



SCHOOL OF
ECONOMICS AND
MANAGEMENT

Technology Acceptance in the Age of Mobile Applications

*Researching the factors affecting the 'app-etite' for
consumer technology acceptance*

By

Emily Sundqvist

Matilda Svensson

Siri Nygren

May 2023

Bachelor's Programme in International Business

Supervisor: Amanda Sonnerfeldt

Acknowledgements

This thesis would not have been possible without the support of our thesis supervisor Amanda Sonnerfeldt. Thank you for your invaluable guidance and expertise and for encouraging us throughout this process. We would like to extend our sincere thanks and gratitude to Karen Helwig-Larsen, Björn Ohlsson, and IKEA for providing us with the opportunity to work with them on this project, for access to interesting insights and for their support throughout the entire process. We would also like to extend our gratitude to Sofie Buch Sørensen for a warm welcome and assistance throughout our fieldwork at IKEA Taastrup. Furthermore, we would like to thank our friends and family for their unwavering support. Lastly, we would also like to thank Fengsson's Dumpling House, as without their delicious dinners we would not have been able to finish this thesis.

Abstract

This paper aims to investigate the factors that affect the technology acceptance of retail apps and elaborates on the Technology Acceptance Model (TAM) through an in-depth, single case study on IKEA. The case study provides the research with the crucial aspect of the customer's perception of the app and extends the framework through the practical adoption of apps. The data were collected through; self-completion questionnaires and semi-structured interviews supported by additional participant observations. The findings from the case study were analysed based on the modified TAM factors, discussing the relevance of the factors investigated and which insights could contribute to successful app development. The results show a relationship between app adoption and all the modified, case-specific factors. This research also proposes an extended comprehensive framework derived from the results of this case study, which could benefit future research on the technology acceptance of retail apps and retailers' app development.

Keywords: Digitalisation, Mobile Apps, Technology Acceptance Model (TAM), Retail App Adoption, IKEA.

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1.0 Introduction

1.1 Background

In today's ever-changing and progressively competitive business landscape, digital tools have become vital to most business models (Gobble, 2018). The widespread adoption of digital technologies has abruptly changed the status quo of business making and transformed the business landscape, enabling companies to streamline their operations, improve customer engagement, and gain a competitive advantage (Yeow, Soh & Hansen, 2018).

According to Hagberg & Jonsson (2022), the retail industry is one of many industries which have gone through a substantial digitalisation process during the last decades. Firms in the retail industry will generally have most activities in their value-creating processes affected by the current megatrend of digitalisation (Frasquet, Brusset, Kotzab & Teller, 2021). As Halan (2021) noted, this phenomenon aligns with the trend of increasingly digitally literate consumers. He further noted how the consumer culture has changed, as consumers increasingly rely on alternative ways of shopping. Retailers are challenged with creating an efficient digital strategy to improve consumer interaction, especially in an omnichannel context (Frasquet et al. 2021).

The output of new digital tools is continuously developing, with new, increasingly advanced tools being introduced regularly (Halan, 2021). He stated that this trend has been proven in the retail sector, especially since the start of the COVID-19 pandemic, as this change in demand resulted in an increased supply of digital services and tools. As output is closely interlinked with, even reliant on, demand, it is increasingly important to understand the factors affecting how consumers incorporate new digital tools into their everyday life. With the ever-evolving reach of smartphones, firms have seized a new channel of creating value

through firm-specific applications (apps) (Wohllebe, Dirrler & Podruzsik, 2020). Customers increasingly expect digital tools to facilitate different aspects of their shopping experience (Thurab-Nkhosi, 2019). Hence, firm-specific apps have gotten recent interest from retail firms aspiring to retain existing customers and reach new customers (Wohllebe et al. 2020).

1.2 Problematisation

This recent digitalisation trend (Frasquet et al. 2021) combined with changed consumer preferences and expectations, has put pressure on firms to implement efficient digital tools such as mobile applications (Wohllebe et al. 2020). Furthermore, any changes in business models are generally costly and risky (Grant, 2018). Due to its relevance and risk, the mode of creating and implementing digital solutions, specifically apps, for retail purposes has gotten increasing interest from researchers in the business field (Wohllebe et al. 2020).

Multiple authors have proposed theories and frameworks surrounding how digital tools can be implemented efficiently (Davis, 1989; Venkatesh & Bala, 2008; Venkatesh & Davis, 2000). Due to the exceptional importance of the customers' attitude towards these digital tools, a significant portion of the research has been focused on the demand-side factors of adoption (Davis, 1989; Frasquet et al. 2021; Venkatesh & Bala, 2008; Venkatesh & Davis, 2000; Wohllebe et al. 2020). One of the more prominent frameworks is the Technology Acceptance Model (TAM) (Davis, 1989) and its subsequent modifications. This model explains which factors affect how users accept and implement digital tools into their everyday life (Davis, 1989). The original model has continuously been modified, accounting for more factors and making the framework more comprehensive (Venkatesh & Bala, 2008; Venkatesh & Davis, 2000). The development of modern digital tools has exponentially accelerated since the last update of this framework in 2008. Hence, we believe that the

applicability of the current version of the framework cannot fully represent digital tools such as apps. Therefore, there is a knowledge gap in what factors influence the customers' technological acceptance towards app usage in the context of retail.

There are few previous studies of applications of the TAM which were investigated from a single case study, instead presenting more generalisable insights instead of deepening knowledge on a specific sector (Cheema, Rizwan, Jalan, Durrani & Sohail, 2013; Gefen, Karahanna & Staub, 2003; Preeti, Sarika, Silpy, & Sukanya, 2016; Rahman, Rizwan, Ahmed, Ali, & Khan, 2013). A knowledge gap exists for in-depth understanding of factors in a particular context, such as detailed company-specific case studies connecting the TAM and app adoption. Hence this thesis will investigate which factors affect the adoption of digital applications and elaborate on this framework by doing an in-depth case study.

1.3 Research Aim, Objectives, and Purpose

This thesis aims to deepen the understanding of the factors affecting the technology acceptance and thereby usage of apps to further business academia. The objective of this thesis is to carry out a single case study and thereby apply and extend the existing theories in a real-world setting. In addition, collaborating with a single company can provide internal information which can further garner deeper insights. To fulfil the research purpose of this paper, a research question has been formulated as follows:

"What factors influence consumers' technology acceptance of mobile retail apps?"

This research question states the primary purpose of this thesis. However, from the insights garnered from the process of answering this research question, the thesis will also further

investigate how these factors provide a foundation for a successful digital product. Through this investigation, this study also seeks to contribute to businesses' internal decision-making, offering practical insights that can be used to advance the development of successful digital products. Thus, the broader aims of this paper are not solely to provide the field of academia with a nuanced analysis of the factors that influence technology acceptance but also to challenge the current insights on the implementation and usage of digital tools.

1.4 Delimitations

Several delimitations were made for this thesis to provide the comprehensive analysis required to gain valuable insights. The main delimitations consider the research question's scope, the theoretical scope, as well as the delimitations of the case study.

Firstly, the scope of the research question was delimited to establish a foundation for the thesis that could be thoroughly researched. Due to the significant influence consumers have over digital tools, the research question was narrowed down to focus on the demand side. The data access was delimited as the internal data access was limited, and the authors instead pursued the customers as their primary data source.

Once settling on a research question and the purpose of this research, the currently available theories and frameworks with their applications were explored. After delimiting the scope to focus on the demand side and the consumers, the theoretical frameworks were also delimited with this in mind. Many frameworks have been criticised for being excessively complex, leading to their reduced applicability in unmoderated environments (Bagozzi, 2007; Raaij & Schepers, 2008). The TAM is relevant to this case study due to its simplicity and previous support in related contexts. Therefore, no additional theories were included.

The theory provided the foundation of the factors investigated and analysed in this thesis, which could be biased towards the previous researchers' perspectives due to the narrow scope of the theoretical framework. However, the framework of the TAM and its modifications solely provided the basis for the development of the thesis; during the data collection and fieldwork, other factors emerged.

Lastly, the research design's scope was delimited to establish a foundation for the thesis that could be thoroughly researched. As the authors of this paper had a great interest in digital solutions and an opportunity to collaborate with IKEA, the scope was initially outlined to be a single case study. By choosing solely one company to collaborate with, in-depth insights that otherwise would have been inaccessible was gained. The method is sufficient to answer the research question and contribute to the knowledge gap.

1.5 Outline of the Thesis

The thesis is structured into different sections. The theoretical framework and the previous applications and modifications are presented and discussed in Chapter 2. In Chapter 3, a description of the selected methodology as well as the proposed data collection and analysis is presented whilst evaluating the objectivity and limitations of the research. The Case study and its results are presented and explored in Chapter 4. In Chapter 5, the findings are discussed and their practical implications are analysed in-depth. The last chapter, Chapter 6, presents the conclusion of this thesis and discusses practical implications and opportunities for future research.

2.0 Theoretical Background

This section further explains the digitalisation of the retail industry and the increasing relevance of mobile applications. Relevant theories and frameworks that provide a fundamental basis for research problematization surrounding the adoption of digital tools are investigated. These models' descriptions and extensions are initially presented, progressing into a thorough literature review discussing their applications in e-commerce contexts.

