

Master Thesis

Conversion Rate Optimization – Developing a model that facilitate its adoption in Small and Medium-sized Enterprises

Søren Kristian Simonsen

Student No. 101542

Supervisor: Mads Bødker

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Abstract

Retail through e-commerce has increased significantly throughout the last decades and now represents 14.6% of the global retail spending. E-commerce opens new ways of reaching customers that extend beyond the physical location of a company. The potential of increasing sales by expanding the existing customer base has pushed many Small and Medium-sized Enterprises (SMEs) to adopt e-commerce capabilities. However, only a low percentage of SMEs that invest in e-commerce capabilities experience actual growth benefits. One factor affecting the growth rate is the associated conversion rate experienced through e-commerce. To combat low conversion rates, companies can apply a process known as Conversion rate optimization (CRO). However, most of the examples provided centre around best practices and are primarily conducted by big e-commerce companies, which don't necessarily fit with the context of SMEs.

Inspired by this gap in literature and practice, this thesis investigates how SMEs can adopt CRO in their e-commerce strategy. To illustrate this, a single case study was conducted on a Danish SME named Kontra Coffee. Through participant observation, the problem explication revealed that Kontra Coffee was not data driven nor customer-centric and did not encompass a culture open to experimentation. These were the primary obstacles to adopt CRO. A subsequent requirement identification led to the final design of the Lean CRO Model, a structured and iterative model, which has the potential to help SMEs adopt CRO in their e-commerce strategies (Figure 16, p.39). The model consists of four steps: *Explore, Empathise, Experiment, and Evaluate*. During the *Explore* step, the main constraints were identified using descriptive statistics of Kontra Coffee's website traffic. The findings were then used in the *Empathise* step, where five test subjects participated in a usability test to map out the main usability issues on the website. A filtering option and an easier overview of the different coffees on the catalogue page were identified as the main issues that degraded the user experience on the website. Hereafter, two problem statements and hypotheses were stated in the *Experiment* step resulting in two A/B tests. The preliminary results of the *Evaluate* step indicated a 96% and 89% probability of better performance by the variant versions, respectively.

The findings conclude that the Lean CRO Model can enable CRO adoption in Kontra Coffee and increase conversion rates. Finally, the results of this study call for a further evaluation of the Lean CRO Model to test its generalizability in contexts beyond the case company.

Keywords: *E-commerce; Small and Medium-sized Enterprises; Conversion rate optimization; Usability testing; Experimentation*

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1. Introduction

An increasing number of companies have adopted digital channels to support their future growth. In 2020 14.6% of total retail spending took place through e-commerce transactions, representing a 162.2% increase in a five-year time interval (Fatta, Patton, & Viglia, 2018). This increase has pushed Small and Medium-sized Enterprises (SMEs) to invest significantly in new IT, such as company websites, digital analytics, and marketing campaign tools, enabling e-commerce (Ghandour, 2015). Although SMEs are investing more than ever in IT that supports e-commerce, only a low percentage grows from it.

One reason is that SMEs' primary focus is stimulating traffic to their websites rather than increasing the conversion rate. While SMEs are increasingly succeeding in attracting visitors to their websites, recent statistical reports and historic literature show that only a small number of visitors convert when visiting sites. Moe & Fader (2004) found that 70% of online retailers experienced less than a 2% conversion rate. While a lot has happened to both the digital landscape and customer behaviour since 2004, conversion rates appear unchanged. The average worldwide conversion rate was 2.19% during the third quarter of 2020 (Statista, 2021), which means that roughly 98% of potential customers who visit an e-commerce website do not make a purchase.

SMEs who want to grow through e-commerce need to pay more attention on increasing their conversion rate rather than solely focusing on increasing website traffic, as non-converting traffic can be meaningless and expensive to generate. An effective way of increasing the conversion rate is through conversion rate optimisation (CRO). CRO is a process that seeks to increase the proportion of visitors who engage with a website. Contrary to stimulating traffic, the focus of CRO is to understand how to increase value from the current traffic the website has (Ayanso & Yooglingam, 2009).

Since CRO is a process and not a quick fix, it requires structured planning and practical project management skills to succeed. Much work in SMEs is carried out without the same degree of planning as in big organisations. Furthermore, CRO requires the employees to possess broad IT- and scientific competencies such as data analysis, statistics, and front-end development. This collides with SMEs, where externals handle IT, and employees to a higher degree possess a generalist skillset, as they are often called upon to fix a wide variety of tasks (Fatta, Patton, & Viglia, 2018). Furthermore, since CRO is highly built on data and statistics, it requires SMEs to adopt a technical setup, which they are not accustomed to.

The purpose of this thesis is to present a model that can guide SMEs towards a straightforward adoption of CRO in accordance with established usability and experimental principles for use in e-commerce strategies. The study is intended for readers and practitioners who may have a limited understanding and expertise in CRO but have a general knowledge of best practices that lead to an increased conversion rate. The focus will not be an in-depth exploration of all possible factors that affect conversion rates. Instead, the focus will explore how data analysis, usability testing and experimentation can be orderly combined to adopt CRO in SMEs. Another focus throughout this study is to highlight the problems faced by SMEs to adopt CRO. The thesis divides CRO into four steps, which symbolize a testing and pre-testing phase. A model for the developed CRO model is presented in (Figure 16, p.39).

The main research question addressed in this thesis is:

How does conversion rate optimisation (CRO) affect e-commerce performance, and how can SMEs adopt CRO in their e-commerce strategy?

2. Literature review

The following section will elaborate on relevant literature, which comprises my knowledgebase, and is within the scope of this thesis. I will explain the most pertinent theories, themes, and definitions for my thesis in detail.

To ensure the adoption of a critical perspective in literature collection, I made a pre-planned strategy for systematically reviewing the literature (Saunders, Lewis, & Thornhil, 2012, p. 74). This strategy concerned the concrete activities of locating literature, critically appraising it, and lastly, analysing it.

2.1 Literature review strategy

The literature review strategy adopted in this thesis concerns several methods I have applied throughout my literature review to increase validity in the selected literature I use to guide my thesis (Saunders, Lewis, & Thornhil, 2012, p. 90). These methods are:

- the parameters of search
- the search terms and search phrases
- the online databases and search engines I use
- the selection criteria I use to distinguish relevant literature

2.1.1 Parameters of search

I kicked off this process by going through previous courses I had attended throughout the MSc. in Business Administration and E-business. From this process, I narrowed down the scope to four areas of interest, which were e-commerce, user experience, conversion rate optimisation and experimentation. Based on these four areas, I did the initial research to discover relevant literature. Still, I found the literature too extensive, which led me to narrow the scope further by adopting additional parameters. These were:

- English publications only.
- Start-ups and SMEs.
- Literature from the last 25 years (favouring more recent literature).

2.1.2 Search terms

To ensure the relevance of the literature to the research question, I specified search terms. This was very much a process of trial and error, where I tried many different variations until I slowly narrowed down a list of relevant search terms. I decided to replace the initial focus on user experience with a focus on usability testing instead. I found several articles that fit well with conversion rate optimisation, such as return on investment (ROI) from usability testing, which led me to discover research concerned with cost justification of usability testing. Below is a demonstration of a list of the most used search terms:

- E-commerce
 - E-commerce and SMEs
 - E-commerce strategy
- Usability testing
 - ROI from usability
 - Website usability
- Conversion rate optimisation
 - Conversion rate optimisation in e-commerce
 - CRO process in e-commerce
 - Consumer behaviour
- Experimentation
 - Online controlled experiments
 - A/B testing

2.1.3 Online databases

I used the following databases to retrieve most of the literature for this thesis. I intended to discover most of the literature through either of the first four listed databases, as they were large databases, which I assumed had plenty of literature. However, I found myself going back and forth between the five different databases. I found Google scholar to be the most intuitive to use, which led me to use it more than I originally intended. However, when I found literature I liked from Google Scholar, I used the other databases to cross-examine it.

- CBS Library.
- Emerald Insight.
- Science Direct.
- Springer Link.
- Google Scholar.

2.1.4 Selection criteria

To select and evaluate relevant literature and distinguish it from non-relevant literature, I developed selection criteria. Criteria concerning reasons for inclusion and exclusion was helpful and effective in screening relevant literature. The inclusion and exclusion criteria were:

Inclusion criteria:

- Literature that discusses the four search terms either practically or theoretically.
- Literature that defines the four overarching search terms.
- Literature that discusses advantages or challenges of the four search terms.

Exclusion criteria:

- Literature that was inaccessible.
- Literature not cited by others.

I read the retrieved relevant literature based on the title. Afterwards, I read through the abstract and the keywords of the literature and based on the research question; I was able to select the relevant literature, which I then would skim read from start to finish.

The literature review will investigate research concerning the following constructs to explain the landscape of CRO adoption in SMEs: *E-commerce in SMEs*, *conversion rate optimization*, *usability testing*, and lastly *experimentation* (Figure 1).

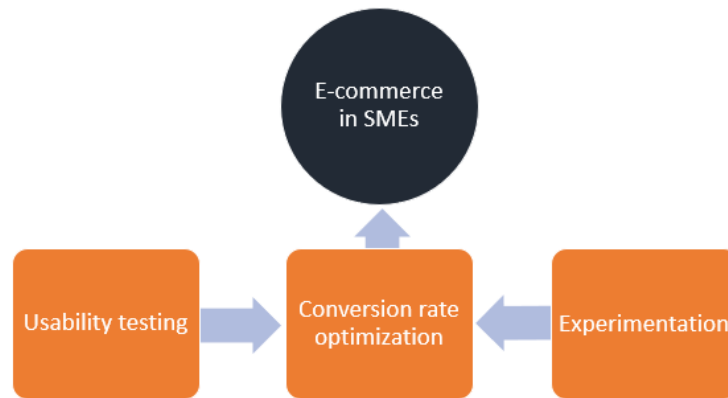


Figure 1 – Illustration of constructs covered in Literature Review

2.2 E-commerce in SMEs

Commercial transactions conducted on the internet, also known as e-commerce, have increased in popularity among both companies and consumers during the previous decades. Recent reports estimate that e-commerce made up 14.6% of total retail spending in 2020 (Fatta, Patton, & Viglia, 2018). This increase in popularity has also gained attention among managers of SMEs, who are increasingly trying to take advantage of e-commerce. Generally, we see higher investments among SMEs in acquiring e-commerce capabilities, which is now rising across all sectors (Ghandour, 2015).

There are many associated benefits of e-commerce. Firstly, e-commerce can increase the market size of a company, as it is no longer limited to just serving customers in its geographical area, which is defined by the location of its brick-and-mortar store. This is especially useful for SMEs faced with financial constraints that typically prevent them from expanding into new geographical markets (Savrul, Incekara, & Sener, 2014). Secondly, SMEs who undertake e-commerce can significantly reduce the costs of acquiring new customers through advertising and promotion (Savrul, Incekara, & Sener, 2014). By removing the physical barriers to reach customers, the company can run online campaigns that target a more extensive customer base, which reduces the acquisition costs of new potential customers. Furthermore, they can tailor promotions to specific users, otherwise not possible in a physical setting. Thirdly, the characteristic of the internet enables companies to have faster and efficient communication with their customers, who are now able to get in contact directly before they purchase on a website (Savrul, Incekara, & Sener, 2014). Lastly, e-commerce and the adoption of web analytics tools allow SMEs to measure the performance of all the aspects mentioned above with much finer granularity than they would otherwise be able to in a physical setting.

While switching from an analogue environment to a digital environment appears tempting due to the above stated factors, many SMEs still struggle to take full advantage of e-commerce and even fail in e-commerce undertakings (Fatta, Patton, & Viglia, 2018). There are several technical and non-technical barriers SMEs face in transitioning towards e-commerce. The first characteristic is regarding the very foundation of the SME, which in many instances is the owner. The owner closely controls the SME, and when big decisions are made, they often must go through the owner. Thus, the owner's openness and knowledge of e-commerce are significant factors determining the adoption of e-commerce. According to Stockdale and Standing (2006), the previous aspect can extend to senior management in larger SMEs or family members and central employees in smaller SMEs. Research shows that a so-called "technology champion" (Stockdale & Standing, 2006) is a strong driver of successful e-commerce adoption. The "technology champion" can be referred to as either foundational technology that enables e-commerce or an employee that possess the required technical competencies to help the SME succeed in adopting e-commerce. If the SME has neither of the two, the e-commerce adoption will undoubtedly deliver its intended results (Stockdale & Standing, 2006).

2.1 Conversion rate optimisation

This section presents well-established research on web analytics and CRO. I argue that there are two important concepts that companies need to understand when discussing CRO, which is understanding the difference between the conversion rate and CRO and how these concepts work in conjunction. Furthermore, I describe how adopting CRO can bring value to SMEs and which challenges they face in successfully adopting it.

2.2.1 The conversion rate and factors affecting it

Data on website traffic is collected to gain insights about visitors and understand websites' performance (Ayanso & Yooglingam, 2009). It is important to note that merely collecting this data will not let a company understand whether its website is successful or not. The data needs to go through a thorough analysis first. During this analysis, a company defines key metrics to measure and analyse to steer the business forward (Ayanso & Yooglingam, 2009).

One highly valuable metric to measure is the conversion rate. The conversion rate is the proportion of passive visitors who complete a desired action and become active visitors (Fatta, Patton, & Viglia, 2018). The desired action can vary depending on the type of business, e.g., an e-commerce site's desired action could be a product purchase, newsletter signup, or a 3rd party cookie acceptance. For this thesis, I am adhering to the conversion rate definition by Ayanso and Yooglingam (2009) who

define it as the “*Number of visitors who make a purchase directly from a Web site as a percentage of total visitors.*” To calculate the conversion rate, the company needs to measure two numbers: Firstly, the number of conversions, and secondly, the number of visitors’ (Figure 2). The company then divides the conversions with the number of visitors, which ultimately amounts to a percentage ratio. An example of such a calculation would be if a website has 100 visitors, and 8 of the visitors complete an order, the conversion rate for that website would be 8%.

$$\text{Conversion rate} = \frac{\text{Conversions}}{\text{Number of visitors}}$$

Figure 2 – Mathematical calculation of the conversion rate

Ayanso and Yooglingam (2009) argue that a typical e-commerce conversion rate is between 0.5% and 8%. Previous research shows that “*70% of online retailers experienced less than 2% overall purchase conversion rate*” (Moe & Fader, 2004). Additionally, the conversion rate lowers even further when consumers switch to their mobile device, which experiences a conversion rate of 1.2% (McDowell, Wilson, & Kile, 2016), which means that roughly 98% of visits don’t convert. The reason behind the relatively low conversion rate is complex, as many factors can influence it. Two of the main factors are purchase intention and website satisfaction.

Firstly, purchase intention positively influences the conversion rate (Gudigantala, Bicen, & Eom, 2016). Research shows that the low search cost associated with online shopping attracts customers who don’t necessarily intend to purchase in the first place but are instead doing it for hedonic purposes (Moe & Fader, 2004). A recent study from Google’s research team, ‘Think with Google’, backs up Moe’s findings. Their research shows that customers in the market for a product visit several touchpoints before they eventually make up their minds and ultimately buy a product (Rennie, Protheroe, Charron, & Breatnach, 2020). Thus, companies need to understand how they can influence purchase intention to increase the conversion rate.

Secondly, website satisfaction positively influences purchase intention and conversion rates (Gudigantala, Bicen, & Eom, 2016). The websites that e-commerce companies rely upon to reach their customers might be designed poorly and created without functionalities facilitating consumer purchase-decision-making (Ayanso & Yooglingam, 2009). A significant percentage of transactions fail due to flaws with the design of websites “*approximately 23 percent of attempted transactions end in failure and frustration on the part of the customers as a result of poor design*” (Ayanso & Yooglingam, 2009). Furthermore, poor usability and website design lead to a high cart abandonment rate. Baymard

Institute surveyed 4,329 respondents to list the top ten reasons for cart abandonment (Statista, 2021, p. 51). Five out of ten leading reasons related to poor usability and website design (Figure 3).

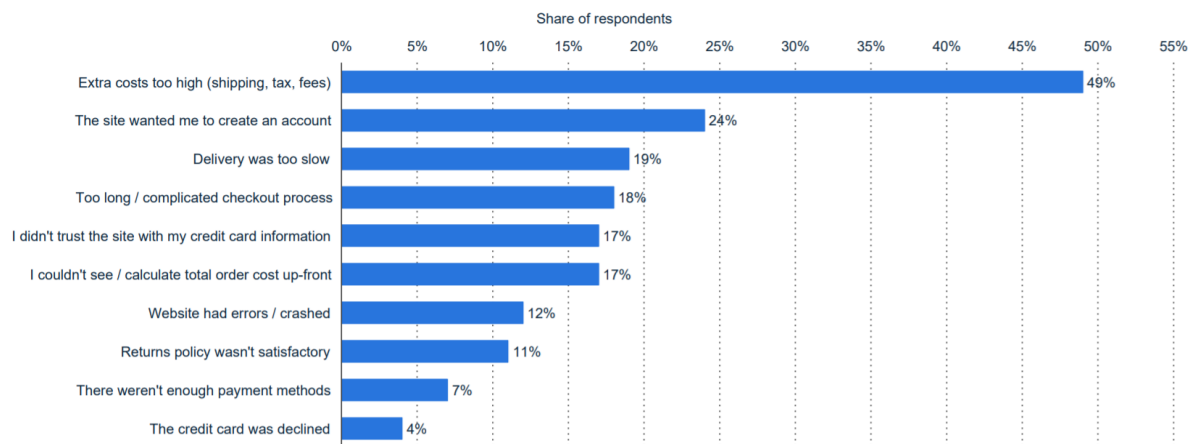


Figure 3 – Top ten reasons for cart abandonment - Source (Statista, 2021, p. 14)

Although several factors influence the conversion rate, purchase intention and website design represent two main factors e-commerce companies need to understand.

2.2.2 Definition of Conversion rate optimization

CRO is an informed decision-making process of increasing the proportion of active website visitors, measured through the conversion rate (Gudigantala, Bicen, & Eom, 2016). In contrast to other marketing processes, the focus of CRO is not to increase traffic but to increase the value from current traffic. If companies conduct CRO successfully, they can lower the acquisition costs of new customers and increase the revenue per visitor.

CRO studies customer behaviour and how to persuade customers to purchase on a website. It uses various methods to complete this objective, such as data analysis, usability, user experience, persuasive design, and experimentation. By combining this diverse knowledge, CRO focuses on tailoring websites and customer journeys to increase the conversion rate.

