularly geographical delimitations.

7.2.4 Sustainability Implications

The increased knowledge base of HCI on online saving platforms does not only create environmentally friendly waste. There is not any form of a production process, this means that there is no use for facilities or large halls to produce physical objects. Therefore, one example is the total reduction of infrastructure allocation. Imbull has offices around the globe, which are all aware of the carbon footprint. There is no use of paper or other unsustainable materials in the office except for the use of computers. Another environmental benefit is the number of retailers and customers provided from one organization which means it is on a shared infrastructure. Consequently, the peak loads are compressed. Thus, the chosen retailers could be chosen with sustainability as a major factor. Lastly, another sustainable benefit is how all leftover food in all offices are taken care of and given to people in need and is prevented from becoming waste.

7.3 Future Research

This study was conducted with one particular case company, as a case study on the online saving platform in general. The study has concentrated to one geographical field. In order for increased generalizability, future research on different locations would increase the localization perspective. Furthermore, another case study would be of interest on another online saving platform to see if the findings and results can be extended on the industrial level.

The findings indicated a knowledge gap between HCI and online saving platforms. Future studies could provide further information from a functional level, as to how online saving platforms should decrease this knowledge gap. Another recommendation for future research is to be
focusing on the basic knowledge of HCI internally and externally. Furthermore, this will increase the communication processes in adoption to online saving platforms.

Lastly, problematic tracking of systems. Further research might be performed on how to track the customers' behaviour and last clicks to overcome the drawbacks and losses of this reason. The recommendations would be to focus these studies on the technical parts, for example the codes building these systems, and thereafter the attitudinal perspective. This could be done both in an individual or organizational level. Thus, it would be of interest to further research organizations' ability to influence customers' shopping behaviour and embrace the possibilities on this yet not completely researched market.
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**WEB PAGES:**

**APPENDIX 1**

**1A:** Table 1. Participants from Imbull, the case company, for pilot study interviews

<table>
<thead>
<tr>
<th>Order</th>
<th>Interviews</th>
<th>Market</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Sven Dahlin</td>
<td>Sweden</td>
</tr>
<tr>
<td>2</td>
<td>Mads Bukholt</td>
<td>Nordics</td>
</tr>
<tr>
<td>3</td>
<td>Charlotte Ringen</td>
<td>Norway</td>
</tr>
</tbody>
</table>

**1B:** Table 2. People being interviewed from Imbull

<table>
<thead>
<tr>
<th>Order</th>
<th>Interviewees</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Ophelia Ludovicy Blom</td>
<td>Sweden</td>
</tr>
<tr>
<td>12</td>
<td>Sven Dahlin</td>
<td>Sweden</td>
</tr>
<tr>
<td>13</td>
<td>Charlotte Ringen</td>
<td>Norway</td>
</tr>
<tr>
<td>14</td>
<td>Emma Densoe</td>
<td>Denmark</td>
</tr>
<tr>
<td>15</td>
<td>Viktor Höök</td>
<td>Sweden</td>
</tr>
<tr>
<td>16</td>
<td>Charlotta Björk</td>
<td>Sweden</td>
</tr>
<tr>
<td>17</td>
<td>Mads Bukholt</td>
<td>Imbull</td>
</tr>
<tr>
<td>18</td>
<td>Hanna Weiber</td>
<td>Sweden</td>
</tr>
</tbody>
</table>
Table 3. External interviews. People being interviewed outside of Imbull

<table>
<thead>
<tr>
<th>Order</th>
<th>Interviewees</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Sofia Brené</td>
<td>Sweden</td>
</tr>
<tr>
<td>E2</td>
<td>Kaspar Janssen</td>
<td>The Netherlands</td>
</tr>
<tr>
<td>E3</td>
<td>Amanda Lundgren</td>
<td>Sweden</td>
</tr>
<tr>
<td>E4</td>
<td>Nathalie Lidman</td>
<td>Sweden</td>
</tr>
<tr>
<td>E5</td>
<td>Ewa Eriksson</td>
<td>Sweden</td>
</tr>
<tr>
<td>E6</td>
<td>Madeleine Sjöblom</td>
<td>Sweden</td>
</tr>
<tr>
<td>E7</td>
<td>Martina Bergdahl</td>
<td>Sweden</td>
</tr>
<tr>
<td>E8</td>
<td>Henrik Stegersjö</td>
<td>Sweden - Saleduck</td>
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</tbody>
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