2.1 Digitalisation of the Retail Industry and the Role of Mobile Apps

Digitalisation has transformed the business model for the retailing sector (Hagberg, Sundstrom & Egels-Zandén, 2016). Hänninen, Smedlund & Mitronen (2018) argued that it has challenged the consumer's demands and expectations and created new channels in which a company can engage with its customers and create value. They stated that this has subsequently put pressure on business leaders to align their businesses with this trend to reap the possible rewards and stay relevant in an ever-changing industry. Hagberg et al. (2016) tried to pinpoint the actual changes in a business model that was brought upon due to digitalisation. They found that digitalisation changes retailing exchanges, reflected in the new channels where firms can reach the client in different aspects of the retailing value chain, e.g. through communication, information and transaction. Hänninen et al. (2018) has focused on denoting the possible gains of digitalisation. They focused on potential benefits derived from collecting data regarding consumer behaviour through digital tools. They noted that if this data about consumer preferences can be understood and properly implemented into the business model, it may be possible to create a more satisfying retailing experience for the customer, resulting in increased value for the individual firm. Hence researchers agree that digitalisation processes can help the firm create value through new modes of customer interaction (Hagberg et al. 2016; Hänninen et al. 2018).

One aspect of the digitalisation of the retailing industry is the creation of firm-specific mobile applications, which is when firms release software to facilitate online shopping through the consumer's smartphone (Li, Zhao, Xu & Pu, 2020). This can be seen as facilitating online shopping through smartphones outside the physical store and creating a more efficient in-store experience according to Moorhouse, tom Dieck & Jung (2017). They argue that the out-of-store retailing experience is facilitated as the store becomes ubiquitous and portable through apps. In-store mobile functions tend to help customers to scan their items and check out in a smooth and timely manner, avoiding the negative experience many customers feel when they need to queue (Moorhouse et al. 2017). Multiple studies have shown that shopping apps can improve overall shopping efficiency (Li et al. 2020; Moorhouse et al. 2017), subsequently creating value for the firm.

Modern customers increasingly expect modern digital solutions such as apps to facilitate different aspects of their shopping experience (Thurab-Nkhosi, 2019; Wohllebe et al. 2020). However, studies show that the creation of mobile apps does not always meet the consumers' expectations, creating a rift between expectation and output (Wohllebe et al. 2020).

Furthermore, it has been proven that simply creating an app is not enough to reap the previously mentioned possible rewards of implementing an efficient app (Kim & Baek, 2018). To reap these rewards, it is vital to understand *how* and *why* the intended consumers adopt the app (Kim & Baek, 2018). Wohllebe et al. (2020) briefly studied factors which could be shown to affect the adoption of retail apps and noticed that predicted efficiency gains, actual benefits and user-friendliness all seemed to be vital. These factors can be seen as derivatives of the factors explained more thoroughly in The TAM, which is the framework primarily used in this thesis to provide a foundation for the research.

2.2 Introduction to the Technology Acceptance Model (TAM)

After reviewing the literature, one particular model was found to be interesting for the scope of this study. The TAM was chosen for this study as it is widely used and acknowledged with solid support for explaining technology acceptance. The TAM's simplicity and broad applicability make it suitable for investigating the applicability of new technologies (Rahman et al. 2013). Over time, this model has been modified to account for additional factors, creating a generational framework (Davis, 1989; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh & Davis, 2000). The TAM is ample for the case study at hand, as it provides tangible factors of technology acceptance and has strong support in previous research (Cheema et al. 2013; Davis, 1989; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh & Davis, 2000; Preeti et al. 2016; Rahman et al. 2013).

Originally, the TAM was constructed to explain technology acceptance in the workplace but has since been applied within many other contexts, for example, website-based e-commerce (see Glossary in Appendix 10) (Cheema et al. 2013; Gefen et al. 2003; Preeti et al. 2016; Rahman et al. 2013). Within these articles, a knowledge gap was detected, as no empirical testing has been conducted specifically in the practice of retail apps. As previous authors have proven the TAM to be relevant in the context of website-based e-commerce, and previous research on retail apps has found factors aligning with the TAM (Wohllebe et al. 2020), the scope of application of the framework can be widened to include mobile-based e-commerce; apps. Within this theoretical background, different applications of the TAM relevant to this case study will be explored.

2.2.1 TAM

The TAM is a theoretical framework developed by Fred Davis (1989) to provide a systematic approach explaining why individuals accept and use new technologies in the workplace.

Davis (1989) states that the individual's intention to use a new technology continuously was based on *Perceived Usefulness* and *Perceived Ease of Use*.

Perceived Usefulness refers to the extent of an individual's belief that the technology will improve their work processes and make their life easier. The *Perceived Ease of Use* focuses on what degree of preparation, training and education the individual believes they need to use the digital tool. The framework concentrates on the individuals' perception and aims to explain the cognitive processes of the individual user. These processes influence the individual's attitude towards the technology, affecting their usage behaviour. If the two external variables create a positive attitude toward the technology, the individual's intention to use it in the workplace will increase, and subsequently, the individual will use the technology more (Davis, 1989). The TAM is one of the most widely used models to explain cognitive behaviour regarding digital implementation and has since been modified, integrated and used as a theoretical base for new research. Two of the more well-known modifications of the TAM model are the TAM2 and the TAM3, which will be further explained.

2.2.2 TAM 2

In 2000, the TAM model was revisited by Viswanath Venkatesh and Fred Davis, resulting in the second edition of the Technology Acceptance Model: TAM2. The added theoretical constructs were social influence and cognitive instrumental processes (Venkatesh & Davis, 2000). The two processes were divided into different factors that affect the individual users' perceived usefulness in a more in-depth manner. This research solely focused on *Perceived Usefulness* and not *Perceived Ease of Use*, which was revisited in later updates of the

generational framework. The social influence processes include *Subjective Norm*, *Image* and *Voluntariness*, while the cognitive instrumental processes include *Job Relevance*, *Output Quality* and *Result Demonstrability*. These processes later influenced the perceived usefulness and the user's intention to use the technology (Venkatesh & Davis, 2000).

The new social influence process constructs are related to the individual's perception of external variables. *Subjective Norm* refers to asking if the person using the technology finds it to be helpful for the purpose. *Image* refers to asking what pre-existing image the person had of the technology. The third factor related to the social influence process, *Voluntariness*, explored the impact of mandatory or voluntary use of technology and how this affects the user's intentions (Venkatesh & Davis, 2000).

Other factors added which were contingent on the cognitive instrumental processes were job relevance, which refers to what extent the technology was relevant for the job, and output quality, meaning if the technology is going to increase the possible quality of the output by the user. Another new factor was *Result Demonstrability*, which is if the same result can be produced with another technology. Within the model, the authors connect the *Perceived Ease of Use* to both affect *Perceived Usefulness* and *Behavioural Intentions*. Hence if a system is perceived to be easy to use, it can positively influence job performance (Venkatesh & Davis, 2000).

Venkatesh and Davis (2000) introduced a new factor, *Experience*, which affects both the social influences and the cognitive instrumental processes. The authors found that as the individual's experience increases with technology, the importance of the social influence

processes decreases. However, the perceived possible benefits of using the technology continue to influence *Behavioural Intentions* (Venkatesh & Davis, 2000).

2.2.3 TAM Anchor and Adjustment

Venkatesh (2000) further modified the model to account for more factors, now focusing on ones contributing to the *Perceived Ease of Use*. The modification focuses on the same topic as its predecessors; technology acceptance, however, with a distinct focus on the importance of contextual factors in explaining user acceptance. The model proposes new constructs that help explain the factors that affect technological advancements' adoptability.

Venkatesh (2000) categorised the factors based on the division of *Anchor* and *Adjustment*. This relates to system-specific *Perceived Ease of Use* being dynamic over time. Before using a new system, an individual would anchor their perception of the system's ease of use into their general beliefs about computers. When gaining further understanding and experience through interactions with the system, the individual would adjust their perceived ease of use of the system (Venkatesh, 2000).

Within the *Anchor* category, the new factors adhered to the themes of control, intrinsic motivation and emotion (Venkatesh, 2000). For technology acceptance, control is defined as constraining or facilitating conditions. On the theme of control, two new factors were added. One was *Computer Self-efficacy* relating to perceived internal control, meaning an individual's perception and confidence in one's ability to perform tasks with technology. The second new factor of control was the *Perception of External Control*, which relates to available opportunities, resources, and knowledge not held by the individual personally but rather by their environment. The factor Venkatesh (2000) connected to emotion is *Computer Anxiety*, and the factor related to intrinsic motivation is *Computer Playfulness*.

Computer Anxiety is a reaction from computer use that affects an individual to experience fear or apprehension when using, or at the thought of using technology. *Computer Playfulness* relates to the perceived possible satisfaction of using a system. Playful users are more likely to indulge, explore, and experiment with the new system for reasons other than the potential positive outcome, such as productivity and for the individual not to perceive the learning curve with a new system as a considerable effort. These four new constructs mentioned above affect the *Perceived Ease of Use* before and at the beginning of the individual becoming acquainted with the new system (Venkatesh, 2000).