Companies need to adopt a structured approach to CRO and understand which changes on their websites lead to a positive difference in the conversion rate—investing in website functionalities and measuring the conversion rate before and after can prove if the change positively influences the conversion rate (Lee & Kozar, 2006). However, this is often not the case, which decreases the positive impact of CRO as *“one ineffective step taken by many Web retailers is undertaking improvement efforts that are spread across all Web site functionalities”* (Ayanso & Yooglingam, 2009). Companies must

follow a scientific hypothesis creation and testing method to secure structure throughout the CRO process. An example of such a method is the “Build-Measure-Learn” methodology (Ries, 2011, p. 75), which I will elaborate further on in the experimentation section.

2.2.3 Challenges of CRO adoption in SMEs

Literature highlights that CRO is still primarily undertaken by more prominent companies than SMEs (Fatta, Patton, & Viglia, 2018). To perform CRO, an SME needs to adopt new IT, which SMEs historically have difficulty doing. Researchers highlight several challenges SMEs face to adopt new IT, such as CRO, properly and capture its value in e-commerce. Firstly, most IT adoption in SMEs happens without any proper planning. A key reason affecting the poor planning and subsequent implementation is that management initially does not have a clear vision for adopting the new technology (Nguyen, Newby, & Macaulay, 2015).

Secondly, SMEs face the challenge of limited expertise. SMEs have few employees with the required technological skillset who can adopt and operate new IT as required (Fatta, Patton, & Viglia, 2018). Furthermore, employees should possess strong communication and project management skills to adopt CRO. Without the latter, the company can start to doubt the usefulness of the new IT, which can result in a low level of support from management (Nguyen, Newby, & Macaulay, 2015).

Thirdly, SMEs face the constraint of limited financial resources, which means that they must accomplish any adoption of new IT with significant efficiency and cost-effectiveness (Fatta, Patton, & Viglia, 2018). Research has revealed that only a low percentage of SMEs, who invest in e-commerce functionality, happen to grow from it (Thimm, Rasmussen, & Wolfgang, 2016). SMEs low ROI is a concern as *“one needs to consider the inherent rule of private companies that incurred cost – such as for the development and maintenance of a company website – are to be justified by economic benefit eventually.”* (Thimm, Rasmussen, & Wolfgang, 2016).

2.2 Usability testing

Usability describes how a specific user in a particular context can use a design to achieve a goal effectively, efficiently, and in a satisfactory manner (Topics: Usability, 2021). The usability measure is a component of user experience but is not confused with the latter, which is broader and describes how a user experiences a system. To understand how to improve usability, companies can use the method of usability testing. Contrary to looking at data from logs, which also reveal insights on

improving a system, usability testing is better at understanding why a system needs to improve to fulfil users' needs, as evaluators are directly observing them (Hertzum, Hansen, & Andersen, 2009).

2.2.1 What is a usability test?

Usability testing is a widely used method to collect insights about a system's user experience (Hertzum M. , 2016). Before launching a system, researchers apply the technique to reveal possible bugs that prevent users from completing intended tasks, slow down the task completion process, or otherwise degrade the user experience (Hertzum M. , 2016). However, usability testing is not limited in use to the pre-release stage of a system, as it is in many cases beneficial to continue with further iterations throughout the lifecycle of a system.

There is no fixed technique of how to conduct a usability test. However, there are central elements of any usability test, including a moderator, who provides tasks for users to solve while observing the user's behaviour. Furthermore, evaluators can probe the user to think aloud throughout the task completion process to understand better the user behaviour, which cannot be observed by merely looking at the user completing the task (Hertzum M. , 2016).

2.2.2 Important considerations when doing a usability test

While the usability testing method may appear simple, a long-lasting debate exists on conducting it scientifically to gain qualified and valid insights. Before performing a usability test, the moderator needs to take several considerations. The moderator can either decide to conduct the usability test with the user remotely, adjacently or let the user do the test by themselves. In a remote usability test, the user and the evaluator do not have to be physically present with each other. Instead, the user can do the test from the comfort of their own home or any place where they won't be disturbed. To do remote testing, the evaluator will use screen sharing to record the test. The benefit of remote usability testing is that it can be easier to recruit users, eliminating the time needed to travel to a physical location (Lesaigle & Biers, 2000).

Furthermore, remote usability testing enables companies to gather insights from people in a more extensive geographic area. Some researchers argue that it is optimal that the evaluator and the user are physically present to be effective. However, Lesaigle and Biers (2000) did a study to test the implications for remote usability testing, and their results "*indicated no significant differences in the total number of problems found under different remote viewing conditions*" (Lesaigle & Biers, 2000). However, in their research, they discovered that remote testing impacted the severity ratings by the

usability professionals *“The real time viewing conditions affected the rating of problem severity. The same problems were more likely to be rated as severe in the condition in which the usability professional could hear the user and see the user’s face.”* (Lesaigne & Biers, 2000). Thus, researchers who plan to adopt remote usability should be aware of its potential impact on the results and find ways to rate severity better.

Another aspect that divides usability professionals is the method of thinking aloud. Some researchers carry out the method more loosely and relaxed, which directly conflicts with the traditional way of obtaining valid verbalisations of thought processes (Hertzum, Hansen, & Andersen, 2009). According to Hertzum (2016), some usability professionals are treating usability tests more like an interview. A recent study found that interviews and relaxed usability testing shared a conversational element, where *“users spoke an average of 110 words per minute during a test session and the evaluator who moderated the session spoke an average of 26 words per minute”* (Hertzum M. , 2016). If evaluators keep asking questions that cause the test subject to pause and reflect, their talking detaches from the actual use of the system. Additionally, it requires test subjects to increase their verbalisation level, which influences their task performance (Ericsson & Simon, 1993).

To avoid this type of distortion, evaluators are encouraged to restrict user’s verbalisation and merely use prompts like *“Mm-hmm”*, *“go on”*, and *“Uh-huh,”* as this lets the user feel they can elaborate freely, without the evaluator stepping in and claiming speakership (Boren & Ramey, 2000). By adopting this approach, researchers ensure they apply the method appropriately and gather data, which mimic user behaviour outside the test.

2.2.3 Value of usability testing

The value of usability testing depends on the business context. Thus, understanding the business, its objectives, and anticipated outcomes through increased usability is the first step towards creating value through usability testing (Bias & Mayhew, 2005, p. 307).

From this understanding, the company can establish a baseline report based on current performance. The company can then compare the results after the usability testing against the baseline report to measure the value-added from usability. Furthermore, Bias and Mayhew (Bias & Mayhew, 2005) recommend that all data relating to the dependent variable be collected and variables likely to be correlated. Data is also collected over time to measure and determine when the impact of the changes has declined again, as changes are not static but evolve with time.

The Nielsen Norman Group expects to see an increase in usability investment due to competition and its ROI. Concerning the former, Nielsen Norman argues that there will be a higher demand for usability given the increasing commercialisation of the internet, as *“users will simply refuse to use any sites that are not as easy as the very best sites on the Web”* (Nielsen, Berger, Gilutz, & Whitenon, 2004). Concerning the latter, they argue that ROI from usability is still significant and that *“we are nowhere near the point of diminishing returns, so sites that invest more in usability will become even easier to use and will sell even more”* (Nielsen, Berger, Gilutz, & Whitenon, 2004). In a research study of 20 e-commerce sites, Nielsen Norman (2004) reported an average improvement of 87% in sales growth from usability testing, which indicates that improving e-commerce usability should lead to a bit less than a doubling of sales. As the internet has increasingly commercialised, it is less likely to see similar improvements in the future. However, Jakob Nielsen still argues that companies who undertake usability tests will likely see substantial ROI from their investments.

2.2.4 Misconceptions about value of usability testing

While Jakob Nielsen and the Nielsen Norman Group are advocates of talking about the ROI of usability testing, Daniel Rosenberg argues that usability ROI is highly based on misconceptions. While Rosenberg argues his ultimate professional goal is to add value to products by increasing the user experience, he clarifies that he does not find ROI to be a meaningful way of showcasing such an increase in value (Rosenberg, 2004). According to Rosenberg, there are not enough empirical data to support the ROI claim for usability. The empirical data that do exist are older. Rosenberg argues that ROI advocates oversimplify and overgeneralise which factors contribute to additional revenue. A sentence from ROI literature illustrates his claim *“Revenues for one DEC product that was developed using UCD techniques increased 80% for the new version ... and usability was cited as the second most significant [improvement.]”* (Rosenberg, 2004). Rosenberg argues that too much focus is placed on ROI from usability testing, even though other factors contribute to the overall ROI of product development. According to Jakob Nielsen, *“the cost of bad web design is the loss of approximately 50% of potential sales from the site as people can’t find stuff.”* (Nielsen, Failure of Corporate Websites, 1998). However, as Rosenberg argues and later literature concerning CRO, contributing factors considerably affect the conversion rate, not solely the website's usability.

2.3 Experimentation

In this section, I will touch upon the characteristics of experimentation, the guidelines for running a good experiment, and which threats researchers and SMEs alike need to be aware of to conduct

experiments that lead to valid conclusions. Furthermore, based on established research and cases from the real world, I highlight some of the associated benefits of adopting an experimental mindset in SMEs. Lastly, I elaborate on different types of experiments.

2.3.1 Definition of experimentation

Today some of the biggest e-commerce companies highly depend on experimentation to grow. Jeff Bezos even says that Amazon depends on it to succeed, *“Our success as Amazon is a function of how many experiments we do per year, per month, per week, per day.”* (Diamandis, 2016).

For this thesis, I am adhering to Eric Ries’ (2011) definition of an experiment *“A true experiment follows the scientific method. It begins with a clear hypothesis that makes predictions about what is supposed to happen. It then tests those predictions empirically.”* (Ries, 2011, p. 56).

By experimenting, you want to understand what happens to a process when you make changes to input factors, which might affect the final output. Observation is required, and experimentation is needed to clarify why and how the output changes (Montgomery, 2012). Figure 4 visualises the process of experimentation.

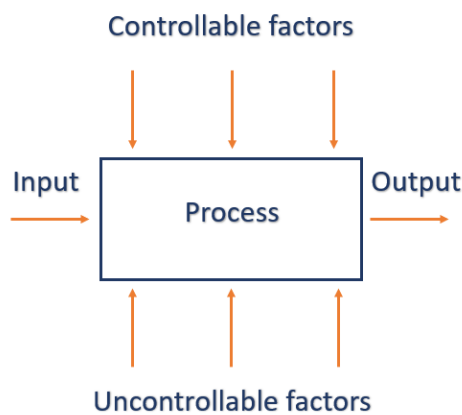


Figure 4 – Experiment visualisation (Montgomery, 2012, p. 3)

Applying the same model to the subject of CRO, the input variable is a website visitor. The controllable factors are variables a researcher can change, such as ‘Call to action’ or any imaginable object on the site, which can modify using a programming language such as JavaScript, HTML or CSS. The uncontrollable factors are variables that we cannot control, including weather conditions or purchase intention. Finally, the output variable is conversions, which we are interested in influencing.

2.3.2 Experimentation guidelines and models

Montgomery (2012, p. 14) argues following a set of guidelines to experiment efficiently, which he refers to as the '*Guidelines for Designing an Experiment*'. Figure 5 presents the guidelines.

1. Recognition of and statement of the problem
2. Selection of the response variable
3. Choice of factors, levels, and ranges
4. Choice of experimental design
5. Performing the experiment
6. Statistical analysis of data
7. Conclusions and recommendation

Figure 5 – *Guidelines for experimenting* (Montgomery, 2012, p. 14)

After completing the seven steps and drawing conclusions, Montgomery (2012, p. 15) recommends that the company do follow-up runs to validate results further. Thus, experimentation takes the form of an iterative process.

Eric Ries (2011, p. 75) created the Build-Measure-Learn methodology (Figure 6), which seeks to understand how effective an idea is as cheaply as possible. Although Ries developed the method for start-ups, it shares many similarities to Montgomery's (2012, p. 14) experimentation guidelines. Both form a hypothesis, build a product, i.e., experiment, measure the results against the hypothesis, and iterate. The loop follows a structured and scientific method, which fits well with CRO.

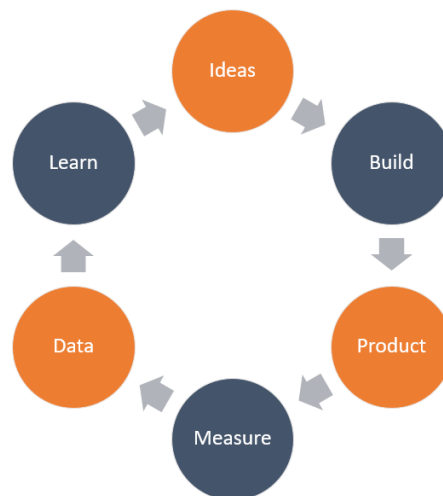


Figure 6 – *Build-Measure-Learn methodology* (Ries, 2011, p. 75)

2.3.3 Benefits of an experimental company culture

To succeed with experimentation, a company first needs to develop a strong organisational culture open to experimentation. The company needs to align on the vision across the organisation to secure buy-in from all stakeholders. Suppose SMEs succeed in developing a solid experimentation practice. In that case, they can *“transform their organisations into learning laboratories where new ideas can be tested with scientific accuracy. Ultimately, this should lead to better products and services”* (Fabijan, Olsson, & al., 2018).

Companies with a strong experimentation culture report benefits such as increased trust in decision making. By rigorously conducting online controlled experiments (OCEs), companies can transform their decision making into a scientific, evidence-based process and steer away from their intuitive and unmeasurable processes of the past. Experimentation has helped Microsoft discover that *“only about one third of ideas deliver the desired positive impact, a third has no impact whatsoever, and a third of ideas introduces harm.”* (Fabijan, Olsson, & al., 2018). Such findings would scare many traditional companies but not genuinely scientific companies. They would spend equal time understanding why one-third failed and one-third had no impact, as the learnings from such findings can help improve the company in the future.

Companies with a culture of experimentation are more open to customer feedback and understand the value of being customer centric. Erik Ries (2011, p. 75) argues that every company needs to learn what their customers want, and the way to understand that is through feedback, continuous testing, adapting, and adjusting.

There are two types of customer feedback. Firstly, expressed feedback has either been written, gestured, or pronounced in any way by a customer. This type of feedback is typically qualitative and gathered through interviews, focus groups etc. The information from expressed feedback is rich in detail about the opinions or wishes from the customer's point of view. Secondly, measured feedback is data obtained through web analytics tools, such as Google Analytics, enabling companies to measure customer actions. This type of feedback is quantitative and consists of measurable activities, such as download clicks, visits, bounce rate or conversions (Fabijan, Olsson, & al., 2018). Both types of feedback are valuable for SMEs, and each has its strengths and weaknesses. While expressed feedback focuses on the feelings and opinions of what the customers say they do, measured feedback focuses on the actual actions of the customer. Thus, SMEs that focus on collecting both types of feedback will have a richer understanding of their customer needs and pains, which can help them conduct influential experiments.

2.3.4 Google Optimize and experimentation

Google Optimize relies on the premise that “every user is unique, and your website should address their individual taste.” (Google, 2021). Google Optimize is a free optimisation tool developed by Google. The tool can help online marketers and web admins increase conversion rates and overall visitor satisfaction by enabling employees to test different combinations of content on their websites continually. Optimise allows users to test different variants of the same webpage against each other to analyse their performance (Google, 2021). The ability to easily conduct experiments, which tests the effectiveness of different versions of websites, can be done on a subset of visitors, which can be manually adjusted. Google Optimize's easy setup and intuitive usage grant a lot of power to companies who want to adopt an objective and scientific approach rather than rely on intuition to optimise their website. Furthermore, Google Optimize uses advanced statistical modelling, such as Bayesian statistical methods, providing more accurate and valid results. Through Google Optimize, companies can conduct different types of experiments:

1. A/B tests
2. Redirect tests
3. Multivariate tests

Firstly, an A/B/n test is a randomised experiment where you can use two or more variants of the same webpage. A is the original one of the two web pages, whereas B or n are the modified versions (Figure 7). An example of a modification could be a call to action that differs between the two versions. Traffic is distributed equally to each variant to measure the performance independently of external factors (Google, 2021).

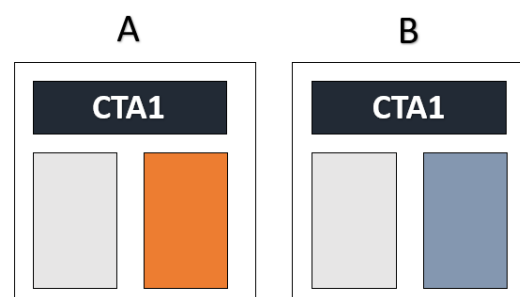


Figure 7 – a visual depiction of A/B test

Secondly, a redirect test, also known as a split URL test, is similar to an A/B/n test, with the noticeable difference that two separate web pages are tested against each other. The URL rather than the changed elements identify the variants in redirect tests (Figure 8). It is beneficial to use redirect tests

when companies either want to completely redesign a page or test the performance of two different pages against each other. Like an A/B/n test, each variant is served an equal number of times (Google, 2021).

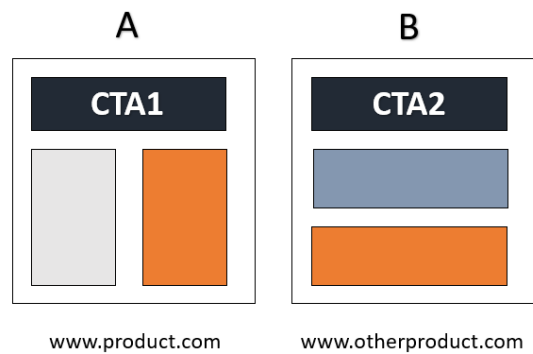


Figure 8 – a visual depiction of redirect test

Thirdly, as the name implies, a multivariate test simultaneously tests variants of two or more elements to understand which combination provides the best outcome. This type of test is advantageous if companies wish to change multiple objects on a webpage (Google, 2021). In the example below, two different calls to action (CTA) and two other hero pictures (red, blue) are tested simultaneously (Figure 9).

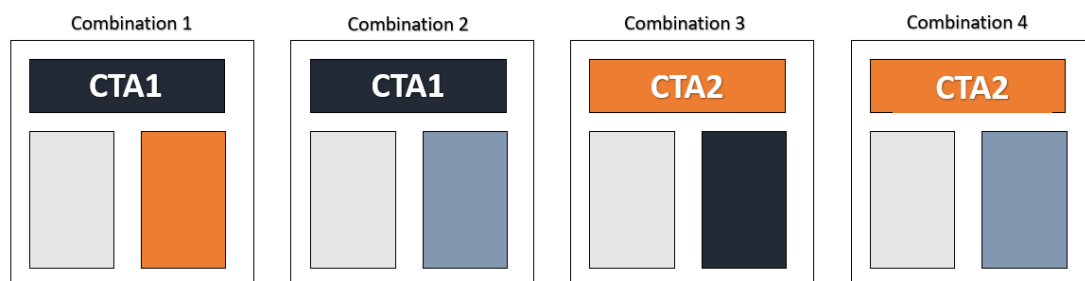


Figure 9 – a visual depiction of a multivariate test

3. Research Design

In this section, I present the methodological approach that guides this thesis. This approach establishes the foundation for building my investigation to provide a thorough answer to my research question. While the research question explains what I want to investigate in my thesis, the research design explains how I plan to explore it. Thus, the research design choices directly affect what knowledge I can and cannot create.