Venkatesh (2000) also added factors to the framework within the category adjustments, which emanate from the users' beliefs based directly on their experiences with the system. When experience with the system increases, the *Adjustment* contributions alter the individual's technology acceptance. The factors of *Objective Usability* and *Perceived Enjoyment* can be found within the category Adjustment. Systems can be compared on a concrete level rather than just by the perception of the systems, which is *Objective Usability*, the systems' ease or difficulty to use to perform specific tasks. With the gained experience, *Perceived Ease of Use* will also be affected by the extent the system can be perceived to be enjoyable when not factoring in the possible increase in performance resulting from using the system. This is conceptualised as *Perceived Enjoyment*, which, with experience, assumes the influences from *Computer Playfulness*. Venkatesh (2000) also argues that *Perceptions of External Control* relating to the specific system can be attributed to the adjustment factors as well, as when experience or the environment's conditions changes, *Perceptions of External Control* will be affected.

2.2.4 TAM 3

In 2008, Venkatesh and Bala re-visited the technology acceptance model to build on the TAM1 and the TAM2 and the previous factors of *Anchors* and *Adjustments*. These factors were prominent determinants of *Perceived Usefulness* and *Perceived Ease of Use*. Hence, this modification provides a further detailed and applicable framework of aspects that help adoptability for digital tools. For this version, the factor *Experience* effect was proven to affect more factors. *Experience* as a construct altered the technology acceptance in most phases of the TAM. For example, *Experience* affected both the *Adjustment* factors and later in the technology acceptance process as it affected *Perceived Ease of Use*'s influence over the *Behavioural Intention*. Therefore the factor of experience affects many factors and is highly important in the TAM3 model. This framework can aid businesses in creating digital tools that align with these factors and which consumers are more likely to use. This thesis will base its theoretical foundation on the factors introduced in previous frameworks and now collected as a single framework: the TAM3. In *Figure 1*, the different factors, to which framework they were introduced, the new importance of experience, and a holistic overview of the entire framework is visualised. This framework will provide the foundation for this thesis's research.

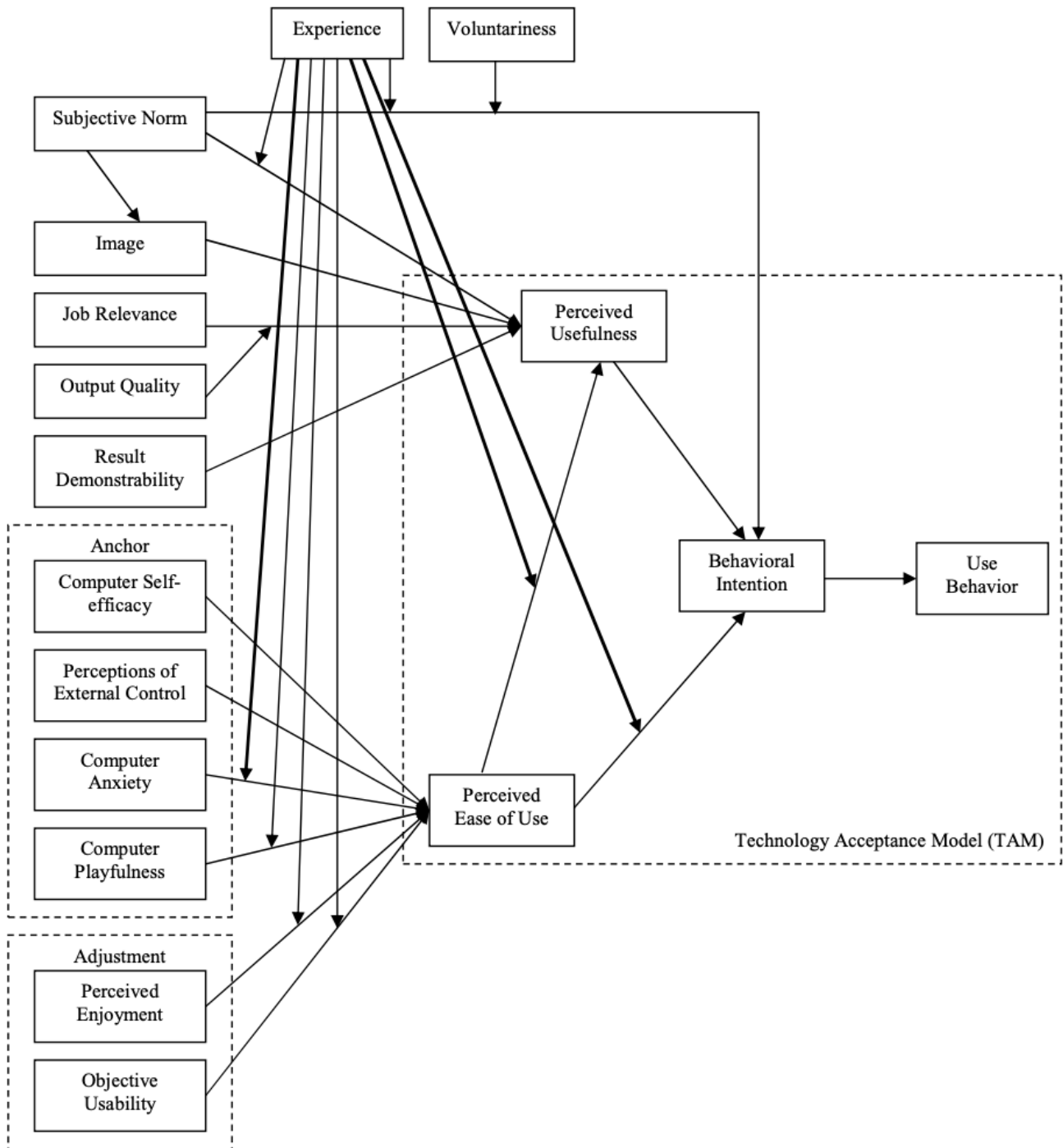


Figure 1, Technology Acceptance Model and its modifications (Venkatesh & Bala, 2008)

2.2.5 An Extension of the Factors of the TAM

While the TAM encompasses many factors that may affect how an individual adopts technology, the characteristic of gender was notably left out (Venkatesh & Morris, 2000).

These factors might affect the assumptions and expectations regarding how open one “should” be to new technologies, which subsequently might affect how one adopts new technology in the workplace. Venkatesh and Morris (2000) researched the applicability of *Gender* as a determining factor when analysing the adoption of digital tools and noticed that *Gender* was not a factor in itself, but instead, a component that can affect the different factors of the TAM. For example, men consider *Perceived Usefulness* more than their female counterparts when making decisions on technology adoption. On the other hand, women considered *Subjective Norms* to be a vital part of decision-making, which men did not. Venkatesh and Morris (2000) noticed differences in how men and women perceived factors connecting to both *Perceived Ease of Use* and *Perceived Usefulness*, hence providing a valuable contribution to the TAM.

2.3 Literature Review of Applications of the TAM

The TAM was created for application in the workplace but has later been applied to the retail sector and recently in a website-based e-commerce context (Cheema et al. 2013; Preeti et al. 2016; Rahman et al. 2013). Such studies have found that the perception of the technology's safety enhances acceptance for shoppers and workers alike (Gefen et al. 2003; Venkatesh, 2000). Trust is generally considered crucial in economic exchanges (Gefen et al. 2003). Online vendors face difficulty proving trustworthiness, which reduces the comfort for the buyer (Gefen et al. 2003).

The interface of the online channel plays a vital role in many aspects of the transaction. A simple interface will accommodate the *Objective Useability* and increase trust, improving technology acceptance (Cheema et al. 2013; Gefen et al. 2003). Gefen et al. (2003) did not find a strong relationship between the familiarity of the seller and trustworthiness, they do

propose this be further investigated in future research. Another factor increasing the perceived trustworthiness of an online vendor is structural assurances, such as official external guarantors (Gefen et al. 2003). The notion of trust did increase the *Perceived Usefulness* of the technology in online shopping (Gefen et al. 2003). Other authors have further supported this hypothesis (Cheema et al. 2013; Preeti et al. 2016).

Preeti et al. (2016) studied the extension of the framework to see if the scope of the TAM factors could be applicable in other sectors, specifically to website-based e-commerce. It was noted that trust has a significant impact on *Perceived Ease of Use*, which can subsequently affect customer engagement in e-commerce (Preeti et al. 2016). Trust was further shown to be a significant factor in aiding *Perceived Usefulness* (Gefen et al. 2003; Preeti et al. 2016). Both *Perceived Usefulness* and *Perceived Ease of Use* were confirmed to promote customer engagement in e-commerce, hence offering an extension to the scope of the TAM (Preeti et al. 2016). Enjoyment, customer attitude, and intention to shop further affected customer engagement in website-based e-commerce (Preeti et al. 2016). Cheema et al. (2013) found that *Perceived Ease of Use* and *Perceived Enjoyment* positively affected adoption intentions of online shopping. However, they could not find any correlation between *Perceived Usefulness* and such intentions.

Rahman et al. (2013) found *E-Attitude*, *E-Risk*, and *E-Enjoyment* to be significant factors in predicting e-commerce behaviour. These factors are derived from the original TAM factors (Rahman et al. 2013). The authors described how behaviour could be traced back to the intention to perform a particular behaviour, which can be derived from attitudes and norms. *E-Attitude* is the overall level of favorability a consumer has towards external stimuli. *E-risk* is the perceived risk connected with online shopping, and *E-enjoyment* is the enjoyment of

using new technology. It was seen that *E-Attitude*, *E-Risk*, and *E-Enjoyment* all were found to be significant factors which predict e-shopping behaviour. Hence, Rahman et al. (2013) explained how the derivative approach to the original TAM factors can be used to broaden the scope of the TAM to explain e-commerce behaviour.

Rahman et al. (2013), also added *E-Usefulness*, *E-Ease of Use*, *E-Trust*, and *E-Self Efficacy* as factors explaining the adoption of digital tools. They explained that *E-Usefulness* was defined as a perception that the consumer has which convinces them that this new shopping medium will lead to efficiency and is more beneficial than the old medium. They explained the *E-Ease of Use* as the perception that the customer holds regarding the level of difficulty of this new digital tool. These two factors directly affect *E-Attitude*. *E-Trust* was described as the consumer's expectations regarding the firm's online behaviour and whether the firm is reliable. Furthermore, finally, *E-Self Efficacy* refers to the consumer's perception of their capability to use a computer. These two last presented factors indirectly affect *E-Attitude*.

Rahman's approach to tracing e-commerce technology is visualised in *Figure 2*.

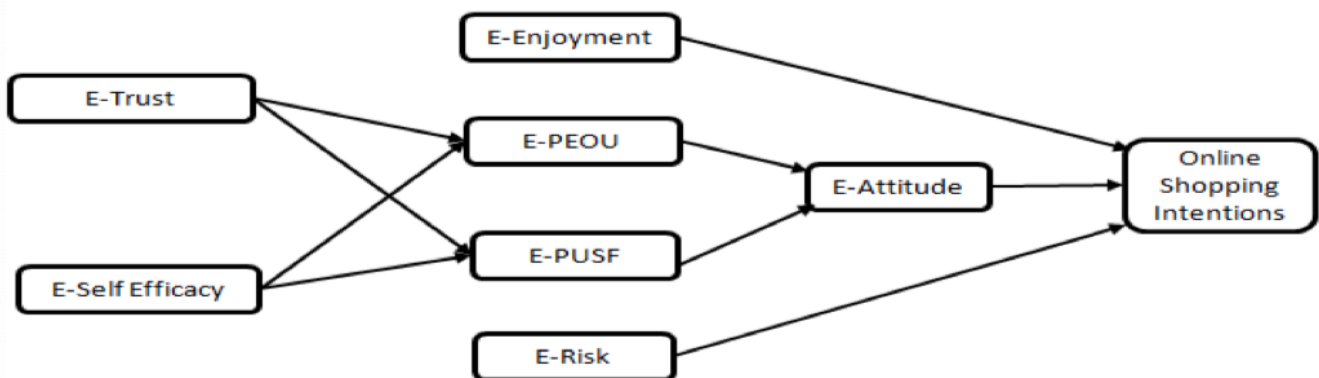


Figure 1. Proposed E-TAM Model

Figure 2, Proposed E-TAM Model (Rahman et al. 2013)

It was found that the scope of the TAM factors could, albeit to a different extent, explain e-commerce behaviour (Cheema et al. 2013; Preeti et al. 2016; Rahman et al. 2013). Whether the factors were rewritten to denote the derivative of the TAM factors or the original words for the TAM factors were used, the results of the articles all indicated that the scope of the original TAM model could be extended and applied to environments other than the workplace. This allowed for further framework analysis from a different scope than the original intended use.

In conclusion, the Technology Acceptance Model (TAM) has been widely used to understand technology acceptance in the workplace but has also been extended to examine customers' acceptance of technology in an online environment. As stated above, the model has been demonstrated to be helpful in the e-commerce setting to prove and explain the behaviours found in this thesis case study. Certain factors have proven to be more relevant in retail, including *E-risk* and *E-trust*, which can be derived from *Computer Anxiety*; *E-Enjoyment*, connected to *Perceived Enjoyment*. These were further investigated through a survey and semi-structured interviews.

2.4 Chapter Summary

This chapter has explained how the retail industry has digitalised and mobile applications' role in this. Given the importance of the adoption of these tools, the TAM has been discussed in combination with its modifications and applications within the scope of online retailing. The section includes a literature review that shows that the application of the TAM could be extended to explain technology acceptance within a retail context. Further research could hence regard the adoption of digital tools in the specific context of mobile applications.

3.0 Methodology

This chapter explains this paper's methodological choices and relevance to the research question. The research strategy is qualitative and the role of theory is abductive. The research design is defined as a single case study with different methods of data collection; semi-structured interviews and self-completion questionnaires. The data analysis is explained, and the limitations, objectivity and ethicalities of the case study are discussed. Flowcharts illustrating the methodology, the interview guides, and the self-completion questionnaire are available in Appendix 1.

3.1 Research Strategy

This paper aims to research factors that affect and influence the technological acceptance of retail apps. Hence the thesis focuses on applying the pre-existing framework of the TAM to the social phenomena of online shopping (Bryman & Bell, 2015; Hagberg & Jonsson, 2022). The chosen research strategy is qualitative, which was conducted through a single case study (Bryman & Bell, 2015). The qualitative strategy is best suited for this thesis as it allows for semi-structured interviews and participant observations to gain a greater in-depth understanding of the customers' perceptions. By identifying patterns from the interviews and the results from the self-completion questionnaire, new theoretical insights can be generated, providing valuable contributions to future research.

It is essential to understand the role of theory as it plays a large part in the methodological choices made. This thesis has an abductive relationship between theory and the real world, where the research emerged out of pre-existing literature and frameworks but continued to expand after further knowledge was garnered from the initial data collection of the case study (Dubois & Gadde, 2002). Based on the research question and the role of theory, this thesis is

in line with the abductive research approach, as the authors develop the existing research to advance future research (Dubois & Gadde, 2002).

3.2 Research Design

The single case study was chosen as it is an efficient and suitable tool when exploring social and complex phenomena in a practical context, as it provides a greater understanding of factors affecting technology acceptance and the opportunity to generate new knowledge (Yin, 2017). The case study provides the research with the crucial aspect of the customers' perception of the app, which connects the framework of the TAM with the practical adoption of the app.

The case study was conducted in collaboration with IKEA Denmark. IKEA has previously been the subject of several case studies due to its unique business model (Hagström & Jonsson, 2022; Jonsson, 2007) as well as due to its work within digitalisation (Hagström & Jonsson, 2022; Hultman, Johansson, Wispeler & Wolf, 2017). A single case study is suitable when collaborating with a single company, such as IKEA, as it allows for in-depth data collection (Yin, 2017).

3.3 Data Collection

The data collected for this essay was divided into two stages. Stage 1 provides the basis for the main data collection and the background of the case study through interviews with two teams at IKEA. Stage 1 also provides the context of IKEA's app development which provides a further understanding of the case study. Furthermore, reconnected to this thesis's role of theory, these interviews garnered information contributing to and altering the development of the research question. Stage 2 focused on collecting data from the field, mainly through semi-structured interviews and self-completion questionnaires. In addition, participant

observations were made. By integrating these multiple data sources, the authors could corroborate the findings and compare and analyse the different perspectives, mitigating the risk of misinterpretation and flawed conclusions (Yin, 2017). The two stages are visualised in *Figure 3* below.

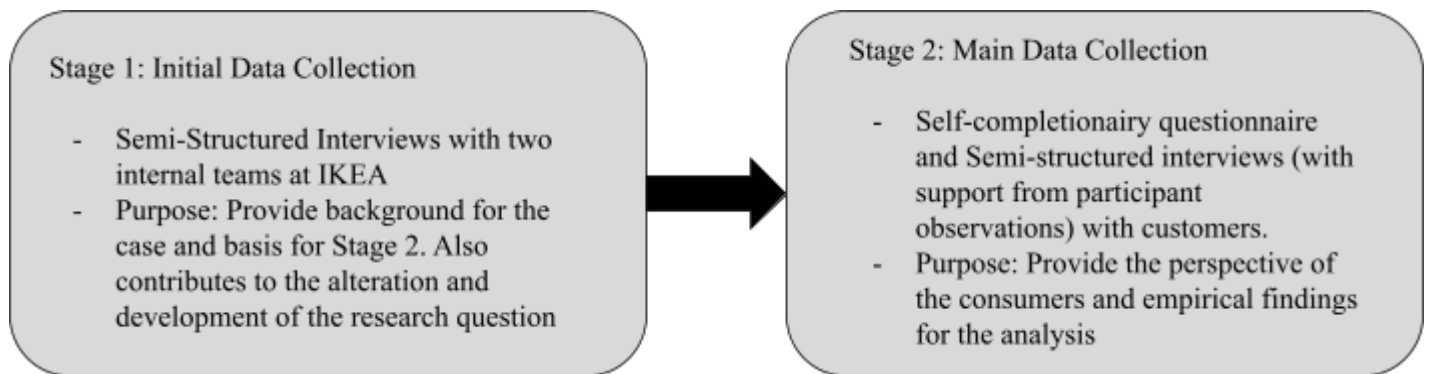


Figure 3, Visualising the relationship between Stage 1 and Stage 2 of the data collection

3.3.1 Stage 1: The Initial Data Collection

The authors interviewed 2 internal teams at IKEA to understand the development and strategies behind the app and the internal work processes. The context that is provided by this data collection is crucial in order to understand the development and relevance of the results. The insights from these interviews also provided the authors with a further understanding of the situation at IKEA, the ambitions and processes behind the app, which helped further the research question.