3.1 Design science research

Today's information systems (IS) and organisations are increasingly intertwined as organisations progressively adopt IS. One of the reasons for the increased adoption of IS in an organisation is *“to improve the effectiveness and efficiency of that organisation”* (Hevner, Ram, March, & Park, 2004). However, due to the added complexity, many organisations don't succeed in IS adoption. Factors that affect the adoption are employee competencies, company culture, and the characteristics of the IS.

Scholars in IS produce knowledge that highlights the opportunities and implications of modern IS, and knowledge that helps organisations manage and successfully adopt new IS (Hevner, Ram, March, & Park, 2004). To secure a better adoption of IS, Alan R. Hevner, Sudha Ram, Salvatore T. March, and Jinsoo Park (2004) established the design science research paradigm, which I am following in this thesis to answer my research question. Since the introduction of the paradigm, new definitions of what design science research is has appeared. However, I adhere to the definition of design science research presented by (Hevner, Ram, March, & Park, 2004), which states that design science research *“creates and evaluates IT artefacts intended to solve identified organisational problems”*. The IT artefacts have a structured form and may vary from a piece of software, formal logic, or organisational models (Hevner, Ram, March, & Park, 2004). Since design science research is a problem-solving paradigm that creates and evaluates positive knowledge on practical problems, researchers must carefully understand the problem they are trying to solve before making an artefact. Additionally, it is equally important that they spend a great time carefully evaluating the artefact to understand whether it solves the identified organisational problems.

To structure the research design of this thesis, I will adhere to a method framework for design science research presented by Johannesson and Perjon (2014, p. 75). The framework enables me to answer my research question and explain my methodological choices in a clear and structured way. The framework consists of four components. Firstly, it consists of related activities with defined in- and output. Secondly, it consists of clear guidelines for carrying out the activities. Thirdly, guidelines for selecting appropriate research strategies and methods to carry out during the activities. Fourth and lastly, principles for relating my research to an already established knowledge base (Johannesson & Perjon, 2014, p. 79). I will now present the five research activities.

3.2 Design Science Research activities

The activities include problem explication, requirements definition, artefact design, artefact demonstration, and lastly, artefact evaluation (Johannesson & Perjon, 2014, p. 76). As design science

projects can often be significant undertakings, researchers do not always pay equal attention to each of these activities and instead places greater emphasis on a subset of them. This was also the case in my project, where I emphasised activities one, two and four. Below is an illustration of the five different activities of a Design Science Research project (Figure 10).



Figure 10 – Design science activities (Johannesson & Perjon, 2014, p. 77)

Although the above framework appears to follow a sequential order, where the researcher logically moves from one activity to the next, design science projects always follow an iterative process (Johannesson & Perjon, 2014, p. 76). The arrows pointing from one activity to the next represent input and output generated from those activities, rather than the order of the process. This was the case for my thesis, as I found myself moving back and forth between each activity throughout the project. To illustrate the iterative process with an example, just before I demonstrated the final Artefact, I discovered that Kontra Coffee did not have Google Tag Manager (GTM) set up correctly. As GTM was essential to implement the experiment, I had to move back to defining requirements for the artefact.

3.2.1 Explicate problem

The initial activity the researcher needs to undertake is to discover and explore a practical problem. It is essential to gain insight and understanding about the problem space and the context in which it exists before designing an artefact to solve the actual business problem (Hevner, Ram, March, & Park, 2004). The researcher needs to precisely define the problem and justify why it is significant and requires solving. Furthermore, the problem must be of general interest, and the findings, i.e., artefact, can be used in a more extensive or even global practice (Johannesson & Perjon, 2014, p. 76). Additionally, root causes of the problem may also be identified and analysed during this activity in the research project. Some design science projects are radical innovations, which means they cannot address an exact problem. However, in many cases, researchers work on a known problem with known knowledge and try to contribute with an artefact that can advance understanding in the field. In general, there are four types of research contributions, which depend on the starting point of problem maturity and solution maturity. These are inventions, improvements, routine design, and exaptation (Gregor & Hevner, 2013). Thus, by initially explicating the problem, the researcher can identify the research's contribution.

3.2.2 Define requirements

In this activity, the researcher presents a solution to the explicated problem in an artefact. The researcher highlights the requirements of the artefact by translating the problem into specific demands of the artefact. The researcher defines requirements that concern functionality, structure, and environment (Johannesson & Perjon, 2014, p. 76).

3.2.3 Design and develop Artefact

The researcher now creates an artefact that can solve the explicated problem and fulfil the established requirements. To successfully design and develop an artefact, the researcher needs to determine its functionality and structure (Johannesson & Perjon, 2014, p. 76). This activity includes a thorough description of the artefact and development process that led to the final design. By clearly presenting the process that led to the final design, the researcher might establish a higher level of credibility (Gregor & Hevner, 2013).

3.2.4 Demonstrate Artefact

The demonstrate artefact activity places the created artefact in an artificial - or real-life setting. This activity can also be referred to as the proof-of-concept, proof-of-value-added or proof-of-acceptance activity. The purpose is to demonstrate the feasibility of the artefact, how it works in practice, and if it can solve the explicated problem (Johannesson & Perjon, 2014, p. 76).

3.2.5 Evaluate Artefact

The last activity of a design science research project is evaluation. After the artefact demonstration, it is time to evaluate how well it meets the defined requirements and whether it can solve the explicated problem, which was the basis for the creation in the first place (Johannesson & Perjon, 2014, p. 76). Gregor and Hevner (2013) outline that the artefact can be evaluated "*in terms of criteria that can include validity, utility, quality, and efficacy*". Validity refers to how dependent the artefact is in solving the intended problem. Utility refers to whether the artefact has value outside its original environment. Quality and efficacy refer to how well and efficiently the artefact solves the explicated problem (Gregor & Hevner, 2013). The researcher can freely choose which criteria to focus on and needs to present any evidence highlighting the contributed worth of the artefact.

3.3 Research philosophy

The research philosophy refers to how a person views the world and develops knowledge (Saunders, Lewis, & Thornhil, 2012, p. 125). According to Saunders, Lewis and Thornhil (2012, p. 125), three philosophies comprise research: ontology, epistemology, and axiology. Ontology refers to the researcher's assumption and view of the nature of reality. Epistemology refers to the researcher opinion of what establishes appropriate knowledge. Lastly, axiology refers to the researcher's view of ethics and values (Saunders, Lewis, & Thornhil, 2012, p. 127).

The ontological philosophy of this paper is both objectivism and subjectivism. I argue there are parts of reality, which are constructed externally and independently of social actors. Thus, one of the goals of this thesis is to identify regularities and explain them through cause-and-effect relationships. However, I also argue that there are parts of reality created based on social actors' perceptions and later actions (Johannesson & Perjon, 2014, p. 169). Concerning epistemology, this thesis takes on the research philosophy of interpretivism and positivism.

Interpretivism was created as a reaction to positivism. The philosophy claims that the social world can only be understood by analysing and understanding the subjective meanings and biases people attach to their actions. Interpretivist researchers argue that theories and concepts are too simplistic to explain human behaviour, and studying humans as objects, will only lead to superficial results. Thus, interpretivism aims at creating richer and more complex understandings of social contexts (Saunders, Lewis, & Thornhil, 2012, p. 140). In interpretive research, the researcher is part of the studied social world, which entails subjective investigation (Saunders, Lewis, & Thornhil, 2012, p. 140).

Positivism applies a natural science view on social phenomena (Johannesson & Perjon, 2014, p. 167). Positivist researchers only accept knowledge, which is positively verifiable, and argue that one true reality exists. In contrast to interpretivist researchers, positivist researchers argue that law-like generalisations constitute adequate knowledge and seek to investigate and demonstrate causal explanations. Positivist research is objective and free from researcher bias (Saunders, Lewis, & Thornhil, 2012, p. 136).

Interpretivists prefer research strategies such as case studies and ethnographic studies, while positivists prefer experiments and surveys. While these two philosophies appear as opposites of each other, design science researchers argue that the apparent differences are illegitimate and, in fact, argue for combining the two philosophies to produce useful knowledge (Johannesson & Perjon, 2014, p. 171). Researchers initially rely on interpretative strategies to uncover and create hypotheses, while

positivist strategies are later used to verify them (Johannesson & Perjon, 2014, p. 172). The following sections show how both interpretative and interpretative philosophies are used throughout this thesis.

3.4 Research strategy

Johannesson and Perjon (2014, p. 39) define the research strategy as the plan for conducting a research project. A clearly defined and structured research strategy will help me carry out this thesis and validate my findings. The research strategy provides a helicopter perspective on the thesis and a detailed view of each research method. Three factors critically influence the final selection of a research strategy.

Firstly, the research strategy needs to be suitable for the research question. Secondly, the research strategy should also be practically feasible and consider the thesis's resources or lack of resources. Many aspects affect feasibility. These include, but are not limited to, time horizon and access to data and resources, such as laboratory facilities. Third, and lastly, the researcher must ensure that he can ethically follow the chosen research strategy. An example of the latter factor is that researchers need to allow participants to remain confidential in a study and provide them with the ability to withdraw from the study if they wish to (Johannesson & Perjon, 2014, p. 40).

Design science research does not restrict researchers to a few research strategies or methods. In fact, *“it is possible to use any research strategy or method to answer questions about artefacts”* (Johannesson & Perjon, 2014, p. 77). Thus, I have combined several methods to help develop an artefact that helps Kontra Coffee adopt CRO for this thesis. For problem explication, I decided to conduct a case study of Contra Coffee to gain a deep understanding of how the organisation could adopt CRO to their e-commerce strategy. During this period, I performed participant observations of a project manager from the company. I continued the case study for the requirements activity and further explored company data from the web analytics tool Google Analytics to identify requirements and areas of improvement, which I needed to include in the artefact. Conducting the case study allowed me to closely collaborate with the project leader and iteratively increase my knowledge of the company. This helped me design an artefact that fitted into their context. For the design activity of the artefact, I made use of Brainstorming to explore possible ways of developing a compelling artefact, which resulted in sketches before a final artefact was ready to be put into use. To demonstrate the artefact and the proof-of-value-added from its usage, I used the methods of usability testing, data analysis, experimentation, and observation. Finally, I could not thoroughly evaluate the

artefact due to time restrictions, but I would use interviews and observation methods to assess it. For a better overview of the methods I used in each activity, please see Figure 11 below.

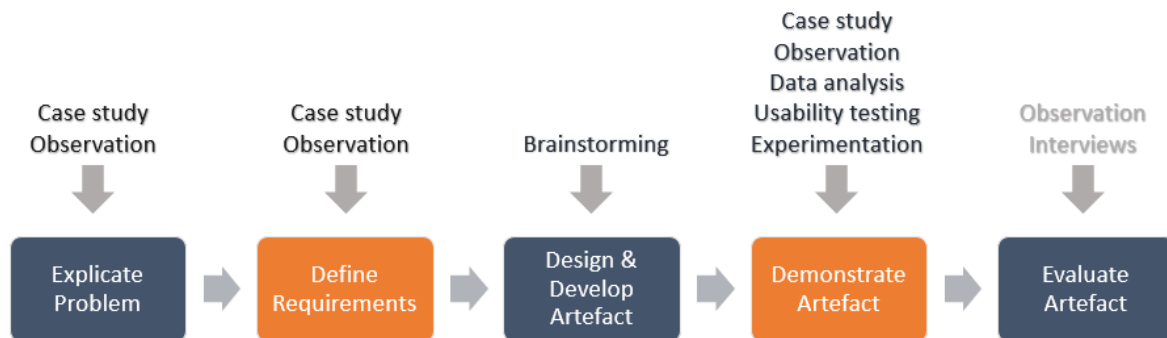


Figure 11 – Applied methods in each activity (Johannesson & Perjon, 2014, p. 77)

3.4.1 Case study

According to Johannesson and Perjon (2014, p. 44), case studies typically address single instances but can also manage multiple instances. Case studies aim to offer a rich and complex understanding of the instance under investigation. Johannesson and Perjon (2014, p. 44) argue that there are five characteristics of a case study, which are:

- Focus on one instance
- Focus on depth
- Natural setting
- Relationships and processes
- Multiple sources

Case studies should aim to understand the instance being studied in its natural setting. The aim is to avoid overgeneralising and focus on complexity by investigating the relationships surrounding the instance. Researchers use multiple methods to achieve a complex understanding of the instance.

I studied Kontra Coffee, a Copenhagen-based SME specialising in roasting and selling speciality coffee on the Danish market. By carrying out the design science project as a case study, I was able to get detailed insights about the company and get in-depth descriptions, which I could not otherwise. I made sure to study Kontra Coffee in its natural context and frequently held meetings with the project manager. Thus, all relevant information about the company, which I use in this thesis, was collected through primary sources.

3.4.2 Observations

Researchers who collect data through observation do so by observing phenomena in their natural settings. In contrast to interviews and surveys, and similar data collection methods, a researcher can directly observe what people do and not what they say they do (Johannesson & Perjon, 2014, p. 59). There are two types of observations: systematic- and participant observation. Systematic observation seeks to overcome the issue of reliability by adopting techniques such as an observation schedule, which structures the data collected through observation. In participant observation, the researcher engages with people in their natural environment on equal terms. Participant observation can help researchers understand the culture and processes of the members he investigates (Johannesson & Perjon, 2014, p. 60).

Kontra Coffee gave me access to all relevant documents and tools necessary to conduct the thesis. A contract was signed stating how I intended to collaborate and what resources I would need to complete the thesis (Appendix A). Additionally, Kontra Coffee and I agreed that I would become a member of their organisation and closely collaborate with the project manager to gain the insights I needed to develop and implement the final artefact in the company. This decision would lead me to acquire knowledge about Kontra Coffee, which I would not have obtained with other data collection methods. By actively cooperating with the project manager during the thesis, I was able to gain deep insights into his role in the organisation and understand his symbolic world (Saunders, Lewis, & Thornhil, 2012, p. 356).

3.4.3 Data analysis

Data analysis derives meaningful insights from data to describe a phenomenon under investigation (Johannesson & Perjon, 2014, p. 61). Researchers who use this method typically transform unstructured- and raw data into digestible and meaningful information. Quantitative data come in four different shapes: nominal-, ordinal-, interval-, and ratio data.

To describe quantitative data, researchers can apply descriptive statistics to arrange the data orderly. Furthermore, descriptive statistics can present data visually through data tables, bar charts or other types of graphs. Researchers typically use the aggregate measures of mean, median, mode and range to describe the data (Johannesson & Perjon, 2014, p. 63).

To explain statistical concepts such as correlations and causality, researchers need to apply inferential statistics. Inferential statistics aim to draw conclusions, which reach beyond a single data set. The

researcher defines relationships between variables and seeks to test their significance by measuring the correlation coefficient and significance level (Johannesson & Perjon, 2014, p. 63).

In this thesis, Google Analytics, the web analytics tool offered by Google, was the primary tool used to understand and describe the e-commerce performance of Kontra Coffee. Furthermore, the tool was used to conduct descriptive statistics, which was used throughout the analysis. If Google Analytics is set up correctly, it automatically presents raw data in a readable way, enabling people who do not have a background in statistics to derive meaning. Additionally, Google Optimize was used to conduct inferential statistics. Google Optimize uses a Bayesian inference approach to estimate how likely a hypothesis is to be true through Bayes theorem (Figure 12).

$$P(H|data) = \frac{P(data|H)P(H)}{P(data)}$$

Figure 12 – Bayes' theorem - (Optimize, 2021)

$P()$ stands for probability, H represents the hypothesis, while $|$ stands for given that. When combined, this translates to the probability of the stated hypothesis being true given the observed data (Optimize, 2021). In an A/B test conducted through Google Optimize, two hypotheses are considered, H1: The original is better than the variant & H2: The variant is better than the original (Optimize, 2021).

3.4.4 Brainstorming

To create an artefact that could solve the explicated problem, I used the method of brainstorming. The method is effective at problem-solving, increasing the quality and quantity of possible solutions (Diehl & Stroebe, 1987). I used the method as the guiding process to generate ideas in terms of the functionality and structure of the artefact. I decided to opt for an individual brainstorming session, as this would both save time and reduce production blocking (Diehl & Stroebe, 1987).

3.4.5 Experimentation

The purpose of conducting experiments is to establish or disprove causal relationships between a factor and an observed outcome (Johannesson & Perjon, 2014, p. 40). By establishing hypotheses, researchers can make their assumptions testable. The hypothesis consists of dependent- and independent variables. The dependent variable represents the outcome, while the independent variable represents the cause. During the experiment, the researcher manipulates the independent variables to observe whether they cause the outcome of the dependent variable to change

(Johannesson & Perjon, 2014, p. 41). To increase the validity of the experiment results, the researcher can adopt techniques such as randomisation or include held-constant-factors.

I used the method of experimentation to demonstrate the developed artefact. Kontra Coffee and I formulated hypotheses according to Bayes' theorem (Figure 12), where we wanted to measure if there was a positive and significant relationship between increasing the usability of the website and the conversion rate. The dependent variable was the conversion rate in the experiment, which we could track in Google Analytics. The independent variable was usability changes, which highlighted the filtering option on a specific web page. The idea for this change was based on the insights gathered from the usability tests. The results could decrease or increase the support for the hypothesis and help Kontra Coffee decide whether the change should be made permanent.

3.4.6 Usability testing

Usability testing is used to collect insights about the user experience of a system. Before launching a system, researchers apply the technique to reveal possible bugs that prevent users from completing intended tasks, slow down the task completion process, or otherwise degrade the user experience (Hertzum M. , 2016). During a usability test, the test moderator presents a test subject to several tasks, which the test subject needs to complete.

Before conducting any usability test, I carefully planned the process from task creation to recruitment of test subjects. The steps are described below.

3.4.6.1 Tasks

Eight tasks were developed, which participants needed to complete during the remote usability test. Based on the literature of common usability errors, I decided to make a generic list, which included all steps a customer would go through to purchase online. All participants of the usability tests received the same tasks to enable a comparison of results (Appendix B).

After each participant completed the eight tasks, I did a short debriefing with them to receive their feedback on the test and have them answer four follow-up questions to understand if there were anything I missed during the actual usability test (Appendix C).