3.3.1.1 Semi-Structured Interviews

To gain a good understanding of the case company, the interview design constructed for the IKEA teams must provide valuable insights and an in-depth understanding of the internal processes and ambitions of the app developers and other relevant teams. The interview design follows the semi-structured interview guide, which allows for flexibility when posing questions and the opportunity to pose follow-up questions, resulting in comparable answers

and allowing for extensive data collection (Bryman & Bell, 2015). The semi-structured approach could minimise biases and provide an additional chance of comparability (Bryman & Bell, 2015). The interview guides are in Appendix 2, 3, 4 and 6.

The semi-structured interviews were conducted with the *Ingka Digital App Developer Team* and the *DK Digital Team* in order to obtain insights on the processes of developing and implementing the app. Three interviews were conducted. Firstly, two members of the *Ingka Digital App Developer Team* were interviewed on the 18th of April 2023. The second interview was conducted with four members of the *DK Digital Team* on the 19th of April. The third interview, which was a follow-up interview from the first one, was conducted on the 25th of April with one of the previous interviewees from the *Ingka Digital App Developer Team* filled the knowledge gaps from the first interviews. All the team members were chosen due to their relevance for the thesis. Due to geographical restrictions, the interviews were conducted through the digital application Microsoft Teams. To ensure proper data collection, the entire interview was taped and later non-verbatim transcribed, which all participants were aware of and consented to.

3.3.2 Stage 2: The Main Data Collection

The purpose of the main data collection was to gain the customers' perspective, to further understand the individual consumer's technology acceptance. The main data were collected through two different methods; self-completion questionnaires and semi-structured interviews which were supported by additional participant observations. Based on insights from the previous interviews, the observations were made throughout the IKEA store, specifically focused on the checkout area. The data were supported by several participant observations made whilst interviewing the customers. The customers at IKEA were sampled through a non-probability convenience sample (Bryman & Bell, 2015), and the data collection was

conducted at IKEA's store in Taastrup, Denmark. This sampling technique has primarily been chosen due to its practicality and feasibility. (Bryman & Bell, 2015). The main data collection was conducted over the duration of 1 day. The self-completion questionnaire and the interview guide are in Appendix 5 and 6, respectively.

3.3.2.1 Self-Completion Questionnaire

The main purpose of the self-completion questionnaire was to get additional, structured data collected from a large sample to gain various perspectives with a high level of anonymity to encourage honest responses. This allowed for a greater understanding of the consumers' perception of the app and which factors could sway them towards adopting it into their shopping experience and everyday life. To ensure a sufficient quantity of answers, the self-completion questionnaire was conducted online through the digital tool; Google Forms, with a scannable QR code to simplify the answering process.

The self-completion questionnaire was designed with mostly closed questions to minimise the risk of misinterpretation and reduce the time spent to minimise respondent fatigue (Bryman & Bell, 2015). This self-completion questionnaire contained different types of questions to keep the participant engaged. The questions were presented in a consistent manner in order to minimise the risk of confusion among the participants. Likert scales, Dichotomous questions and Multiple-choice questions were used to facilitate the understanding and to facilitate the pre-coding of the responses. Before distributing the self-completion questionnaire, a pilot survey was conducted to ensure the quality of the questionnaire and sent out to 7 respondents. Participants of the pilot survey were retrospectively consulted on their comprehension of the clarity and formatting of the questions, their time spent completing the questionnaire and if they encountered any issues. The questionnaire was subsequently adjusted.

The self-completion questionnaire was based on the TAM, previous applications of the TAM and insights from the interviews with IKEA. Factors from the TAM have been adapted to fit this study's application and purpose. Topics related to safety, risk, inspiration, ease of use and functionality were considered. For example, one of the questions aimed towards the app's users, "*I find that the IKEA app is a source of inspiration*", was connected to the *Perceived Enjoyment* derived from the TAM and the interviews with IKEA where inspiration within the app was discussed. The self-completion questionnaire structure can be found in Appendix 5.

The perception of the app differs depending on whether or not the customer has used the app before. Therefore, the self-completion questionnaire is programmed to present different questions depending on whether the recipient is a user or a non-user. The non-users were divided into two sub-groups, those open to downloading the app and those not; each was presented with tailored questionnaires. The final results divided the pre-coding of the questions into these three divisions to minimise misinterpretations of the results. By using Google Forms, the questions were conditionally coded depending on what group the participant belongs to. To further visualise this division, see the flowchart in *Figure 4*.

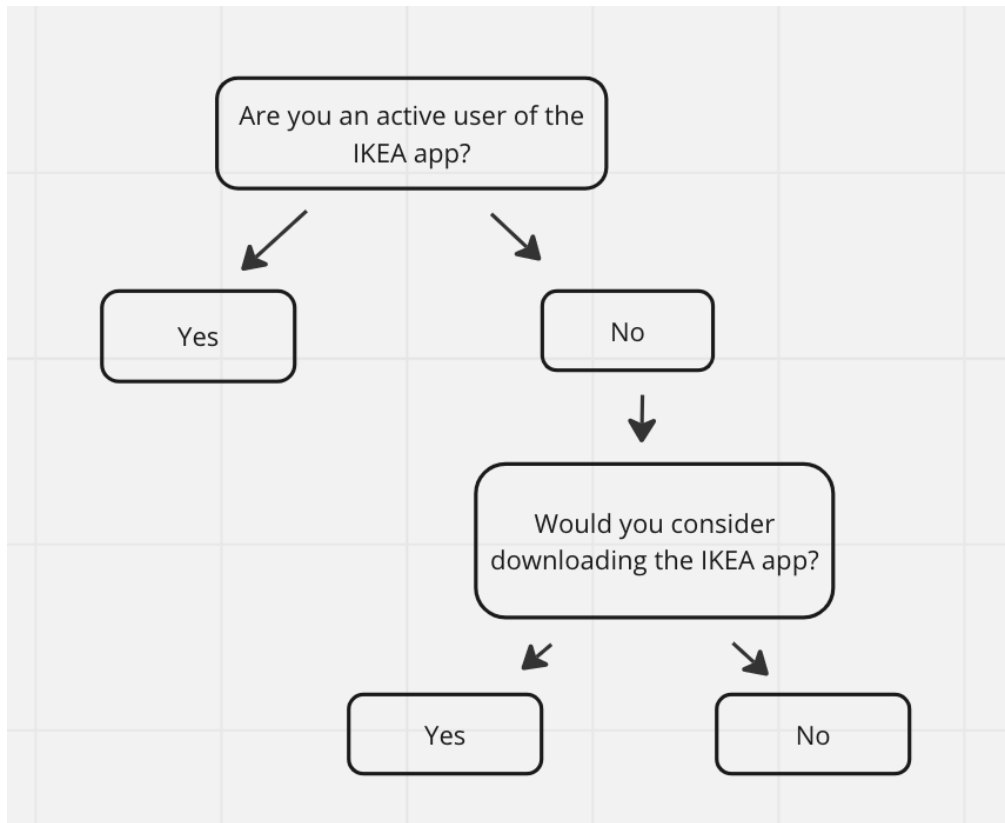


Figure 4, Flowchart illustrating the division of the customer segmentation

3.3.2.2 Semi-Structured Interviews

The semi-structured interviews provided an in-depth perspective as the authors could probe and adapt the questions aligning with the areas of interest from the self-completion questionnaire. This mitigated the risk of information gaps. The interview guide was based on the questionnaire, leaving room for researchers' observations of the consumer, more extensive answers, and follow-up questions. The authors implemented a two-person interviewing approach with the customers to enhance the quality of the semi-structured interviews and the data collected. One interviewer conducted the interview whilst the other recorded detailed notes. The insights from the interviews were cross-checked between the two interviewers after each interview. The field day resulted in 35 shorter interviews, around 5-15 minutes each and aimed for an equal representation of the demographics. The interview guide can be found in Appendix 6.

3.4 Data Analysis

Due to the design being a qualitative case study, large amounts of data were necessary to provide a nuanced range of information to corroborate the findings and insights of the results.

The data analysis allows the authors to triangulate the findings from the semi-structured interviews, self-completion questionnaire, and supporting observations whilst comparing them to the theoretical background and internal insights from IKEA. Because this thesis conducted multiple forms of data collection through both self-completion questionnaires and semi-structured interviews, the data analysis is divided into two sub-categories to further explain the different approaches.

3.4.1 Data Analysis: Self-Completion Questionnaire

The data from the self-completion questionnaire of the customers were collected in a manner which could efficiently be coded and analysed to detect trends within the responses. The data preparation was therefore thoroughly discussed, as it was necessary to provide a suitable and quality-focused data collection to obtain reliable results (Berenson, Levine, Krehbiel, & Szabat, 2019). The self-completion questionnaire was conducted in Google Forms to allow for a simple approach of transferring the data to Google Sheets. This mitigated the risk of manual processing and human errors.

3.4.2 Data Analysis: Semi-Structured Interviews and Observations

The interviews with the teams at IKEA were recorded and later transcribed non-verbatim by all authors to capture the different perspectives and subsequently mitigate the risk of misinterpretations. The transcriptions were then coded based on relevant patterns to simplify comparing and analysing the different teams' insights and provide a holistic overview of the most important aspects.

The interviews with the customers were coded based on the adapted factors of the TAM and were analysed in accordance with the coding. Comparing different interviewees is feasible through a pattern analysis that allows the authors to compare various aspects of the business and different situational perspectives (Nowell, Norris, White, & Moules, 2017). The data from the self-completion questionnaire, customer interviews and participant observations were cross-analysed based on the factorial coding to find patterns throughout the data analysis. Thereby, the data collected could be analysed in-depth and further contribute with valuable insights.

3.5 Method Reflections

The chosen methodology of this thesis is subject to several limitations, which have been carefully discussed to mitigate the risks. Firstly, there are various limitations when conducting a qualitative research study (Bryman & Bell, 2015). The qualitative research was dependent on the researchers' interpretation of the data collected, which can introduce subjectivity and researcher bias into the thesis. This limitation was mitigated through an extended data summarisation and analysis process, with a majority of the authors being part of the interviews and a thorough discussion to mitigate the risk of misinterpretation. This limitation was important to mitigate to adhere to the reliability of the research.

When conducting a single case study significant limitations regard the generalisability and replicability of the research, which affects both the validity and reliability of the results. As this case study has been conducted in collaboration with IKEA at one store in Denmark, the insights of this thesis can not be assumed to provide generalisable contributions. However, it analyses the TAM within a specific context which measures the practical support for the literature. This can therefore extend the framework for the particular application of the IKEA app adoption and can provide valuable insights for future research.

Using convenience sampling when it comes to the consumers' data extraction can increase the risk of bias in the findings, which could limit the validity of the insights drawn from the population (Bryman & Bell, 2015). One important limitation to highlight is that the sample size of the self-completion questionnaire were 85 respondents and of the interviews, 35 respondents. The sample size could generally benefit from a more extensive range of respondents, which affects the overall results. For this case, however, the sample size was deemed to be sufficient. Although the authors aimed to attain a full range of demographics within the sample, certain demographics were overrepresented which could affect the reliability of the results. Another limitation of the data collection was that the interviews with the customers were not taped. This increases risk for author bias and misinterpretations. This risk was mitigated though having two interviewers present at each interview, and by cross-referencing the insights post interview.

Another limitation to consider is that the interviews were conducted in English, which is not the native language of most of the respondents nor the authors, creating a language barrier which could affect the interpretation of the questions and responses. This could affect the reliability of the findings and results. However, the authors tried to survey and interview a broad range of consumers and therefore gain multiple perspectives, which could mitigate the risk of biases. Another limitation of the study was that the fieldwork was solely conducted during one day, which increased the possibility that specific demographics or customer segments may have been overlooked. It is essential to keep all of these limitations in mind when interpreting the findings of this study as well as analysing the contributions for future research.

3.5.1 Objectivity of the Collaboration with IKEA

The objectivity of the research can be discussed as the case study has solely been conducted in collaboration with one company. This could affect the information that has been provided, create biases as well as affect the ethicality of the research. However, the research has been independently conducted without direction from IKEA. Before the fieldwork, the self-completion questionnaire was shared with a contact person at IKEA. This was to ensure the safety of their consumers, that no personal information was asked for and that the questionnaire conformed to what is allowed in-store. The content of the questions was not altered as they did not violate the customers' protection, hence objectivity was preserved.

The objectivity of the interviews with IKEA, can be further discussed as a manager or team leader was present and part of the interview. Due to the presence of their manager or loyalty to the company, they might omit certain information, which could affect the accuracy and validity of the thesis. Nonetheless, as these interviews were solely conducted to provide information for the background of the case study, the personal opinions of the employees were not the focal point. There is always a risk that the company's objectives and goals affect the research when collaborating with one specific firm. This, however, is something that has been thoroughly discussed throughout the research process. The authors are aware that the internal information provided by IKEA is information that they also allow for publishing and may therefore not be exhaustive. Yet, this may not be relevant to the research as the result was mainly based on the consumers' perception, not internal information.

To increase the ethical rigour of the case study, several ethical guidelines were set by the authors of the thesis. This includes ensuring the confidentiality and anonymity of all participants from the field day, obtaining consent and informing of any taping or note-taking,

and obtaining approval from IKEA to ensure that the self-completion questionnaire and interview questions adhere to IKEA's ethical procedures. The authors adhered to professional standards of ethical conduct and strived to avoid biases.

3.6 Chapter Summary

This chapter has focused on the methodological choices and the motivations behind these. Firstly the research approach chosen is the abductive approach, which integrates the agile relationship between the pre-existing theories and practical situations to generate new insights. The qualitative research strategy was explained, and the single case study was argued for. The different methods of data collection were presented. An explanation of the data analysis is also provided. The chapter concludes by discussing the limitations and objectivity of collaborating with IKEA.

4.0 Case Study

This chapter reflects on the relevance of IKEA as the chosen firm for this thesis' single case study and introduces. IKEA's digital transformation is briefly outlined, with an explanation of how IKEA's app was integrated into its value chain. Furthermore, semi-structured interviews with IKEA employees provided the thesis with an in-depth understanding of the creation and implementation of said app. The above provides a good understanding of the context at IKEA which is crucial when conducting and analysing the self-completion questionnaire and interviews. The customers of IKEA Denmark were surveyed and interviewed to understand how the previously presented theoretical frameworks regarding general technological acceptance could be reflected, extended or criticised in the specific context of app adoption.

4.1 Background to the Case Study

For the single case study to be valuable, the company examined should be at the digital forefront and preferably be a large international company that has worked with digitalisation thoroughly and for an extended time. The authors, therefore, reached out to IKEA. The company is the leading international franchise business within the furniture industry (Ingka, 2022). Ingka is the largest franchise of the IKEA Group, representing 89% of IKEA's sales, operating the stores, and controlling digital solutions (Ingka, 2022).

Digitalisation has been an incremental part of IKEA's progress in the last decade. The company realised the digitalisation of their services to be an opportunity for a more profitable future amid declining expansion in 2014 (Hagberg & Jonsson, 2022). The subsequent deeper digital integration of IKEA's business model led to the realisation that digitalisation is a larger concept than just finding new modes of selling goods; it is a trend that could have broader implications for the company (Hagberg & Jonsson, 2022). IKEA puts significant efforts into the innovation of digital tools and launched its company-specific app in 2019 (Ingka, 2022). As the company realised that the customer started utilising the IKEA app to search for goods both inside and outside the store, the company concluded that the digitalisation process, in particular the apps, needed to be further promoted and integrated into the value-creation processes of IKEA on multiple levels (Hagberg & Jonsson, 2022).

4.1.1 The Internal Teams

To garner insights into IKEA's digital processes, we have interviewed the Ingka App Developer Team and the IKEA DK Digital Team. The Ingka App Developer team works with innovating and developing the functions of the IKEA app. The team is not country-specific, as it works with the global creation of app functions. The IKEA DK Digital team is tasked with implementing the digital tools. The team's primary goal is to derive change for IKEA's

internal and external stakeholders. After the App Developer team has created a new function, it is sent to the DK Digital team in respective countries. As a digital pilot country, Denmark sometimes gets tasked to implement new tools that have never been introduced in other markets. Hence, the two teams combined have insights into large parts of the processes of creating and implementing a new function in the IKEA app, which provides the authors of this thesis with a holistic oversight of the digital value-creating process of the IKEA app.

4.1.2 The Digital Process

The App Developer team's processes can be roughly broken down into two phases; the *Discovery Phase* and the *Delivery Phase*. The first phase represents when the team discovers and researches *what* function to create, and the second phase explains *how* they will develop this function. This process can be reflected in theory regarding organisation learning presented by March (1991). It is noted how a typical learning process for firms can be broken down into *exploration phases* and *exploitation phases*. The exploration phase refers to searching for and experimenting with new solutions, and the exploitation phase regards the implementation and refinement of old processes from the light of the findings in the exploration phase (March, 1991). This learning process has since been applied to different sectors of innovation (Hagberg & Jonsson, 2022) and can be compared to how the Ingka App Developer team works with developing new app functions.

Hagberg & Jonsson (2022) stated that IKEA has worked with their digitalisation as a broad concept with different transformations throughout the value chain. This notion is also reflected in the insights from both teams interviewed, where they both discuss how the app has a more important place in the consumers' life than simply a measure to buy goods. The teams discussed the app's value as a source of inspiration and as a way of facilitating the in-store experience through shorter queues and discussed the source of inspiration as a

secondary purpose of the app. Employees at IKEA noted that if consumers feel that the app inspires them, they are more likely to keep it downloaded on their smartphone, leading to more clicks and more time engaging with IKEA products, subsequently driving sales. Hence, inspiration can be seen as a driver of sales and, therefore, a secondary purpose of the app. Furthermore, if the consumer finds the app to be a source of continuous and updated information, all of which create value through different customer interactions. This view of the app being a value driving aspect of IKEA's business model is validated in Interview 1 as one of the interviewees noted that "Users of the app have a higher order value, better engagement and are more loyal to the brand" (Member of the App Developer Team, 18 April 2023).

The primary purpose behind creating new technological solutions at IKEA is to ensure value-creation towards their customers. If the app and its functions are left unused, meaning that the customers are not accepting the technology, then no value is created, and the investment is lost. During the interviews, the Ingka App Development team described that they experience failure if they build an objectively perfect app but gain no users. One of the Team members stated that sometimes the factors that influence technology acceptance at IKEA can be found outside the technology itself, for example through store-personnel actively marketing the app throughout the warehouse. The team member states: "The acceptance of technology isn't always the technology itself" (Member of the App Developer Team, 18 April 2023). Therefore, the users' perception and adoption of the app are at the centre of the development process. Hence, the aspiration is to create a successfully implemented and accepted app. During the discovery phase, they set goals for their success by utilisation of the specific functions of the app users. This measurement will impact the decisions to continue implementation and development or to cease the function.