3.4.6.2 Test subjects

Scientific and practical implications affected the choice of how many users I ended up testing. Scientifically speaking, I wanted to invite enough users to uncover as many usability problems as

possible. Researchers have not agreed on an exact number of users to do a valid usability test. While Nielsen, Berger, Gilutz and Whintenton (2004) argued that five users could uncover 80-85% of usability problems, Spool & Schroeder (2001) found that five users only revealed 35% of usability problems. There were also practical implications that affected the number of users I decided to test: the time limit and the associated cost of conducting the tests.

I decided to lean more towards discount usability testing, as I believed it would uncover enough usability errors of Kontra Coffee’s website in a timely and effective manner. This both suited the time constraints of this thesis and the economic constraints facing Kontra Coffee and other SMEs. Thus, a total of five test subjects, three male and two female, participated in the usability test, which I conducted. The participants were all aged between 25 and 40 years (Table 1).

Table 1 – Test subject

Number of Test Subjects		
Female	Male	Sum
2 (25,5)	3 (mean = 27)	5 (mean=26,4)

3.4.6.3 Usability setting

Users participating needed a quiet room, a PC with a front-facing webcam, Microsoft Teams installed, and an iPhone with the Screen Recording control enabled (Figure 13). An audience report in Google Analytics revealed that 74.5% of users, who entered the website via a mobile device, did so via an iPhone (Appendix D). This made me focus on users with an iPhone and not just any type of mobile. The setup was inclusive and would not require participants to spend a lot of time setting up their devices. Furthermore, it was cheap and familiar, which Kontra Coffee and other SMEs could utilise themselves.

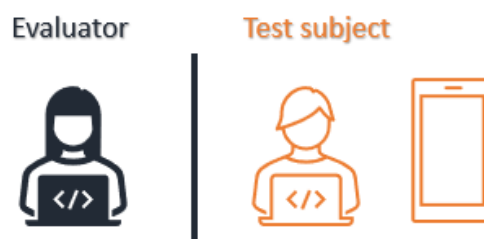


Figure 13 – Usability setting

3.4.6.4 Usability procedure

Before the test started, the test subject read through a checklist, which introduced them to the concept of usability testing and how I would use the data with their consent (Appendix E). Once the usability test started, I introduced the test subjects and stated how a usability test differed from interviews. After the short introduction, the subjects were asked to solve the tasks. I did not specify a specific amount of time the user needed to spend solving each task and left it up to their interpretation. However, I stressed that I highly encouraged them to solve the tasks without my help, as I did not want to affect their behaviour.

3.4.6.5 Data collection

I recorded both audio and video of the usability test from PC and mobile (Figure 14). The audio and video from the PC consisted of the webcam view of the test subject and included the introduction and the subsequent footage of the test subject solving the tasks. The audio and video footage from mobile showed the screen recording of the subject interacting with Kontra Coffee's website (Appendix F). By having audio and video footage from both device types, I could see any visual cues that revealed if the test subject had difficulties during the test.

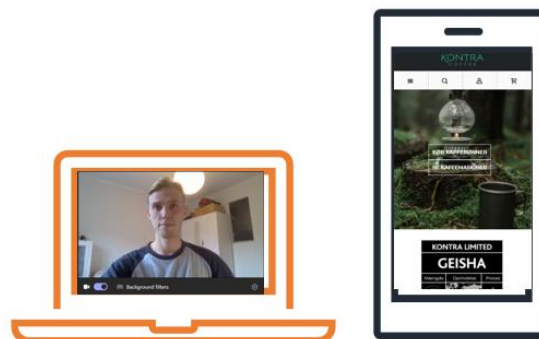


Figure 14 – Recording of usability test

4. Analysis

This section will present the case company, Kontra Coffee, with whom I have collaborated in this thesis. Furthermore, I will go through each of the five-design science research activities and elaborate on how the input and output formed the final artefact. For two and a half months, I closely collaborated with a project manager from the company. We had weekly discussions concerning how the company could adopt CRO in their e-commerce strategy. The primary data from usability tests and

observations are analysed in this section. Secondary data, including website traffic from Google Analytics, experiment results from Google Optimize, and company documents, are also used throughout the analysis section.

4.1 Kontra Coffee

Kontra Coffee is a Copenhagen based speciality coffee roaster, established in 2005. The company was founded by Kurt Dalsgaard, a Danish coffee pioneer, who opened one of the first coffee shops in Copenhagen, namely Amokka, in 1998. According to Kurt, Amokka was the first shop to serve café latté to Danish customers. Besides Kurt, the team at Kontra consists of highly dedicated and experienced employees, among others the Barista world champion from 2005, Troels Poulsen. Kontra Coffee was one of the first coffee roasters in Denmark to adopt the label third-wave coffee, which goal is to deliver high-quality coffee and traceability on the origin of the coffee bean. Kontra Coffee's vision is to provide high-quality coffee and expertise to their consumers, ranging from professional baristas to average joes.

Kontra Coffee primarily earns money through Business-to-Business agreements, where they deliver coffee to hotels, restaurants, and cafés. Additionally, Kontra also provides coffee to company offices all over Denmark. Kontra Coffee estimate that roughly 85-90% of their revenue come from Business-to-Business agreements. The remaining 10-15% of their revenue comes from Business-to-Consumer sales channels, including one brick-and-mortar store located on Østerbro, and their website, which is the primary focus area of this thesis. Kontra Coffee registered its e-commerce website in 2012.

4.2 Problem explication

This section concerns discovering and exploring the practical problem SMEs face in increasing conversions through their e-commerce platform. The problem explication aims to gain as deep a knowledge as possible about the situation and the context in which it exists. In my case, I am trying to explain the world through a grain of sand; thus, the explored context was not SMEs in general, but one specific SME, namely Kontra Coffee. The later artefact needed to fit into their context.

To explore the root causes that affected the e-commerce performance and conversion rate, I held a meeting with Ida Lindhardt Kofod, the Director of Operations at Kontra, and Teis Tinggaard, content specialist at Kontra. The two have worked respectively eight and six years at the company. The meeting was an excellent way to understand the challenges Kontra faced and outline my vision for the project. During the meeting, I discovered several factors that directly and indirectly impacted the

company's current e-commerce performance. These factors would directly affect my later designed artefact.

Firstly, the company had been selling coffee online for almost a decade. The company registered their first website in 2012 to expand its market share and increase revenues. Kontra Coffee use the open-source e-commerce platform Magento to host its website. Magento (2021) provides a user-friendly content management system that enables companies to easily customise their website through drag and drop tools, where no hard coding is required. This finding was essential as it revealed that employees at Kontra could make a lot of changes relatively quickly to their website without having to pay expensive developer fees.

Secondly, I discovered that Kontra previously had an e-commerce manager between January 2018 and June 2021, whose primary responsibility was to grow the company through its digital sales channel. During these three years, Kontra invested significantly in upgrading its website with the help of external developers. However, with internal disagreements and low ROI, the company parted ways with the e-commerce manager during the summer of 2021. Kontra is not the only SME to experience a low return on an e-commerce investment, as research shows that only a low percentage do so (Thimm, Rasmussen, & Wolfgang, 2016). Kontra Coffee has not brought in a replacement for the e-commerce manager, and the employees did not express this as a near term plan of the company. Instead, Kontra promoted Teis to take the role of a full-time content specialist. Teis supports the company's e-commerce efforts, developing content strategies, managing promotional campaigns, and focusing on customer -acquisition and engagement. Teis and I were going to work together in a development team throughout the project. Having Teis on the development team was a vital driver for this thesis. He represented what Rosemary Stockdale and Craig Standing refer to as a 'technology champion', who possess a high level of technical competencies, making new technology and process adoption possible (Stockdale & Standing, 2006).

Thirdly, I discovered another inhibitor to successfully implementing a CRO process in Kontra, namely that the company currently did not measure their e-commerce performance. Teis explicitly stated that one of his biggest wishes from the collaboration was to make the company more data driven. He wanted to accurately measure how the different initiatives Kontra Coffee wanted to implement performed going forward. During our conversation, I discovered that they faced technical and non-technical barriers to becoming data-driven (Fatta, Patton, & Viglia, 2018). One technical barrier was that Kontra Coffee had an active Google Analytics account, but no one used it since the e-commerce manager was let go during the summer. This was an issue for two reasons. Firstly, merely collecting

data is not value-generating. To reap the benefits from data, it needs to go through a thorough analysis first. During this analysis, key metrics need to be defined and tracked extensively to provide valuable insights, steering the company in the right direction (Ayanso & Yooglingam, 2009). Secondly, and more importantly, it was a non-technical barrier, which showed that management from Kontra Coffee did not prioritise resources to be data-driven in its current state. The company needed to address this challenge if the developed artefact was to have any positive impact in the future, as CRO is a process that requires resources and a structured approach. Although the company did not prioritise enough resources now, Teis ensured that he was hired as a full-time content specialist to innovate and make it data driven.

After Teis told me about the issues Kontra Coffee faced concerning not being data-driven, we agreed that I would gain administrator rights and unrestricted access to their Google Analytics account for the duration of the thesis. We decided to give the account a service check and secure that it was implemented correctly and gathered the correct data. Furthermore, Teis allowed me to set up custom goals to the extent it was necessary. This added level of trust provided me with much greater insights into the company's e-commerce performance than I would have been able to gain otherwise.

Fourthly, Kontra coffee was not customer centric. When asked about what type of feedback Kontra Coffee typically received from their customers, Ida and Teis replied it was often concerned around what kind of coffee or coffee machine would fit the customer's needs. Teis expressed that the customers wanted to be guided in their purchases. He further said that he believed Kontra used different terminology to explain coffee, different from their customers. However, he did not have a way to prove his assumption as Kontra Coffee did not collect expressed feedback or measured feedback from their customers (Fabijan, Olsson, & al., 2018). By not collecting and analysing neither type of customer feedback, Kontra Coffee limited its opportunities of becoming customer-centric and increasing the value offered to their customers (Ries, 2011, p. 75).

Lastly, the company did not have a culture open to experimentation. Teis revealed that the employees knew that the website had a lot of issues. Still, none in the company were actively working on improving it. According to Teis, Kontra Coffee suffered from a culture of perfectionism, where an idea needed to be perfect before an employee would execute it. As research reveals, only about one-third of ideas deliver the intended results (Fabijan, Olsson, & al., 2018). Still, a company cannot separate a good idea from a bad one without a solid experimental setup. Furthermore, by not having a culture

open to experimentation, the results from experiments are not likely to benefit a company much. The difference between a perfectionist culture and a culture open to experimentation is that the former will only derive value from the one-third of experiments that lead to positive results. In contrast, the latter will derive value from all experiments and use the results from the negative experiments to adjust their assumptions.

4.2.1 Explicated problem

The problem explication revealed a large gap between Kontra Coffee's desired e-commerce performance and its current e-commerce performance. The root causes that created this gap were both technical and non-technical. The primary technical barrier was that no one used Google Analytics. Kontra was not data-driven and did not know how their website was performing. Kontra also faced non-technical barriers. The company was not customer-centric and had a perfectionist culture that was not open to experimentation (Figure 15).



Figure 15 – Root causes identified during the problem explication

4.3 Requirement's identification

During the requirements identification activity, I investigated which characteristics the proposed artefact should possess. The explicated problem was used to define the requirements. Established literature stressed the importance of following a structured approach to adopt CRO successfully (Ayanso & Yooglingam, 2009), which helped determine the artefact type. The goal of the artefact was to make Kontra Coffee into a learning laboratory that could measure the value of its ideas. The company should use the artefact to steer the company towards higher conversion rates in the future. Thus, the goal was to create a powerful artefact, which possessed a high degree of longevity and structure, which Kontra Coffee could incorporate in their e-commerce strategy. In the following section, I elicit requirements related to the root causes (Johannesson & Perjon, 2014, p. 105).

- *Root Cause:* Management did not pose digital competencies and did not have a clear vision of being data driven.

- ❖ Requirement: The CRO process should demonstrate a high level of accountability and a clear way of illustrating value.

The first requirement described how to manage the artefact over time (Johannesson & Perjon, 2014, p. 110). Reviewed literature highlighted that an inhibitor to successful CRO adoption was a management that did not have a clear vision for technology adoption (Nguyen, Newby, & Macaulay, 2015). The management at Kontra did not possess digital competencies and did not prioritize sufficient resources towards adopting e-commerce functionalities. By not bringing in a new e-commerce manager and not using data from Google Analytics, the company did not express a clear vision towards being data driven. If the artefact was to succeed, it was essential to get support from management. Thus, by clearly demonstrating the value-added, it would be easier to convince management. To demonstrate value, the company needed to invest in functionalities that were directly measurable concerning conversion rates (Lee & Kozar, 2006). The requirement of accountability was essential to the success of the artefact, as Kontra needed to be able to measure the results of their investments in functionalities against their contribution (Ayanso & Yooglingam, 2009) as the incurred cost was to be justified by later economic benefit (Thimm, Rasmussen, & Wolfgang, 2016).

- *Root Cause:* The company was not being data-driven and currently did not have a sufficient technical setup.
- ❖ Requirement: The CRO process should be efficient and not cause significant time waste or expenditure. The process should integrate efficiently with the current IT setup.

The second requirement is related to the environment the artefact is introduced to and describes how these two aspects correlate (Johannesson & Perjon, 2014, p. 110). Teis revealed that Kontra wanted to become data-driven, but a later investigation revealed that the company did not use the data from Google Analytics to steer their website. Furthermore, a deeper study of the technical environment showed that Kontra Coffee's current setup could not adopt CRO. Since SMEs like Kontra face financial constraints (Fatta, Patton, & Viglia, 2018), I discovered a cheap and efficient CRO setup, including installing Google Tag Manager and Google Optimize. The two tools seamlessly integrate with Google Analytics, and all three tools are part of the Google Marketing Platform. Google Optimize builds on Google Analytics, which means that Google Optimize could access the custom goals set up through Analytics. Another advantage of adopting this setup was that the company could access both the optimization data and analytics data from the same environment, which reduced the time needed to conduct the data analysis.

- *Root Cause:* The employees had no structured and scientific way of measuring the value of their ideas.
- ❖ *Requirement:* The CRO process should consist of logically related parts, which enable measurement and overview of results from new ideas through experimentation.

The third requirement concerned the structure of the artefact (Johannesson & Perjon, 2014, p. 109). During the observation of the employees at Kontra, Teis and Ida revealed that the company had a lot of ideas on how they could improve their website, but they lacked a structured approach to succeed. By not having a structured approach, most of their ideas never saw the light of day. The perfectionist culture at the company stopped them from testing their ideas. Thus, a requirement to the artefact was that it followed a scientific method and enabled Kontra Coffee to measure precisely how much a change impacted the performance of their websites. Thus, the artefact needed to include an aspect of experimentation, which would clarify why and how input changes on the website would affect the conversion rate through OCEs (Montgomery, 2012), (Fabijan, Olsson, & al., 2018).

- *Root Cause:* The Company did not clearly understand their customers or customer journeys on their website.
- ❖ *Requirement:* The CRO process should be capable of exploring and understanding customers and customer journeys.

The fourth requirement concerned how the artefact related to its environment (Johannesson & Perjon, 2014, p. 110). During the initial phase of the collaboration, Teis revealed that Kontra did not clearly understand their customers and how they navigated the website. Both (Fabijan, Olsson, & al., 2018) and (Ries, 2011, p. 88) argued that customer feedback was essential to improve a business, thus the artefact needed to bring Kontra closer to their customers and understand how to adapt the website based on feedback. Furthermore, the artefact would include analysing customer journeys through the built-in feature of behaviour flow in Google Analytics. This tool would gather measured feedback on the most common journeys on the website.

- *Root Cause:* The Company did not have technical employees with strong IT competencies at their disposal.
- ❖ *Requirement:* The CRO process should demonstrate a high level of learnability to enable employees with minimum viable technical competencies to use it.

The fifth requirement concerned how the artefact should work and be perceived by the employees when used (Johannesson & Perjon, 2014, p. 110). Reviewed literature highlighted that one of the main

challenges SMEs faced when adopting new technology was the challenge of limited expertise and low technological competencies to adopt the latest technology (Fatta, Patton, & Viglia, 2018). Additionally, strong project management skills were vital in successfully adopting new IT and communicating the results (Nguyen, Newby, & Macaulay, 2015). Thus, it was essential that the model was easy to understand and enabled employees with limited technological skillsets to adopt it. When Teis was confronted with the tech stack of Google Analytics, Google Optimize, and Google Tag Manager, he emphasized that he was the only one at the company who would complete it, given its technical complexity. However, he expressed confidence in carrying out the process himself after a demonstration.

- *Root Cause*: The company did not have a clear overview of the usability of the website.
- ❖ *Requirement*: The CRO process should increase the onsite usability of the website.

The last requirement concerned increasing knowledge of usability and how it impacted the performance of Kontra Coffee's website. In contrast to data analysis and experimentation, which focused on improving a website's performance through measured feedback, usability testing would enable the employees to understand why a website needed to improve to fulfil customer needs through expressed feedback (Hertzum, Hansen, & Andersen, 2009). Enabling Kontra to conduct usability tests correctly would help them better understand user behaviour and bring them closer to speaking their customers' language. Furthermore, usability testing could increase website satisfaction, positively influencing purchase intention and the conversion rate (Gudigantala, Bicen, & Eom, 2016).

4.4 Design and development of Artefact – Lean CRO model

This section consists of two parts. Firstly, a presentation of the model and the process behind designing and developing it. Secondly, a statement about the desirable effect of using the model in the local practice of Kontra Coffee.

Based on the previous two activities, I developed a final model, the Lean CRO Model (Figure 16).

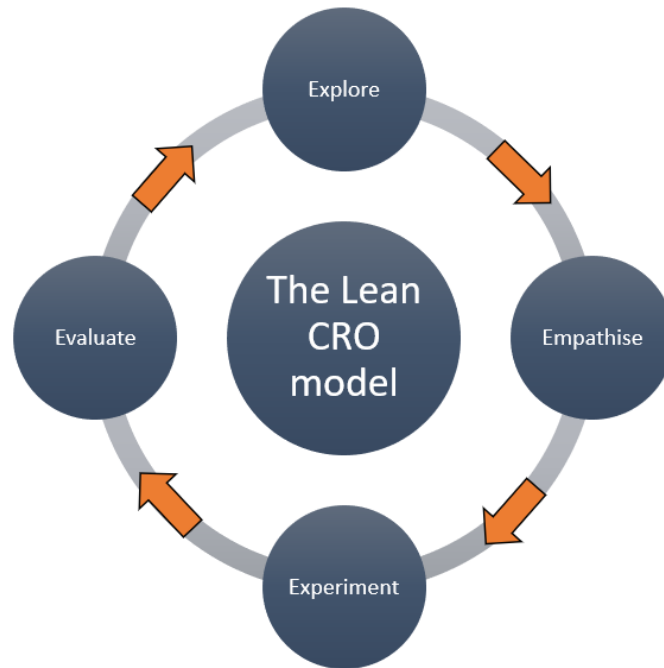


Figure 16 – *The Lean CRO Model*

The Lean CRO Model takes outset in both established literature and the findings from the case study, which revealed the need for SMEs and Kontra Coffee expressly to adopt a structured approach to succeed with CRO. By applying the brainstorming method, the explicated problem and requirements were considered and used to develop sketches before designing a final model (Diehl & Stroebe, 1987). The model consists of four equally sized components and arrows that link components with each other. The arrows illustrate the structure and the iterative nature of the model. Once the four components are completed, a CRO cycle finishes, and the company can embark on a new cycle. The aim is to minimize the time of each cycle to increase value generation. Each component starts with the letter E, which forms an alliteration intended to increase the learnability of the model. The trained reader may notice that the Lean CRO Model combines elements of Montgomery’s (2012, p. 14) seven guidelines (Figure 5) and Ries (2011, p. 76) ‘Build-Measure-Learn’ methodology (Figure 6). Thus, the model is not entirely new, but it illustrates a fresh take on CRO, which combines different methods and forms of thinking in one iterative model.

The first step is the explore component. This step is divergent by nature, where the employee seeks to gain a broad overview of how the website is performing. This is done through quantitative research, which includes using Google Analytics to compare two date ranges. Key metrics such as sessions, bounce rate, and conversion rate are analysed through an acquisition report by channel, an audience report by device type, and a behaviour report by site content. Each of the key metrics are measured

by default and readily available in these reports, which reduces the technical capabilities needed from the employee. Narrowing down the scope of reports will help the employee gain familiarity with Google Analytics faster and increase the chance of a successful adoption (Fatta, Patton, & Viglia, 2018).

The second step is the empathise component. After the employee has gained a broad overview of the performance, it's time to dig a bit deeper and adopt the website visitor's perspective. During this step, the employee seeks to understand why and not how. The website is performing. To do so, the employee conducts a behaviour report through Google Analytics and investigates the website's behaviour flow. Combining the knowledge from step one and placing it in the context of the main customer journeys on the website enables the employee to adopt the perspective of a website visitor. To further empathise with website visitors, the employee will use the established knowledge to conduct usability tests with five test participants as proposed by (Nielsen, Berger, Gilutz, & Whitenton, 2004). However, the moderator will only use simple prompts throughout the test (Hertzum M. , 2016).

The third step, experimentation, concerns creating a list of identified areas of friction on the website. Based on the insights from the previous two steps, the employee needs to prioritize the order of the experiments according to importance. The literature highlighted the importance of following a structured and scientific method to conduct experiments (Ries, 2011, p. 57). I applied Montgomery's (2012, p. 14) guidelines for designing an experiment. To avoid the employees jumping straight into experimenting, I highlighted the need for following each step.

The last step, evaluation, naturally comes after the experimentation stage. This step is meant to increase trust in decision-making and enable Kontra to measure the value of the changes. The literature highlighted that far from all ideas are value-generating, and only about one-third delivered value (Fabijan, Olsson, & al., 2018). Knowing the exact value will help Kontra determine whether the change to the input variable should be made permanent or disregarded. Kontra uses an external developer to implement front- and back-end changes permanently. Understanding the value of the changes through the experiment will help Kontra justify the additional incurred cost, as hiring external developers is expensive.

4.5 Demonstration of Artefact

During this activity, I demonstrated the artefact in use. I did so by applying it to the real-life case of Kontra Coffee. This activity proved the artefacts feasibility in addressing the explicated problem the company faced. Furthermore, using the artefact in a real-life case provided a better external validity

and showed that it could solve aspects of the explicated problem (Johannesson & Perjon, 2014, p. 133).

4.5.1 Explore



Figure 17 – Explore component

During the initial visit of Kontra Coffee’s Google Analytics account, I discovered it was implemented correctly, which meant data on traffic for the past three years was collected. Furthermore, the metric e-commerce conversion rate was also set up correctly. These were key findings, which enabled me to do a comparative analysis of the general performance of their website, with a specific focus on the evolution of the critical metrics, sessions, bounce rate, and conversion rate. Both an acquisition report by channel, a behaviour report by site content, and an audience report by device type were conducted to explore the performance of Kontra Coffee’s website. The date compared the time intervals “October 1, 2019 – October 1, 2020” and “October 1, 2020 – October 1, 2021”, referred to as present and past for the rest of this analysis. The results of the comparative analysis indicated that the company was performing worse during the present period regarding the three key metrics sessions, bounce rate, and conversion rate.

4.5.1.1 Acquisition report by channel

Kontra Coffee had a total of 127,346 sessions in the present period, which was a 10.96% decrease from the past period of 143,025 sessions at the website (Appendix G). The acquisition report revealed that the company was performing better on their two main traffic channels, organic search and direct, each respectively increasing by 7.37% and 32.08% (Appendix H). This insight indicated that a higher degree of users who entered their site were returning visitors, which is indicative of these two channels. This traffic increase resulted in 14,497 additional sessions from these two channels. However, the acquisition report revealed that paid search and social channels had substantially decreased by 78.19% and 72.34%. Translating the percentage decrease to number of sessions, this was a decrease of 33,767 sessions (Appendix H). The rest of the channel’s referral, email, display and Other, either performed stable or had no significant impact on the total number of sessions and were

thereby not included in the analysis. Thus, the overall decrease in total sessions was directly attributed to the performance of the two channels, paid search and social.

The analysis further revealed that visitors from the present period entered Kontra Coffee's website without interacting with any content due to an increased bounce rate. The comparative analysis revealed that the bounce rate had increased overall by 6.63% for all channels combined, and all channels except referral had increased (Appendix H). The analysis indicated that the channel social, which includes traffic from Kontra Coffee's social media accounts, performed the worst with a bounce rate of 76.51%, representing an increase of 48.73% since the past time interval (Appendix H). Furthermore, the channels organic search and direct, which represent returning visitors or visitors with a higher purchase intention (Gudigantala, Bicen, & Eom, 2016), had also increased by 5.85% and 2.86% between the two different time intervals (Appendix H).

Additionally, the analysis revealed that the conversion rate had decreased between the past and present time intervals. Overall, the conversion rate fell from 2.38% to 2.00%, representing a 15.96% decrease (Appendix H). Analysing the conversion rate by channel, it was noticeable that all channels performed worse during the present interval, except for the Organic Search, which had increased from 1.33% to 1.65%, which represented a 23.67% increase (Appendix H). By analysing the other channels, it was clear that the channels that performed best in conversion rate were the active, stimulating channels direct, referral and paid search.

4.5.1.2 Behaviour report by content

The behaviour report showed that the home page had increased its share of sessions from 28,987 to 41,902, representing a 44.55% increase in traffic. However, the coffee catalogue page had decreased its share of sessions from 15,017 to 5,188, a decrease of 65.45% (Appendix G). The shift in traffic revealed that the website had become worse at advancing the consumer throughout the e-commerce funnel, which starts at the homepage and ends at checkout.

The analysis revealed the bounce rate for the homepage had increased from 25.11% to 40.46%, which correspond to a significant 61.14% increase. This strongly indicated that the home page was one of the root causes of the bounce rate's overall increase. The coffee catalogue page performed better between the two intervals and had decreased its bounce rate from 51.56% to 42.02% (Appendix G).

Lastly, an investigation of the conversion rate revealed the homepage had a conversion rate of 2.67% during the current period compared to 2.86% in the past period, while the conversion rate on the coffee catalogue page had increased from 3.67% to 6.77% (Appendix G). The analysis highlighted the

importance of moving the customer from the homepage to the coffee catalogue page as this page had a relatively higher conversion rate.

4.5.1.3 Audience report by device type

Finally, an audience report by device type analysis was conducted to investigate how the three key metrics performed based on device type. The analysis showed an even traffic distribution between the desktop and mobile devices, each representing 48.87% and 48.18% of sessions during the present time interval (Appendix I).

The analysis revealed the bounce rate was the highest among visitors who entered the website by the mobile device, 61.73%, compared against visitors from the desktop device, 50.65% (Appendix I).

Furthermore, the report confirmed that the mobile device was the worst-performing device, with a conversion rate of 1.56% in the present period, which was a 19.04% decrease from the past period (Appendix I). This finding correlated with McDowell, Wilson and Kile (2016), who found that the mobile device, in general, performs worse than the desktop. Based on these findings, I decided to focus on understanding why the mobile device performed worse and how to improve the conversion rate.

4.5.2 Empathise

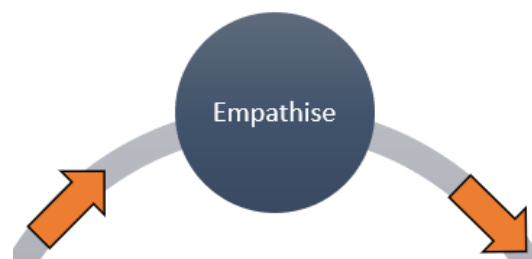


Figure 18 – Empathise component

Kontra Coffee did not clearly understand their customers and did not know the customers' primary journeys on their website. Thus, a customer analysis was conducted, which investigated age, sex, and mobile device type. This analysis was much harder to complete, as living in a cookieless world increased the likelihood of data omission, a threat to data completeness, which reduces the data quality and subsequent analysis. Due to the General Data Protection Regulation, customers are more inclined to decline cookies today, which would reveal any of their data.

4.5.2.1 Facebook audience report

During the analysis, Teis provided me with an audience report from Facebook, which revealed the age and sex of the fans who engaged with Kontra Coffee. The document revealed that 81% were in the age-group 25-54. Furthermore (Appendix J), the report indicated that 54% of the fans were male. However, as sessions from the social channel only represented 3.87% of total sessions on the company's website, it was not sufficient to conclude that this was representative for all Kontra Coffee's customers (Appendix H).

4.5.2.2 Audience report by demographics

In addition to the Facebook audience report, an additional audience report by demographics was conducted through Google Analytics. The report was based on 21.90% of total sessions, which excluded close to 80% of customers. Although it did not provide a complete picture, the report revealed similar insights as the audience report from Facebook. Most sessions came from the age group 25-54, 60.96%, and the majority were male, 60.2% (Appendix K). Furthermore, a Google Analytics mobile device rapport indicated that most website visitors owned an iPhone, as the Apple iPhone represented 69.01% of total sessions between October 1, 2020, and October 1, 2021 (Appendix L). Based on these insights, we estimated the typical customer was between 25 and 54 years old and owned an iPhone.

4.5.2.3 Audience report by user flow

In addition to the customer analysis, Kontra Coffee wanted to understand which journeys customers primarily followed on their website. A user flow analysis was conducted to explore the onsite customer journey. The report was set to the present time interval and included 98.000 sessions, which equalled 77.3% of total sessions. The analysis revealed similar insights as the landing page analysis, namely that a large portion of visitors dropped off after just landing on the homepage. 63.6% left the website from the homepage, and only 36.4% continued their journey. The analysis revealed the most common journeys on the website (Appendix M). A journey of the four most common steps visitors took on the company's website was developed (Figure 19).

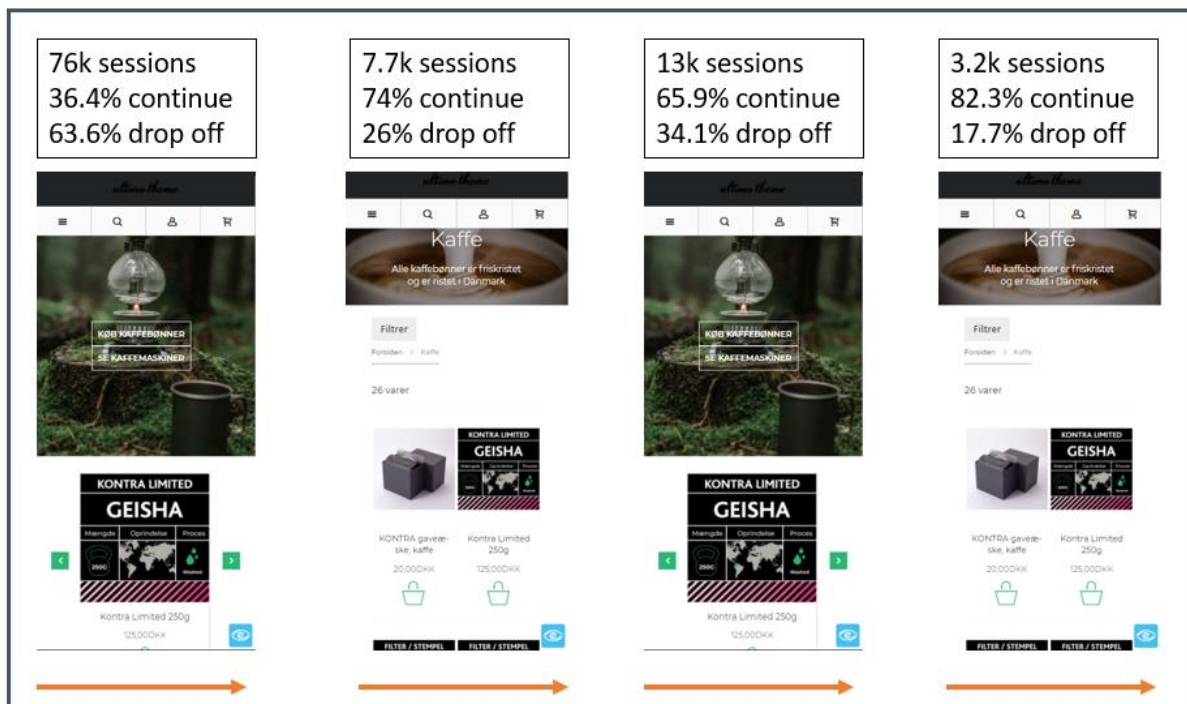


Figure 19 – Most common User flow on Kontra Coffee’s website

The four-step journey showed that most visitors went from the homepage to the coffee catalogue page, only to repeat the same iteration. The third step of going back to the homepage appeared to be redundant and caused friction for the visitor. The journey indicated that the visitor wanted to browse for different coffees through the coffee catalogue page. Still, some friction caused them to return to the homepage again before they browsed for different coffees.

4.5.2.4 Usability testing

To further empathise with customers and gain the perspective of a website visitor, usability testing was applied. This method could reveal any usability errors the visitors experienced on the website and understand why it caused friction. The usability test was conducted on a small sample of five users. This number was highlighted by literature to discover sufficient errors to improve a website’s performance (Nielsen, Berger, Gilutz, & Whitenon, 2004). The test subject’s coffee experience ranged from beginner to intermediate. The usability tests revealed several usability issues on Kontra Coffee’s website, which are now analysed (Appendix F).

Kontra Coffee’s homepage was unclear and possessed several usability errors, which degraded the visitor’s user experience. During the tour of the homepage, one test subject said, “My first impression is a website that sells outdoor gear and not a speciality coffee roastery.” (Usability 2, Sebastian).

Sebastian continued by stating that the website did not appear to be compatible with mobile *“the first banner on the homepage, where a person stands next to a coffee scooter, appears unprofessional as the button is partially covered.”* (Usability 2, Sebastian). Sebastian was not the only test subject to comment on this banner, as did another test subject, who said, *“the text in the box does not fit to mobile view.”* (Usability 4, Lukas). Lukas further elaborated how this impacted his experience on the website by stating that *“it [the banner] makes you feel that the website is not made by professionals, which impacts the trustworthiness of the website.”* (Usability 4, Lukas). The usability tests also revealed that the carousel did not clearly demonstrate that the highlighted product was a coffee. One test subject said that *“I am presented to something I can buy, but I don’t know what it is. I do not assume that it is something I can buy.”* (Usability 5, Malene). In addition to Malene, another test subject further emphasized, *“The catalogue [carousel] is appearing early on the homepage, but it is not specific about the purpose of it.”* (Usability 1, Jonas).

In total, all five test subjects reported usability issues and confusion during the homepage tour. The problems primarily related to the carousel, where four out of five subjects either said the coffee label was misleading or the purpose of the carousel was not explicit enough. Additionally, two of five mentioned that the banner with the coffee scooter impacted their experience, as it was not compatible with mobile.

The test subjects were asked to discover coffee from South America and find a coffee that matched their preferences following the homepage tour.

Discovering coffee on the website was a frustrating experience, which caused friction. Some of the test subjects were complaining about the general overview of the product list page. One test subject said, *“I cannot see the difference between the coffees. I have to click on each one [to enter the product details page].”* (Usability 3, Amalie). Sebastian also shared this frustration *“I am missing information before I enter a product detail page. This is frustrating.”* (Usability 2, Sebastian). One subject entered the same coffee details page twice, without wanting to *“This is the same espresso I found earlier.”* (Usability 4, Lukas). Some of the test subjects discovered the filter function and wanted to use it to find their coffee match but found the filter to be missing key features *“I am looking for acidity and roast level, but these are not available through the filter function.”* (Usability 4, Lukas). *“I want to filter on acidity and taste flavours. For me, it is not important where the coffee is from, but how it tastes”* (Usability 2, Sebastian). Others did not see the filtering option immediately *“I think it blends in with the rest of the page”* (Usability 2, Sebastian). One test subject never found the filter option and visited four different coffees product detail pages before deciding which one matched his taste preferences.

All five test subjects reported the experience of discovering coffee on Kontra Coffee's website was frustrating. The primary reason was that the company categorized coffee based on country and type, whereas the test subjects wanted to filter by taste flavours, roast level, and acidity. Kontra Coffee risked missing out on potential sales by not having functionalities that facilitated consumer decision-making, such as the above filtering option.

The last aspect I wanted to test during the usability test was the checkout process. Specifically, I wanted to see if the test subjects experienced any frictions during the last part of the customer journey.

The checkout process was not optimized to mobile view and hid relevant information from the visitor. One test subject said, *"I would like to know the delivery time and understand if there is free delivery at a certain price, as this often makes me buy for more."* (Usability 2, Sebastian). Lukas further emphasized, *"the delivery price is not a hindrance, as I would typically buy for a larger amount, but it needs to be highlighted, so I don't get scared off at checkout."* (Usability 4, Lukas). Furthermore, the usability test revealed that the payment option Kontra used was unknown to the test subjects. Malene said, *"I don't know what Bambora [ePay Solutions] is. I have not seen that before."* (Usability 5, Malene). The same was the case for Lukas, who followed a specific procedure when shopping online *"first I look for a CVR number, and then I look at the payment options to check if it is trustworthy. And I did not know of Bambora [ePay Solutions] before."* (Usability 4, Lukas). The three other test subjects did not look at the payment provider and continued to checkout without further hesitations.

Three out of five test subjects reported issues throughout the checkout process. Although the issues could appear insignificant, it was vital for me to highlight these findings to Kontra, as it is estimated that a significant percentage of transactions fail due to website design flaws (Ayanso & Yooglingam, 2009).