Both of the teams continuously set goals for projects to evaluate their success. IKEA DK Digital works continuously with the set goals and ambitions of IKEA globally and ensures that they fulfil these goals by tracking appropriate KPIs for each project. The team also surveys consumers in-store to gain perspective on their projects' success and the customers' demands influencing their future projects. The App Developer team tests and evaluates the functions' efficiency and the consumers' attitudes towards these functions. They gather this feedback through multiple channels to receive significant flows of information. For example, they interview customers, use customer feedback and review the customers' usage patterns within the app. Combining the streams of information creates the ability to evaluate the new functions thoroughly and deliver more valuable functionality within the app. What is crucial to their ideas of improvement is the personal aspect of what customers interact with in their shopping experience and what the customer perceives as useful or inconvenient.

An example of implementing customer feedback into the innovation process is the "Shop&Go" function. The teams noted that queueing was inconvenient for the customers' experience at IKEA. Hence a function was developed to give an alternative to the classic form of in-store checkout, resulting in shorter queueing times and bypassing the issue. It was further noted how the function reduces cost by relieving some in-store IKEA employees from their previous tasks, decreasing employee costs. The App Developer team measures success through technology acceptance to ensure that the app and its functions create value.

From a long-term perspective, one employee with specific insights into the Shop&Go function even noted that the function will change consumer behaviour, where the consumer will change its connotations towards shopping at IKEA from being a lengthy and burdensome

task. Instead, the employee believes the function will make shopping at IKEA something which can be a quick pit stop and not a full-day activity, resulting in more frequent visits. For the App Developer Team, it is central that their focus aligns with the global IKEA vision, which not only relates to the previously noted ambition to improve customer engagement but also refers to creating “cross-over” customers. “Cross-over” customers use the app both in the comfort of their own homes and when they frequent the store. Whilst they have a substantial focus towards engaging current customers further, they also want to attract new loyalty members.

The background of IKEA provided valuable insights into the context of the team's ambitions and processes with the app development, which is crucial to understand in order to grasp the relevance of the results. This section entailed the development and increasing importance of the app for IKEA. As stated by one of the interviewees: “The future of the app looks bright” (Member of the App Developer Team, 18 April 2023). Below, the case specific factors and the results are presented.

4.2 Factors for the Case Study

The case results were divided and summarised based on factors derived from the TAM. Not all factors proved to be relevant to the research question. For the sake of the applicability of the TAM for the case at hand, certain factors were excluded or adapted to fit the purpose. The original TAM was created to fit the workplace, and the question at hand for this analysis regards retail app adoption. The factor, *Voluntariness* was excluded, as IKEA expressed through the interviews that the aspiration for the app was to be beneficial for those wishing to use it. IKEA stated that in-store technology would not be a mandatory exercise as this can cause inconvenience for some of their customers. After discussions among the researchers,

the lack of objectivity regarding what quality concerning shopping was detected; hence the factor *Output Quality* was no longer seen as a relevant factor for the analysis.

The adapted factors include *Task Accuracy*, stemming from *Job Relevance*, altered to fit the tasks of a retail app, which can be more subjective than its previous application, measuring a technology's fit for more tangible purposes in a workplace. The factor *Result Demonstrability*, if the same result can be produced with another technology, did not fit a retail app as the result is not necessarily tangible, with many vague elements to create an accurate measure. Hence, this factor was adopted for *Value Replicability*, investigating if the value sought and created can be replicated. *Computer Self-Efficacy* was adapted to fit technology, in general, to be applicable for apps as the medium and the system affects the outcome, now named *Technology Self-Efficacy*.

The factor *Perception of External Control* was transformed into the *Perception of External Resources* as control stems from the environment having decided on the technology to use rather than offering it. *Computer Playfulness* did not fit the application on apps and was therefore adapted to *Technology Playfulness*. The factors *E-Risk*, *E-Trust* and *E-Enjoyment* are derived from *Computer Anxiety* and *Perceived Enjoyment*, respectively and were found in previous applications of the TAM on e-commerce (Rahman et al. 2013). In some of the previous literature, trust has been considered a factor affecting risk (Gefen et al. 2003), and will thus do this in the proposed model for the case. The final factor to be adjusted is *Objective Comparability*, previously known as *Objective Useability*, modified to be able to compare the different technologies offered by IKEA. Neither was the relationship between the *Perceived Ease of Use* and *Perceived Usefulness* investigated, as this was not deemed to fit the scope of this study.

Hence, the factors explored in this case study are visualised below in *Figure 5*. Some factors have been changed or altered to fit the scope of the thesis. This figure will be revisited in the discussion, where the findings of this case study are incorporated into this illustration.

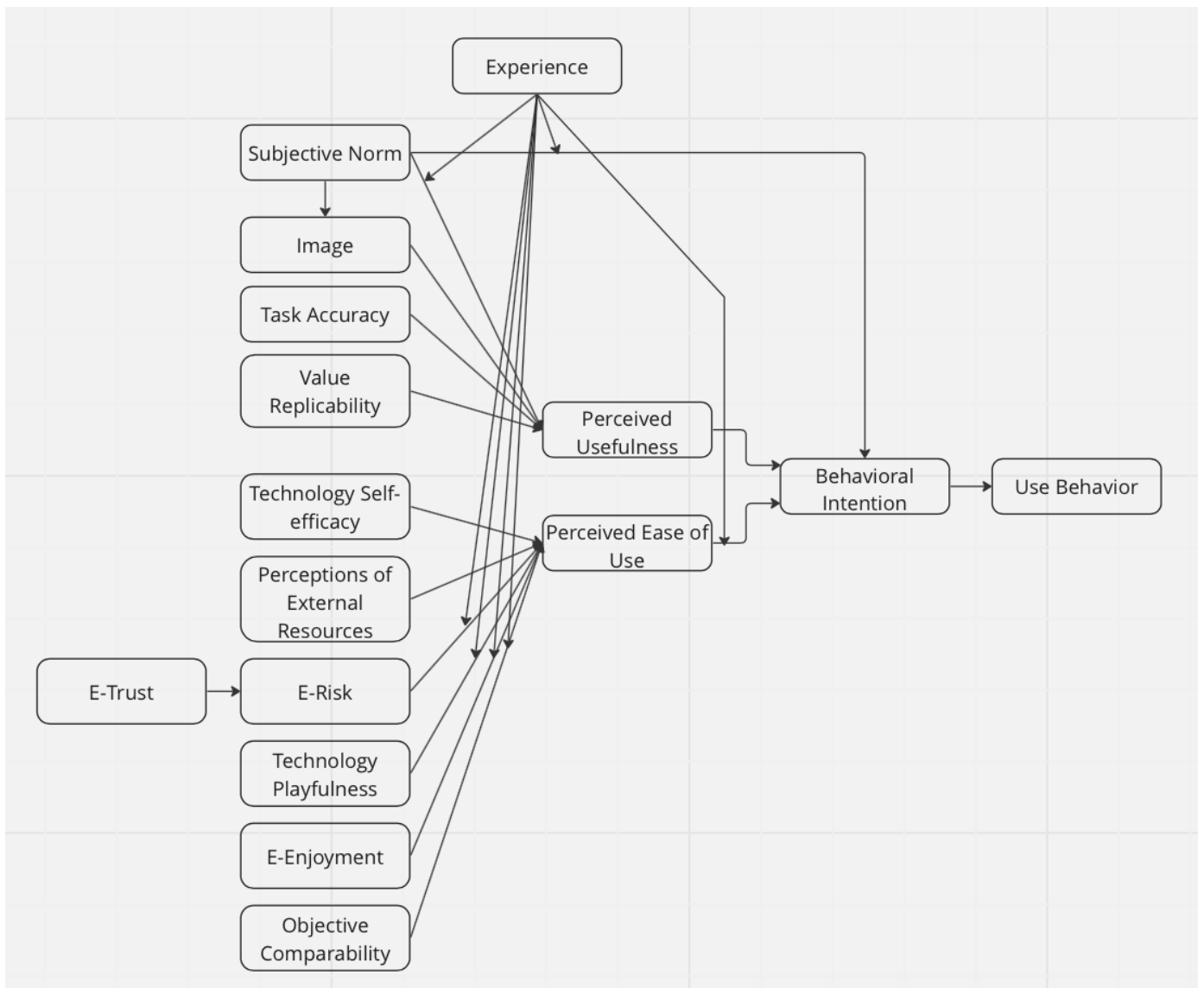


Figure 5, Modified framework for app adoption, primarily adapted from Venkatesh & Bala (2008) with insights from Cheema et al. (2013), Gefen et al. (2003) and Rahman et al. (2013) incorporated.

4.3 Case Study Result

4.3.1. Self-Completion Questionnaire Demographics

The self-completion questionnaire resulted in 85 responses divided into 59.5% non-users and 40.5% users. Of the 85 responses, 45.9% were men, and 54.1% were women. The majority of female respondents were users (57.1%). 52% of non-users were female. The distribution of gender and customer segmentation is illustrated in *Figure 6*.