I brought all five usability tests to Kontra Coffee's office, where Teis and I would sit together for two hours to go through each of the tests to discuss the key findings.

During the demonstration, I noticed how Teis was taking notes. Now and then, he would shuck his head in disbelief as each test subject highlighted a usability error on the website. Teis even expressed that it hurt him to see how bad the user experience was for visitors. He stressed that he liked the method as a data collection tool as it revealed how visitors precisely used the website. Furthermore, he was surprised to see how quickly some test subjects went through the site and only skim read information

on the homepage. After watching all usability tests, Teis was eager to discuss how we could change the website. And together, we talked about how to increase the usability of the filter function. Although he was the coffee expert, he and I decided together which filter options to include. I felt he was being very open towards my inputs on the subject, even though I only had little experience with coffee.

Although Teis liked the findings from the usability test, he believed it would be harder for employees at Kontra to carry out the usability test themselves, as it would impair the test subject in expressing their opinions as honestly. I stressed they should carefully follow my procedure and send future test subjects an introduction email like mine (Appendix E).

The empathise step revealed that the company's website had several design flaws on the homepage and the coffee product list page, which were the two most visited landing pages. This was revealed through the Google Analytics report but was further emphasized during the usability tests. Each test subject highlighted the issues they were facing when searching for coffee. These issues had the potential to impact the conversion rate negatively. Thus, Teis and I decided to move on to the next step of the Lean CRO Model.

4.5.3 Experiment

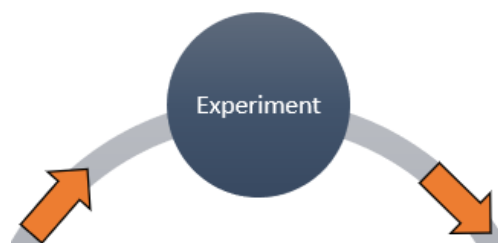


Figure 20 – Experiment component

Immediately after the usability session, Teis and I discussed the insights discovered from the previous two steps. We created a list of weak spots based on both quantitative and qualitative insights, which the company needed to address. From the list of weak spots, we prioritized two problems, which we were going to test. The prioritization was based on the page's amount of traffic, the usability severity discovered from the usability test, and how easy it would be to implement the test. Based on these three criteria, we ended with the following problems and subsequent hypotheses:

Experiment 1:

1. The visitors of Kontra Coffee were unable to find a coffee that matched their taste preference on the coffee list page.
 - a. Create a variant page with two extra filter categories of flavour and roast level.
 - i. H_0 : *The original is better than the variant*
 - ii. H_a : *The variant is better than the original*

Experiment 2:

2. The visitors of Kontra Coffee's homepage did not understand the purpose of the carousel.
 - a. Create a variant where the homepage carousel included the heading "Most popular coffees" and the six best-selling coffees.
 - i. H_0 : *The original is better than the variant*
 - ii. H_a : *The variant is better than the original*

A week after Teis and I discussed the insights and prioritized two specific problems, I called him to tell him how I would set up the experiments. Teis told me the employees liked the usability tests' findings and that they had already implemented the two new filter options, flavour, and roast level, on the website. Furthermore, he told me that they were about to change the carousel on the homepage. I stressed the importance of not making further changes to the site, as we needed to test their potential impact on the conversion rate scientifically through an experiment. Furthermore, I told him that we needed to define a new problem and hypothesis, as we could not measure the impact of the added filtering options correctly.

The above experience demonstrated that the organization had a very intuitive rather than scientific approach to test the value of ideas. Furthermore, it emphasized the fact that Kontra was not data-driven and accustomed to experimentation. This episode resonated with the literature, which highlighted a disconnect between planning and implementation in Kontra Coffee (Nguyen, Newby, & Macaulay, 2015).

We applied the same criteria as before to prioritise a new test, resulting in the following problem formulation and hypothesis:

New Experiment 1:

1. The visitors did not use the filter option on the product list page because Kontra Coffee did not highlight it.
 - a. Create a variant where the colour of the filter option is more visible.
 - i. H_o : *The original is better than the variant*
 - ii. H_a : *The variant is better than the original*

By creating a clear statement and hypothesis collectively, I secured organizational buy-in from Kontra Coffee. Based on the options available through Google Optimize, we decided the variable 'Calculated Conversion Rate' would be used as the response variable. We decided to apply audience targeting, which meant that only visitors through mobile would see the experience. Making mobile visitors eligible for the experiment cut off roughly 50% of Kontra Coffee's visitors. This would cut off Business to Business visitors, as Kontra Coffee's website is not compatible with that customer segment. Google Optimize allowed us to run the experiment on a subset of visitors. Due to the low website traffic, we opted for 100% traffic allocation, making all mobile visitors eligible for the experiment. We decided on 100% allocation as it would speed up the process of the experiment.

Furthermore, we opted for a 50% weighting between the original and the variant to ensure the performance could be measured independent of external factors. The experiment was set up as an A/B test, even though we could set it up as a multivariate and redirect test. Using an A/B format saved time as the other two types of tests were more time heavy. Google Optimize had a built-in statistical analysis tool, which used Bayesian inference to generate results from the experiment data (2021). By interpreting the experiment results through Google Optimize, we would use the statistical summary metrics 'Probability to be Best' and the 'Modelled Conversion Rate'. We ensured that we stated the problem correctly and gathered appropriate data to analyse by adhering to Montgomery's guidelines (2012, p. 14).

4.5.4 Evaluate



Figure 21 – Evaluate component

This step should increase trust in Kontra Coffee’s decision and ensure they made data-driven decisions. Without a proper evaluation, the company would not know whether the experiment had been successful or not. Google Optimize has a built-in evaluation tool, which enabled Kontra Coffee and me to follow the experiment's performance on an ongoing basis. Before the experiment could undergo a final evaluation, Google recommended it last for at least two weeks. By running for two weeks, Google Optimize gathered enough data from both weekdays and weekends to draw a conclusion (Experiment results: Google Optimize, 2021). However, due to time limitations, we performed a temporary evaluation to illustrate the process and present the current results.

For Experiment 1, the observed data from Google Analytics revealed that the original had 119 sessions, while the variant had 86 sessions after a total of nine days. Both the original and the variant had respectively 2 and 6 conversions during this time interval. This resulted in a conversion rate of 1.68% for the original and 6.98% for the variant (Figure 22).

OBSERVED DATA		
Experiment Sessions	Experiment Conversions	Calculated Conversion Rate
119	2	1.68%
86	6	6.98%

Figure 22 – Google Analytics report

The statistical summary metrics added another level of analysis. Based on the same number of sessions from the example above, the Google Optimize analysis indicated that the variant version was 96% likely to perform better than the original. Furthermore, the metrics indicated that the original model had a 95% chance of achieving a conversion rate in the range of 0.5% to 6.3%, while the variant had a 95% chance of achieving a conversion rate between 3.3% to 15.0% (Figure 23). The metric modelled improvement measured the relative lift in conversion rate between the original and the variant, which currently indicated the variant had a 95% probability of improving the conversion rate by -10% to 1,152% (Experiment results: Google Optimize, 2021).

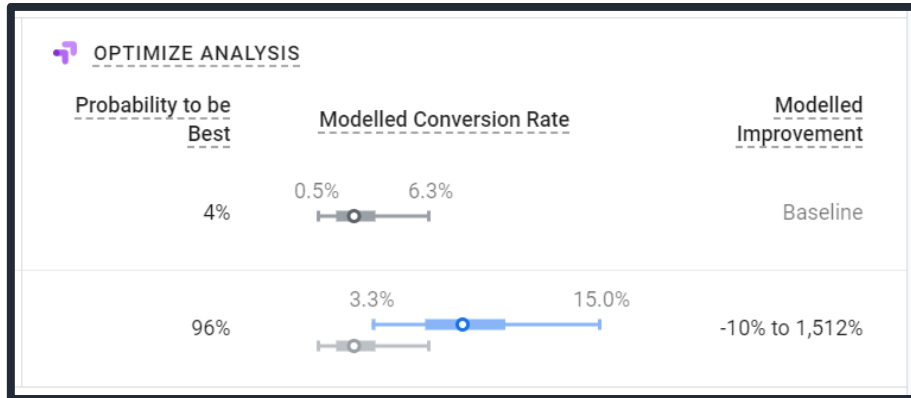


Figure 23 – Google Optimize report

For Experiment 2, a total of 288 sessions were collected after eight days. The observed data from Google Analytics revealed that the original had 148 sessions, while the variant had 140 sessions. The original did not have any conversions, while the variant had 2 conversions, resulting in a conversion rate of 1.43% during this time interval (Figure 24).

The figure is a screenshot of a Google Analytics report titled "OBSERVED DATA". It contains a table with three columns: "Experiment Sessions", "Experiment Conversions", and "Calculated Conversion Rate". The table shows data for two experiments: one with 148 sessions and 0 conversions (0.00% rate), and another with 140 sessions and 2 conversions (1.43% rate).

Experiment Sessions	Experiment Conversions	Calculated Conversion Rate
148	0	0.00%
140	2	1.43%

Figure 24 – Google Analytics report

The Optimize analysis indicated that the variant version was 89% likely to perform better than the original. Furthermore, the metric modelled conversion rate indicated that the original model had a 95% chance of achieving a conversion rate in the range of <0.1% to 2.7%, while the variant had a 95% chance of achieving a conversion rate between 0.5% to 5.5%. The metric modelled improvement indicated the variant had a 95% probability of lifting the conversion rate by -55% to 33,026% (Figure 25).

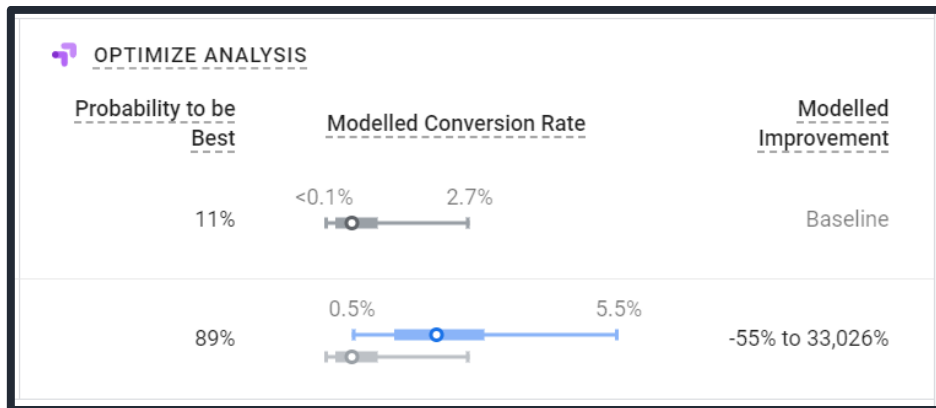


Figure 25 – Google Optimize report

Based on the early insights from the two live experiments, Kontra Coffee and I had reasons to believe that the variant version in experiment 1, with a highlighted filter function, was performing better. However, we would still need to wait to conclude which version performed better. Furthermore, in experiment 2, it appeared that the changes to the carousel on the homepage had a positive influence on the conversion rate. However, we would still need to wait to confirm if the variant performed better than the original.

4.6 Artefact Evaluation

It was not possible to conduct a time-consuming evaluation of the Lean CRO Model due to the time constraint of this thesis. Furthermore, due to Kontra Coffee’s upcoming Black Friday campaign, Teis did not have time to complete a cycle of the artefact, which further complicated studying stakeholders from the company utilizing the artefact. Thus, the only form of evaluation of the artefact comes from the demonstration activity, which took place in a real-life setting. The final evaluation of the experimental data through Google Optimize illustrated a sense of external validity for the artefact. Furthermore, Teis emphasized that he liked the findings thus far and would like to continue using the Lean CRO Model in the future. However, to confirm this, the case study would have to continue for an extended period beyond the deadline for the thesis submission.

4.7 Summarized findings

The key empirical findings from this design science project are summarized in the below section.

1. The problem explication revealed that Kontra experienced a large gap between their desired e-commerce performance and current e-commerce performance. The root causes of this gap were both technical and non-technical. The technical setup was not geared to match Kontra Coffee’s growing demand for an increased e-commerce performance. The organization did

not prioritize resources towards being data-driven and needed to overcome organizational inertia to improve its e-commerce performance.

2. The Lean CRO Model was a cheap way of applying CRO in Kontra Coffee. It only used digital tools that are free from the Google Marketing Platform. Furthermore, it involved usability testing, where each participant received a free bag of coffee, which in total for five participants cost 389 Danish crowns. This made the artefact attractive for Kontra Coffee and potentially other SMEs who face financial constraints.
3. The Lean CRO Model successfully discovered usability issues throughout the demonstration activity, potentially negatively impacting Kontra Coffee's e-commerce conversion rate. Later steps of the model enabled the case company to effectively test the impact of improving these usability issues and scientifically measure their effect on the conversion rate. Early results from the evaluation indicate the increase in onsite usability on respectively the home page and the coffee list page positively influenced the conversion rate.

5. Discussion

Following the analysis that led to a newly designed artefact Kontra Coffee could use to improve their e-commerce conversion rate, I will present what changes these findings suggest to theory and practice. Initially, I will explain what changes my results propose to the current literature on CRO. Secondly, I will present what implications and contributions my findings bring to the local practice of Kontra Coffee.

5.1 Theoretical implications

The results of this study provide a structured and iterative model, which has the potential to help SMEs adopt CRO. While established literature focused on factors that positively affect conversion rates, such as website satisfaction, customer intention, quality- and promotional factors, the Lean CRO Model focused on providing a necessary framework, built around the scientific method, to conduct CRO themselves. The model extends beyond merely focusing on these factors mentioned above and dealing with the inhibitors to adopt CRO successfully.

Furthermore, this study poses interesting contributions to the concept of usability and usability testing. Based on the feedback provided by Teis, the way the usability test was conducted had a significant impact on an employee's ability to carry it out independently. Teis expressed that it would

be hard for him or any employee from Kontra Coffee to get similar insights as I did from the tests. He feared the test subjects would not be as honest towards them as they would towards me.

This could lead to an outcome known as the 'Hawthorne effect', where test subjects behave differently, as they know they are being observed. As a usability test is far from a natural setting, such an effect is likely to occur no matter who conducts the test. However, it could be interesting to investigate if the affiliation to the object under investigation amplifies the 'Hawthorne Effect'. While the researchers in the literature review stress the importance of using minimal probes throughout the usability test to avoid increasing the level of verbalization, they do not mention the potential impact the affiliation of the moderator has (Hertzum, Hansen, & Andersen, 2009). If affiliation amplifies a 'Hawthorne Effect', one can question the validity of the data gathered through this method unless proper measures that guard against it are introduced.

Another factor that could reduce the validity of the findings is the occurrence of the 'Social Desirability Bias', which explains the tendency for test subjects to please the evaluator. During this thesis, I ensured to state both verbally and in writing that the goal of the usability test was to test the website of Kontra Coffee and not the test subjects. Further, I emphasized that they could not do anything wrong and could not hurt my or Kontra Coffee's feelings. While this approach seemed effective, further investigation is required to understand what approach evaluators closely connected to the investigated object should do to reduce the impact of such a bias.

5.2 Practical implications and contributions

This study revealed several practical implications that stand between successful adoption of CRO. These implications should serve as guidance for SMEs who want to adopt CRO to fit with the e-commerce strategy.

As this study was carried out as a single case study on Kontra Coffee, I acknowledge the current artefact is only valid in their context. However, I firmly believe the findings are of value for SMEs in general. Specifically, the results can be generalized to SMEs within the retail industry that sells goods or services directly to consumers through their website.

The results of the problem explication activity revealed the need for management to understand the importance of and prioritize resources towards adopting technology that makes their company data driven. If the management of the SME does not have a clear vision for the adoption in the first place, the subsequent adoption is highly likely to fail, as presented in the literature (Nguyen, Newby, &

Macaulay, 2015). The findings from this study further strengthened the claim for the concept of the 'Technology Champion' to be a strong driver towards successful e-commerce adoption. I closely collaborated with Teis from Kontra Coffee throughout this study, who possessed high technical capabilities and a clear vision of being data driven. Although he was the only person who had the required skill set to successfully adopt a demanding technological artefact such as the Lean CRO Model, it was sufficient to adopt it at Kontra Coffee. This should encourage other SMEs who are in a similar position of not having many employees who possess technical competencies, and issues which literature highlight to broadly occur among SMEs (Fatta, Patton, & Viglia, 2018). The findings from this study could positively impact the take-up rate of CRO among SMEs.

The results from this study indicate that companies who increase onsite usability are likely to increase their conversion rate. The data from the two experiments conducted increased the conversion rate. However, companies must carefully create a narrow problem statement and subsequent hypothesis and follow the scientific method to gain valid results throughout the experiment. By narrowly framing the problem statement to only include a specific change on a particular page, the company is likely to increase its chance of drawing the correct conclusions.

A key finding from this study was the discovery of company inertia that existed within the case company. The employees had a lot of ideas, which they wanted to bring to life, but they had a perfectionist culture, which inhibited them from trying in the first place. If such a culture persists and the company does not actively adopt a culture open to experimentation, the Lean CRO Model is not likely to succeed.

The literature stated that SMEs needed to adopt new technology efficiently and effectively due to time and money constraints (Fatta, Patton, & Viglia, 2018). The Lean CRO Model provides a cheap option within any money-strapped SMEs budget, as the tools all come in a free edition through the Google Marketing Platform. Additionally, the usability tests can be conducted for as little as 389 Danish crowns, as was the case in the tests I conducted for Kontra Coffee. This provides practitioners in SMEs with a highly effective technique for increasing their conversion rates for a nominal price. Furthermore, the method required no hard coding skills, as the changes could be applied through the built-in drag and drop functionality in Google Optimize. Thus, any SME interested in increasing their conversion rate can do so through the Lean CRO Model.

6. Conclusion

This thesis investigated how SMEs could adopt CRO as part of their e-commerce strategy and explored the potential benefit. The current knowledge base has primarily focused on two branches of CRO: 1) barriers of adoption 2) the understanding of which factors positively influence the conversion rate. While both branches have contributed valuable insights, a structured approach that SMEs can apply to adopt CRO was missing.

The established knowledge base combined with the context of SMEs provided new knowledge on the requirements needed for adopting CRO. The study was conducted as a design science research project, which aimed at creating an artefact that met specific requirements to solve the explicated problem of CRO adoption in SMEs. The case study research strategy was applied to create an artefact that would fit into the specific context of Kontra Coffee, a Danish SME selling speciality coffee to Danish consumers. Throughout the design science research activities, I applied several methods before demonstrating the final artefact. During the case study, I worked as a participant observer and closely collaborated with the 'Technology Champion' and project manager at Kontra Coffee. This method enabled me to identify several barriers to CRO adoption, which the final artefact needed to solve before Kontra Coffee could adopt it. Towards the end of the artefact demonstration, I applied experimentation to measure exactly how website changes impacted the conversion rate with fine granularity. By applying data and method triangulation, I gained a deep and complex understanding of CRO adoption.

I discovered the primary inhibitors SMEs faced in CRO adoption, which were: 1) not being data-driven, 2) not being customer centric, 3) not having a culture open to experimentation. During the *Explore*- and *Empathise* steps central usability issues were detected. Based on these findings two A/B tests were set up during the *Experiment* step to measure the impact of improving the usability on the website. The preliminary results of the *Evaluate* step indicated a 96% and 89% probability of better performance by the variant versions, respectively.

I concluded that the Lean CRO Model had the potential to enable SMEs to adopt CRO to fit within their context. The model incorporated the structure needed to gather insights through usability testing and could later validate how well new functionalities delivered value to customers.

7. Limitations and Future research

This section consists of two subsections. Firstly, I present the limitations of this study. Secondly, I present future research opportunities, which could help reduce these limitations and improve the final artefact, the Lean CRO Model.

7.1 Limitations

During this thesis, I investigated how Kontra, a Danish SME, could adopt CRO to fit into its e-commerce strategy. I developed an artefact that fit their specific context, based on the activities problem explication and requirements definition. Although a final artefact was created and delivered to the case company, this study faces certain limitations, which might impact the quality of the findings.

Firstly, the choice of carrying out this thesis as a single case study has its limitations. While this approach helped me to generate a deep and complex understanding of Kontra Coffee in a real-life context, it prevented me from generalizing my findings to a broader audience, such as SMEs in general. This impacts the generalizability and reliability of the findings of this study. However, demonstrating the artefact in use in a real-life case, rather than an artificial one, provided a better external validity (Johannesson & Perjon, 2014, p. 133). Furthermore, by applying the method of experimentation in the final step of the artefact, I can positively assess the impact the variant version and the original version have on the conversion rate for Kontra Coffee. Additionally, throughout the case study, I discovered that Kontra Coffee faced many of the same challenges as SMEs from my literature review.

Secondly, this thesis was limited by the relatively short time horizon of the thesis. As CRO is a process and not a quick fix, it would have been advantageous to follow the artefact's impact on Kontra Coffee's conversion rate over a more extended period, as this would reveal its durability and thereby value for Kontra Coffee. Additionally, a longitudinal study would have enabled me to do an extensive evaluation of the artefact to understand how well it met the identified requirements of Kontra Coffee. Furthermore, it would reveal how the artefact would perform once it was in the hands of stakeholders, which would increase the validity of the artefact.

7.2 Future research

This section suggests what future researchers can do to reduce the possible negative effects of the limitations. These suggestions aim at strengthening the validity and increasing the generalizability of the findings so SMEs, in general, can apply the Lean CRO Model in their practice.

This study has proved how vital context is with regards to CRO. Companies have different value propositions, customers, technical setup, and employees, which are factors that both affect the conversion rate and how a company can adopt CRO. Merely copying competitors or adopting CRO best practices is not guaranteed to increase conversion rates and improve a company's e-commerce performance. Thus, researchers of CRO are encouraged to study the effect of company context further and explore how it impacts CRO adoption.

Future researchers should address a similar research question in a different context and evaluate the results in a comparative study. As Kontra Coffee was immature in its digital transformation journey, the artefact was tailored to its needs. Thus, in a future comparative study, researchers should compare the adoption of the Lean CRO Model between Kontra Coffee and another SME who is further in their digital transformation. This would be interesting as SMEs share many similarities. Still, the level of digital maturity could result in different requirements, which would not fit the current version of the Lean CRO Model.

Additionally, as demonstrated in the literature review and echoed throughout this thesis, focusing on usability is a good starting point for CRO. A website with high usability is a foundational setting for a good conversion rate. However, as CRO is a process that evolves, mainly focusing on usability is likely to reach a point of maturity, where an additional increase in usability won't impact the conversion rate. A possible future version of the artefact could include the concept of personalization, which can increase the conversion rate as the website becomes even more tailored to fit the customer's needs.

Once the Lean CRO Model is adopted, the challenges the company face change. Thus, future research should also seek to evolve the Lean CRO Model to make it customizable and fit the evolution of the SME, its employees, and customers.

8. Bibliography

- Ayanso, A., & Yooglingam, R. (2009). Profiling Retail Web Site Functionalities and Conversion Rates: A Cluster Analysis. *International Journal of Electronic Commerce*, 79-114.
- Bias, R. G., & Mayhew, D. J. (2005). *Cost-Justifying Usability - An Update for the Internet Age*. San Francisco: Elsevier.
- Boren, T., & Ramey, J. (2000). Thinking aloud: Reconciling theory and practice. *IEEE Transactions on Professional Communication*, 261-278.
- Diamandis, P. (2016, April 10). *Abundance Insights: Culture & Experimentation with UBER's Chief Product Officer*. Retrieved from Medium: <https://medium.com/abundance-insights/culture-experimentation-with-uber-s-chief-product-officer-520dc22cfc4>
- Diehl, M., & Stroebe, W. (1987). Productivity losses in Brainstorming Groups: Toward the Solution of a Riddle. *Journal of Personality and Social Psychology*, 497-509.
- Ericsson, K. A., & Simon, H. A. (1993). Protocol analysis: verbal reports as data. Revised edition. MIT Press.
- Experiment results: Google Optimize*. (2021, November 5). Retrieved from Optimize Resource Hub: https://support.google.com/optimize/answer/7405044?hl=en&ref_topic=9127922#zippy=%2Cin-this-article
- Fabijan, A., Olsson, H. H., & al., e. (2018). Experimentation growth: Evolving trustworthy A/B testing capabilities in online software companies. *Journal of Software: Evolution and Process*, 23 pp.
- Fatta, D. D., Patton, D., & Viglia, G. (2018). The determinants of conversion rates in SME e-commerce websites. *Journal of retailing and Consumer Services*, 161-168.
- Ghandour, A. (2015). Ecommerce website value model for SMEs. *International Journal of Electronic Commerce Studies*, 203-222.
- Google. (2021). *About Optimize*. Retrieved from Optimize Resource Hub: https://support.google.com/optimize/answer/6197440?hl=en&ref_topic=6314903#zippy=%2Cin-this-article
- Gregor, S., & Hevner, A. R. (2013). Positioning and presenting design science research for maximum impact. *MIS Quarterly*, 337-355.
- Gudigantala, N., Bicen, P., & Eom, M. (2016). An examination of antecedent of conversion rates of e-commerce retailers. *Management Research Review*, 82-114.
- Hertzum, M. (2016). A Usability Test is not an Interview. *ACM Interactions*, 82-84.
- Hertzum, M., Hansen, K. D., & Andersen, H. H. (2009). Scrutinising usability evaluation: does thinking aloud affect behaviour? *Behaviour & Information Technology*, 165-181.
- Hevner, A. R., Ram, S., March, S. T., & Park, J. (2004). Design Science in Information Systems Research. *MIS Quarterly*, Vol 28, 75-105.

- Jia, Q., Guo, Y., & Barnes, S. J. (2017). Enterprise 2.0 post adoption: extending the information system continuance model based on the technology-Organization-environment framework. *Computers in Human Behavior*, 95-105.
- Johannesson, P., & Perjon, E. (2014). *An introduction to design science*. Stockholm: Springer.
- Lee, Y., & Kozar, K. A. (2006). Investigating the effect of website quality on e-business success: An analytic hierarchy process (AHP) approach. *Decision Support Systems*, 1383-1401.
- Lesaigne, E. M., & Biers, D. W. (2000). Effect of Type of Information on Real Time Usability Evaluation: Implications for Remote Usability Testing. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting.*, 585-588.
- Magento. (2021, October 28). Retrieved from Magento: <https://magento.com/>
- McDowell, W. C., Wilson, R. C., & Kile, C. O. (2016). An examination of retail website design and conversion rate. *Journal of Business Research*, 4837-4842.
- Moe, W. W., & Fader, P. S. (2004). Dynamic Conversion Behaviour at E-commerce Sites. *Management Science*, 326-335.
- Montgomery, D. C. (2012). *Design and Analysis of Experiments*. John Wiley and Sons, Inc.
- Nguyen, T. H., Newby, M., & Macaulay, M. J. (2015). Information Technology Adoption in Small Business: Confirmation of a Proposed Framework. *Journal of Small Business Management*, 207-227.
- Nielsen, J. (1998, October 17). *Failure of Corporate Websites*. Retrieved from NN/g Nielsen Norman Group: <https://www.nngroup.com/articles/failure-of-corporate-websites/>
- Nielsen, J., Berger, J. M., Gilutz, S., & Whitenton, K. (2004). *Return on Investment (ROI) for Usability*. California: Nielsen Norman Group.
- Optimize, G. (2021, October 24). *Bayesian inference*. Retrieved from Optimize Resource Hub: https://support.google.com/optimize/answer/9988285?hl=en&ref_topic=9127922#1
- Rennie, A., Protheroe, J., Charron, C., & Breatnach, G. (2020). *Decoding decisions - Making sense of the messy middle*. California: Think with Google.
- Ries, E. (2011). *The Lean Startup*. Penguin Business.
- Rosenberg, D. (2004). The myths of usability ROI. *Interactions*, 22-29.
- Saunders, M. N., Lewis, P., & Thornhill, A. (2012). *Research Methods for Business Students*. Pearson Education UK.
- Savrul, M., Incekara, A., & Sener, S. (2014). The potential of E-commerce for SMEs in a Globalizing Business Environment. *Procedia - Social and Behavioral Sciences*, 35-45.
- Spool, J., & Schroeder, W. (2001). Testing web sites: five users is nowhere near enough. *Chi01: Human Factors in Computing Systems* (pp. 285-286). Seattle: Extended abstracts on Human factors in computing systems.
- Statista. (2021). *Online checkout behavior and e-commerce conversions worldwide*. Statista.

Stockdale, R., & Standing, C. (2006). A classification model to support SME e-commerce adoption initiatives. *Journal of Small Business And Enterprise Development*, 381-394.

Thimm, H., Rasmussen, K. B., & Wolfgang, G. (2016). Website quality and performance indicators including ratio numbers - A study of German and Danish SME companies. *Journal of Business*, 22-36.

Topics: Usability. (2021, October 1). Retrieved from Interaction Design Foundation:
<https://www.interaction-design.org/literature/topics/usability>

9. Appendix

Appendix A

Kandidat speciale kontrakt mellem Kontra Coffee og Søren Kristian Simonsen

Preliminary Research Question: *What measures can E-commerce companies in the Fast-moving Consumer Goods industry take to increase customer loyalty in online sales? - applied to the case study of Kontra Coffee.*

Indledende Problemformulering: *Hvilke tiltag kan E-commerce virksomheder i industrien Hurtigt Omsættende Forbrugsvarer tage for at øge kunde loyalitet ved online salg? – anvendt i et casestudie med Kontra Kaffe.*

Periode: Specialet vil blive udført i perioden d.01.09.2021 til 15.11.2021.

Fremgangsmetode:

Specialet vil gå igennem flere faser. I første fase vil fokus være at forstå virksomheden, medarbejdere og få et overblik over webshoppen. Den første fase vil hjælpe med klart at definere fokuset for specialet, hvilket afhænger af de opdagelser og udfordringer jeg finder. Dernæst vil en ekstern undersøgelse med kunder skulle foretages, hvor jeg indsamler data fra nuværende kunder af Kontra Kaffe. I efterfølgende faser, vil jeg udfra indsamlet data, komme med forslag til tiltag, som kan øge kunde loyaliteten. Til slut vil disse tiltag blive udført og effekten skal måles. Der er ikke afsat en specifik tid til hver enkel fase, da det i høj grad afhænger af dataindsamlingen.

Ønskeliste til det bedste samarbejde:

Adgang til Google Analytics og webshop – Mulighed for at opsætte tagging og tracking, hvis dataindsamlingen er nødvendigt. Eks. Købsflow, hvor mange tilføjer til kurv, checker ud, og betaler.

Adgang til eksisterende kunder til kundeanalyse – Enten i form af følgeseddel med dertilhørende spørgeskema ved online køb, ved fysisk kontakt i Kontra Coffee's butik, eller begge dele.

Mulighed for at implementere mindre kommunikative/fysiske ændringer – Enten på Kontra Coffee's website, i butikken i forbindelse med afhentning af online ordre, eller købs- og informations flowet ved online ordrer, såfremt dette viser sig at være relevant under specialet.

Afslutning

Ved specialets afslutning, vil jeg give et oplæg for Kontra Coffee omkring mine opdagelser og være til rådighed for efterfølgende spørgsmål.

Al data bliver behandlet fortroligt og i overensstemmelse med GDPR. Ved projektets afslutning overdrages dataen til Kontra coffee.

Efter specialet er afleveret vil jeg gerne have mulighed for at gøre mine findings offentligt tilgængelige, så jeg kan referere til mit arbejde overfor fremtidige arbejdsgivere eller kunder. Jeg deler ikke specialet med konkurrerende virksomheder.

Jeg ser meget frem til et godt samarbejde.

Dato: 03.09.2021

Søren Kristian Simonsen

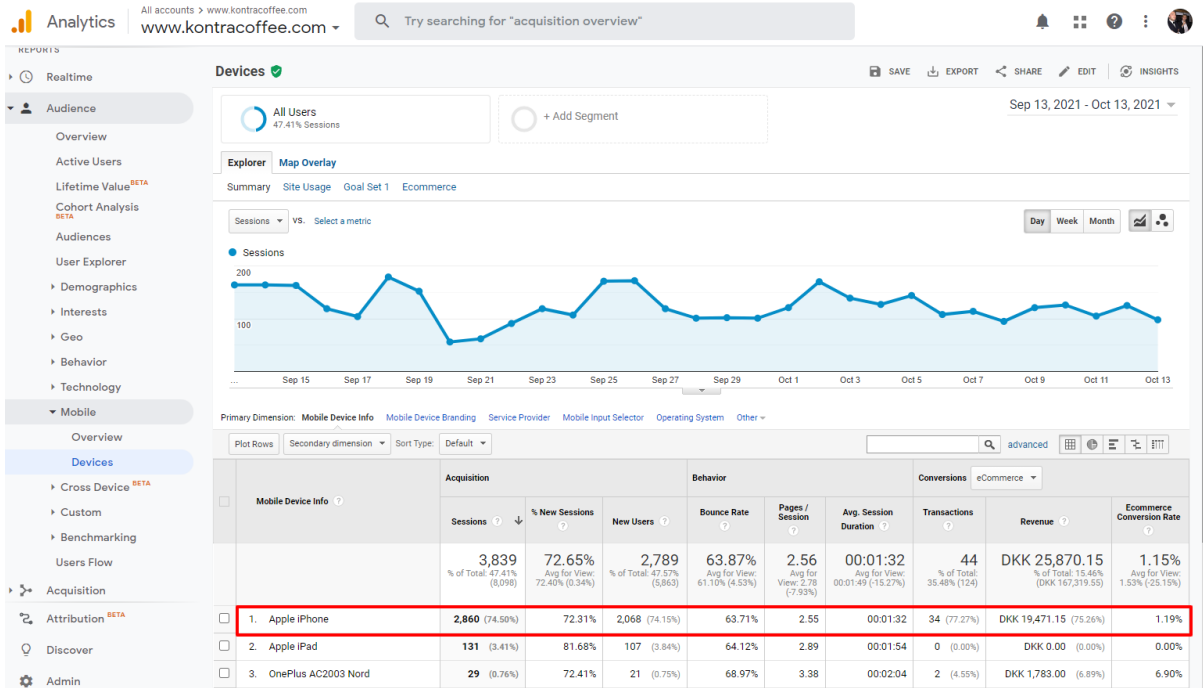
Appendix B

Opgaver #	Beskrivelse
1	Skim forsiden og klik på det du finder mest spændende.
2	Find alle kaffer fra Sydamerika. Hvor mange er der? Og vælg den kaffe som du mener matcher din smagspræferance.
3	Find ud af om virksomheden tilbyder gratis levering?
4	Naviger hen på kaffeoversigts siden og find den kaffe, som bedst matcher dine smagspræferencer? Forklar hvordan du gør.
5	Tilføj kaffen fra #4 til kurven
6	Hvad er leveringstiden for ordrer bestilt på siden?
7	Find en kaffemaskine, som passer til dit behov, hvis du skulle købe en ny.
8	Gå til kurven og fortsæt til checkout. Udfyld alle nødvendige felter og godkend og betal. Når du bliver bedt om at indtaste kortoplysninger kan du stoppe. Du er nu færdig med alle opgaver.

Appendix C

1. Stødte du på nogle udfordringer, mens du forsøgte at gennemføre de stillede opgaver?
2. Mangler der funktionaliteter på hjemmesiden du lige har testet, som du foretrækker når du køber via mobilen?
3. Hvordan var brugeroplevelsen ved at søge efter kaffe?
4. Hvilke informationer er vigtige for dig at kende til før du indtaster dine person- og kortoplysninger ved onlinekøb?

Appendix D



Mobile Device Info	Acquisition			Behavior			Conversions eCommerce		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration	Transactions	Revenue	Ecommerce Conversion Rate
	3,839 <small>% of Total: 47.41% (8,098)</small>	72.65% <small>Avg for View: 72.40% (0.34%)</small>	2,789 <small>% of Total: 47.57% (5,863)</small>	63.87% <small>Avg for View: 61.10% (4.53%)</small>	2.56 <small>Avg for View: 2.78 (-7.93%)</small>	00:01:32 <small>Avg for View: 00:01:49 (-15.27%)</small>	44 <small>% of Total: 35.48% (124)</small>	DKK 25,870.15 <small>% of Total: 15.46% (DKK 167,319.55)</small>	1.15% <small>Avg for View: 1.53% (-25.15%)</small>
1. Apple iPhone	2,860 (74.50%)	72.31%	2,068 (74.15%)	63.71%	2.55	00:01:32	34 (77.27%)	DKK 19,471.15 (75.26%)	1.19%

Acquisition	
Mobile Device Info	Sessions ? ↓
	3,839 <small>% of Total: 47.41% (8,098)</small>
1. Apple iPhone	2,860 (74.50%)

Appendix E

Usability Test Checkliste – Læsetid 5 min

Introduktion til opgaven

Tusinde tak fordi du vil deltage som testperson i mit specialeprojekt. Vi skal gennemføre en **usability test** på Kontra Coffees hjemmeside, hvor jeg er moderator og du er testperson. Det er vigtigt, at du læser hele dokumentet igennem inden vi starter, så vi har de bedste forudsætninger for at gennemføre testen bedst muligt.

Usability tests går ud på at observere en testperson forsøge at bruge en hjemmeside. Som testperson skal du udføre en række opgaver samtidig med, at du tænker højt, hvad du gør for at løse disse opgaver. Min opgave som moderator er at observere dig løse opgaverne, se om der er ting, der frustrerer eller forvirrer dig på hjemmesiden.

Det er vigtigt at understrege, at specialeprojektet går ud på at teste Kontra Coffees hjemmeside og ikke dig. Du kan *ikke* gøre noget forkert i denne test.

Testen vil tage cirka 30 minutter i alt. Jeg vil starte ud med kort at introducere dig til opgaven, så du er helt klar på, hvad vi undersøger og hvorfor. Derefter giver jeg en hurtig intro til hjemmesiden, vi tester.

Efter introduktionen skal du løse de opgaver du er stillet. Du finder dem i afsnittet "Opgaver i testen". Dette vil tage cirka 10-15 minutter. Efterfølgende vil jeg stille 4 afsluttende spørgsmål. Til sidst udvælger du, hvilken pose kaffe du ønsker og vi aftaler levering.

Vigtig info

For at kunne bruge data fra testen, er det nødvendigt at optage selve testen og jeg skal bagefter have tilsendt skærmoptagelsen fra din mobil, så jeg kan anvende det i mit specialeprojekt. Optagelsen og data bliver kun delt med vejleder, censor og Kontra Coffee.

Inden start

Opsætning af iPhone

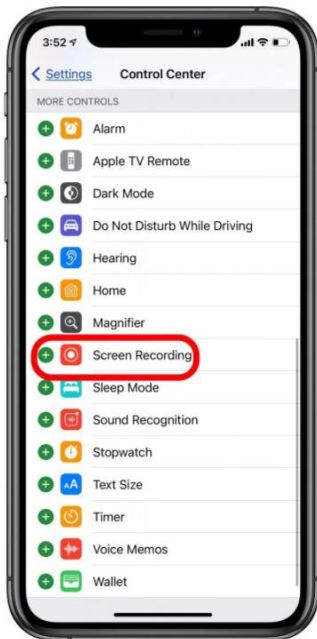
1. Sørg for at du har minimum 2 GB plads på din mobil.
2. Slå "forstyr ikke" til → indstillinger → forstyr ikke
3. Slå stående retning til, så skærmen ikke tilter under testen.
4. Unmute din mobil. Hvis din iPhone er muted kan jeg ikke høre lyden.

Sådan tilføjer du Screen Control (Skærmoptagelse) på din iPhone.

1. Åben indstillinger.
2. Tryk på kontrolcenter



3. Tryk på den grønne cirkel ved siden af skærmoptagelse



4. Nu kan du optage din skærm, men din iPhone vil automatisk optage uden lyd. Fuldfør de resterende skridt for at optage med lyd.
5. Åben <https://www.kontracoffee.com/>
6. Åben kontrolcentret ved enten at swipe op eller ned på din skærm.
7. 3D tryk eller hold fingeren på skærmoptagelsesknappen.

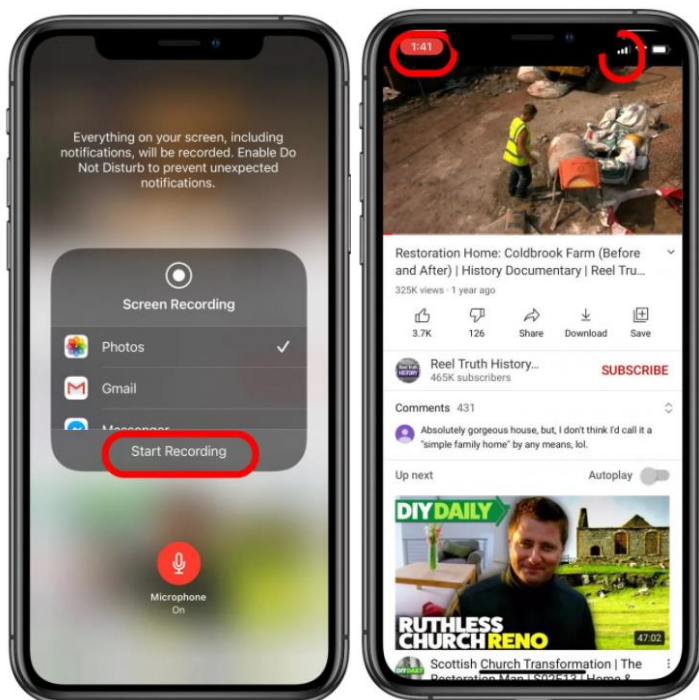


8. Tryk på den app du ønsker at gemme optagelsen i default er photos



9. Sikre at mikrofonen er slået til, ikonet vil være rødt, hvis lyden bliver optaget. På nyere iPhones kan den tændte mikrofon også ses på det løbende ur øverst i venstre side (se nedenfor).

10. Start optagelsen.



Opgaver i testen

Opgaver #	Beskrivelse
1	Skimt forsiden og klik på det du finder mest spændende.
2	Find alle kaffer fra Sydamerika. Hvor mange er der? Og vælg den kaffe som du mener matcher din smagspræferance.
3	Find ud af om virksomheden tilbyder gratis levering?
4	Naviger hen på kaffeoversigts siden og find den kaffe, som bedst matcher dine smagspræferencer? Forklar hvordan du gør.
5	Tilføj kaffen fra #4 til kurven
6	Hvad er leveringstiden for ordrer bestilt på siden?
7	Find en kaffemaskine, som passer til dit behov, hvis du skulle købe en ny.
8	Gå til kurven og fortsæt til checkout. Udfyld alle nødvendige felter og godkend og betal. Når du bliver bedt om at indtaste kortoplysninger kan du stoppe. Du er nu færdig med alle opgaver.

Opfølgende spørgsmål

1. Stødte du på nogle udfordringer, mens du forsøgte at gennemføre de stillede opgaver?
2. Mangler der funktionalteter på hjemmesiden du lige har testet, som du foretrækker når du køber via mobilen?
3. Hvordan var brugeroplevelsen ved at søge efter kaffe?
4. Hvilke informationer er vigtige for dig at kende til før du indtaster dine person- og kortoplysninger ved onlinekøb?

Appendix F

Please find the recordings of the usability tests [here](#).

Appendix G

Behaviour report sessions by top 2 landing pages.

Landing Page ?	Acquisition			Behavior			Conversions eCommerce		
	Sessions ? ↓	% New Sessions ?	New Users ?	Bounce Rate ?	Pages / Session ?	Avg. Session Duration ?	Transactions ?	Revenue ?	Ecommerce Conversion Rate ?
	10.96% ↓ 127,346 vs 143,025	0.59% ↑ 71.25% vs 70.83%	10.43% ↓ 90,738 vs 101,308	6.63% ↑ 56.19% vs 52.70%	4.31% ↓ 3.25 vs 3.40	6.38% ↓ 00:02:05 vs 00:02:14	24.98% ↓ 2,553 vs 3,403	19.31% ↓ DKK 2,658,855.41 vs DKK 3,295,263.59	15.74% ↓ 2.00% vs 2.38%
1. /									
Oct 1, 2020 - Oct 1, 2021	41,902 (32.90%)	64.75%	27,131 (29.90%)	40.46%	4.05	00:02:38	1,120 (43.87%)	DKK 1,164,332.15 (43.79%)	2.67%
Oct 1, 2019 - Oct 1, 2020	28,987 (20.27%)	67.24%	19,492 (19.24%)	25.11%	5.11	00:03:23	829 (24.36%)	DKK 549,451.96 (16.67%)	2.86%
% Change	44.55%	-3.71%	39.19%	61.14%	-20.64%	-22.32%	35.10%	111.91%	-6.54%
2. /kaffe									
Oct 1, 2020 - Oct 1, 2021	5,188 (4.07%)	73.50%	3,813 (4.20%)	42.02%	4.15	00:02:55	351 (13.75%)	DKK 214,612.25 (8.07%)	6.77%
Oct 1, 2019 - Oct 1, 2020	15,017 (10.50%)	81.39%	12,222 (12.06%)	51.56%	3.19	00:01:49	551 (16.19%)	DKK 215,606.20 (6.54%)	3.67%
% Change	-65.45%	-9.70%	-68.80%	-18.51%	30.01%	59.75%	-36.30%	-0.46%	84.39%

Appendix H

Acquisition report and conversion rate by channel.

	Acquisition			Behavior			Conversions		
	Sessions ↓	% New Sessions ↓	New Users ↓	Bounce Rate ↓	Pages / Session ↓	Avg. Session Duration ↓	Ecommerce Conversion Rate ↓	Transactions ↓	Revenue ↓
	10.96% ↓	0.59% ↑	10.43% ↓	6.63% ↑	4.31% ↓	6.38% ↓	15.74% ↓	24.98% ↓	19.31% ↓
1 Organic Search	7.37% ↑			5.85% ↑			23.67% ↑		
2 Direct	32.08% ↑			2.86% ↑			9.37% ↓		
3 Referral	82.10% ↑			41.23% ↓			47.51% ↓		
4 Paid Search	78.19% ↓			3.81% ↑			10.72% ↓		
5 Social	72.34% ↓			48.73% ↑			71.63% ↓		
6 Email	100.00% ↑			100.00% ↑			100.00% ↑		
7 (Other)	71.43% ↑			26.39% ↑			100.00% ↓		
8 Display	77.05% ↓			19.61% ↑			0.00%		

Appendix I

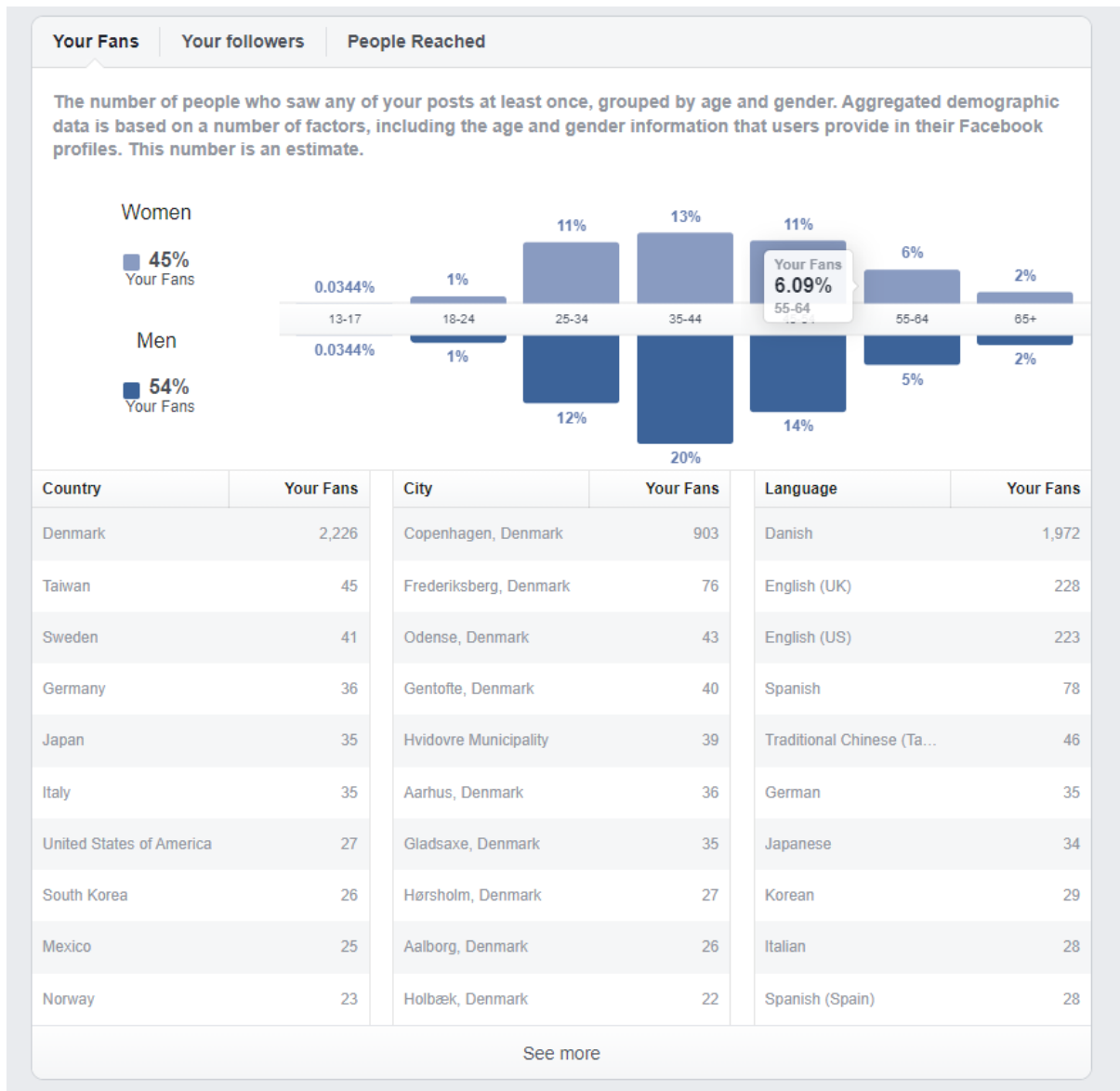
Bounce rate by device.

Device Category	Bounce Rate	Sessions	Contribution to total: Sessions
	6.63% ↑ 56.19% vs 52.70%	10.96% ↓ 127,346 vs 143,025	
1. mobile			<p>Oct 1, 2020 - Oct 1, 2021</p> <p>Oct 1, 2020 - Oct 1, 2021: 61.73%</p> <p>Oct 1, 2019 - Oct 1, 2020: 57.46%</p>
2. tablet			<p>Oct 1, 2020 - Oct 1, 2021</p> <p>Oct 1, 2020 - Oct 1, 2021: 57.57%</p> <p>Oct 1, 2019 - Oct 1, 2020: 52.56%</p>
3. desktop			<p>Oct 1, 2020 - Oct 1, 2021</p> <p>Oct 1, 2020 - Oct 1, 2021: 50.65%</p> <p>Oct 1, 2019 - Oct 1, 2020: 46.55%</p>

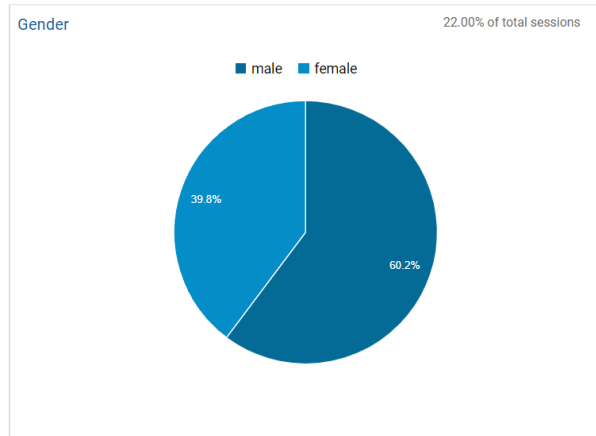
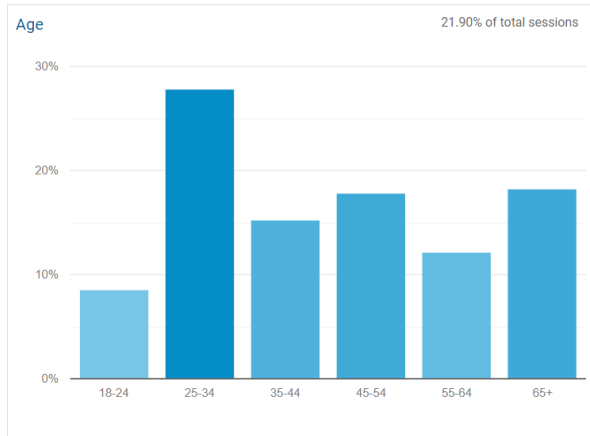
Conversion rate by device type.

<input type="checkbox"/> Device Category	Ecommerce Conversion Rate	Sessions	Contribution to total: Sessions
	15.74% 2.00% vs 2.38%	10.96% 127,346 vs 143,025	
<input type="checkbox"/> 1. ■ desktop			<p>Oct 1, 2020 - Oct 1, 2021</p> <p>Oct 1, 2019 - Oct 1, 2020</p>
Oct 1, 2020 - Oct 1, 2021	2.43%	48.87%	
Oct 1, 2019 - Oct 1, 2020	2.95%	41.50%	
<input type="checkbox"/> 2. ■ tablet			
Oct 1, 2020 - Oct 1, 2021	2.21%	2.95%	
Oct 1, 2019 - Oct 1, 2020	2.94%	4.76%	
<input type="checkbox"/> 3. ■ mobile			
Oct 1, 2020 - Oct 1, 2021	1.56%	48.18%	
Oct 1, 2019 - Oct 1, 2020	1.89%	53.74%	

Appendix J



Appendix K



Appendix L

Mobile Device Info ?	Acquisition			Behavior			Conversions eCommerce ▾		
	Sessions ? ↓	% New Sessions ?	New Users ?	Bounce Rate ?	Pages / Session ?	Avg. Session Duration ?	Transactions ?	Revenue ?	Ecommerce Conversion Rate ?
	65,105 % of Total: 51.12% (127,346)	72.58% Avg for View: 71.20% (1.94%)	47,254 % of Total: 52.11% (90,674)	61.49% Avg for View: 56.19% (9.43%)	2.71 Avg for View: 3.25 (-16.66%)	00:01:34 Avg for View: 00:02:05 (-24.94%)	1,039 % of Total: 40.70% (2,553)	DKK 810,122.76 % of Total: 30.47% (DKK 2,658,855.41)	1.60% Avg for View: 2.00% (-20.40%)
1. Apple iPhone	44,929 (69.01%)	73.44%	32,997 (69.83%)	61.47%	2.74	00:01:36	779 (74.98%)	DKK 604,434.13 (74.61%)	1.73%
2. Apple iPad	2,834 (4.35%)	70.68%	2,003 (4.24%)	58.43%	3.36	00:02:17	63 (6.06%)	DKK 59,639.80 (7.36%)	2.22%
3. Samsung SM-G973F Galaxy S10	572 (0.88%)	67.66%	387 (0.82%)	68.71%	2.56	00:01:41	9 (0.87%)	DKK 16,874.50 (2.08%)	1.57%
4. Huawei VOG-L29 P30 Pro	480 (0.74%)	68.33%	328 (0.69%)	71.46%	2.21	00:01:10	5 (0.48%)	DKK 1,875.00 (0.23%)	1.04%
5. Samsung SM-G970F Galaxy S10e	430 (0.66%)	58.37%	251 (0.53%)	58.84%	2.92	00:01:40	5 (0.48%)	DKK 3,537.00 (0.44%)	1.16%

Appendix M

Customer journeys.