Number of Non-users and Users divided by gender

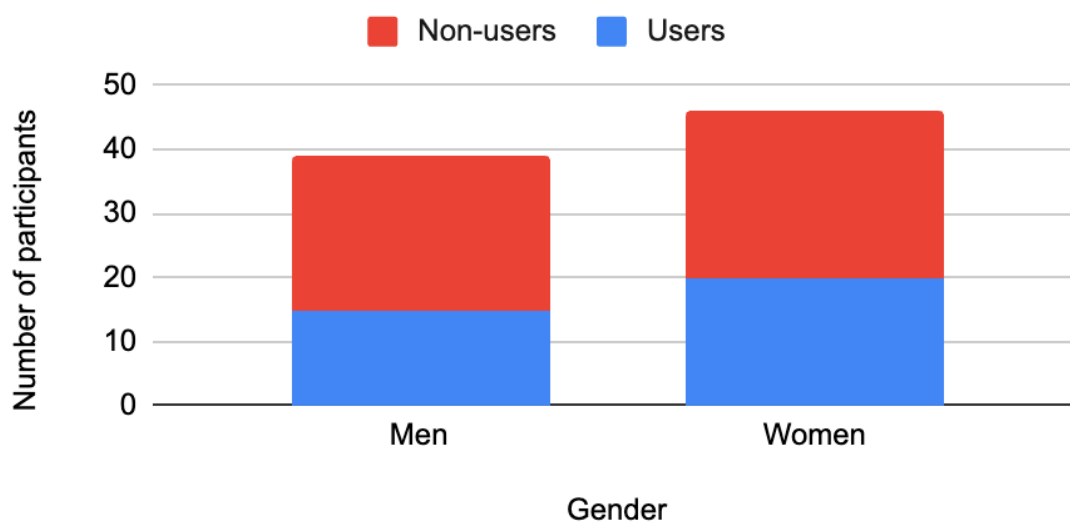


Figure 6, Visualising the User and Non-user rate based on gender

The age demographic ranged from 18-75, with no responses above 75 years old. The age distribution based on gender is visualised in *Figure 7*. Notably, the number of men significantly dropped in the age range above 56 years old.

Number of participants based on age divided into gender

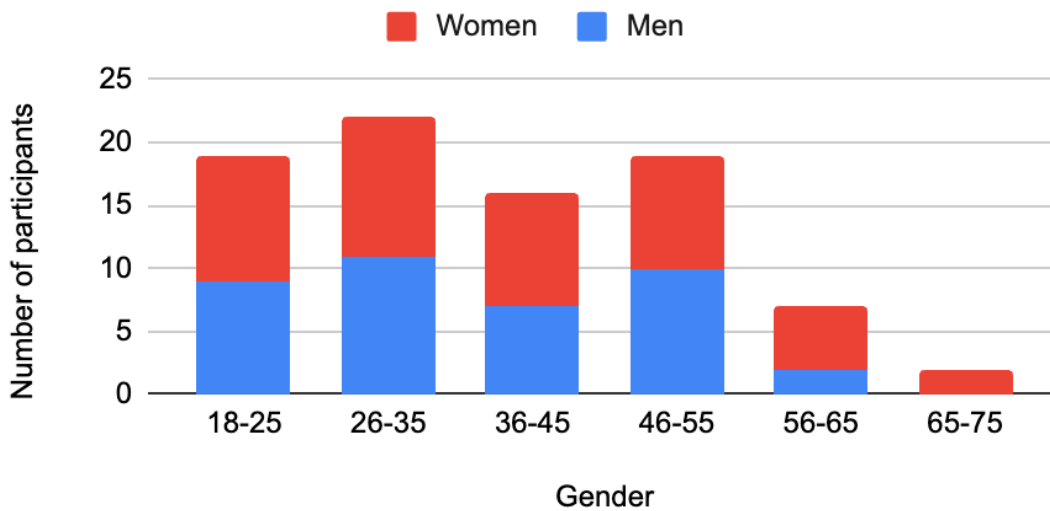


Figure 7, Visualising the age groups based on the genders

The customer segmentation can be further visualised according to gender, age and usage which is visualised below in *Figure 8*. It can be noted that the majority of the respondents were in the age groups between 18-55.

Users and Non-users based on gender and age

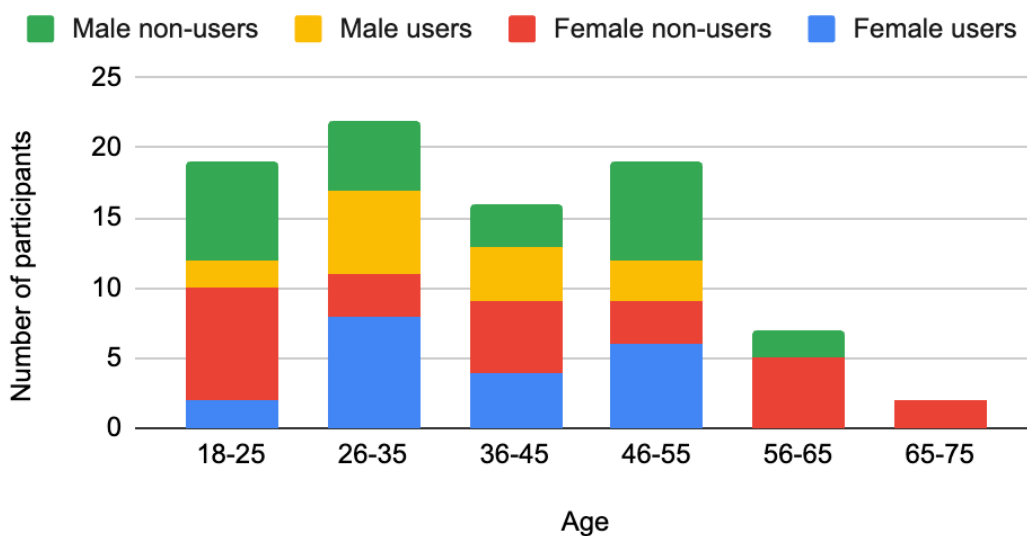


Figure 8, Visualising the age groups divided into gender and customer segmentation

4.3.2 Compiled Results

The results of the case study are presented in the section below and divided into the modified factors. Some of these results were not further investigated in the upcoming sections; instead, the most important insights were focused on. The upcoming section introduces the results from the self-completion questionnaire, the interviews and the observation coded according to the different factors. The summarised results and percentages of the self-completion questionnaire were divided into the different customer segmentation, “Users”, “Non-users consider using the app”, and “Non-users not considering using the app”, and can be found in Appendix 7, 8 and 9.

Subjective norm

The factor *Subjective Norm* was studied to investigate how the app's usefulness for its purpose affects app adoption. Among the app users, which constituted 59.5% of the respondents, the majority (85.7%) intended to make purchases when using the app, and a majority also agreed or strongly agreed that the app is a source of inspiration (65.8%). They perceived the app's functions as useful, particularly in terms of convenience and simplifying the shopping journey. Non-users, which constitutes 40.5% of the respondents, generally found the app to be helpful with 55.6% of the non users who considered using the app deeming it helpful when purchasing products and 70.4% thinking it could facilitate the overall in-store experience, alas, not downloading the app. However, some non-users interviewed did not understand the app's purpose nor perceive it as beneficial for their perception of the app's purpose. They often referred to the ability to find everything they needed from in-store visits or the website.

The greater the variety of purposes a user could find of the app, the more often they tended to use it. For example, the interviews showed that customers who used a broader variety of functions, tended to view the app as a facilitating tool for multiple purposes and using it more often. The way different users use the app differs can also be seen in the results, with 65.7% of users reporting using it in-store and out-of-store, 20% using it only in-store and 14.3% using the app solely out-of-store. The interviews revealed that the app's purpose differed depending on gender. Men tended to perceive the app's purpose to simplify their shopping experience, while women wanted to use it for inspiration and planning. Users could use the app before and during their visit, but its functions had no purpose after the visit. As a result, many users deleted the app after leaving IKEA.

Image

The factor *Image* was analysed from different perspectives. One result states that a large majority of non-users did not know about the app, with 71.4% of the non-users not considering the app and 69% of the non-users not considering the app reporting this. The lack of knowledge could be connected to the *Image*, as the majority of the non-users had no pre-existing notion of the app. Of the non-users considering the app, 37.9% reported their lack of knowledge as the deterring factor keeping the individuals from downloading it. Out of this group, most people disagreed or were neutral to the statement that they perceived that the app would be difficult to use. Of those considering the app, 70.4% believed it could simplify their in-store experience.

From insights derived from the interviews with the consumers, a trend was noted that the older generation, particularly women, did not have the app due to perceiving it as being too difficult to use, which could be connected to their self-perceived low computer proficiency.

From the self-completion questionnaire, all users agreed or strongly agreed that the app is currently easy to navigate, however, 19% of the users agreed or strongly agreed to have had a pre-existing notion that the app would be difficult to learn how to navigate. This initial perceived difficulty in learning can be corroborated by the interviews, especially for the Shop&Go function, as it was reported that it was perceived to be challenging to learn how to use this function. However, after using the app for the first time, the majority found it easier to use than expected. Hence their *Image* of the app changed.

Task accuracy

Task Accuracy's effects were measured to see if this factor could improve app adoption. The respondents found various features to be the most helpful for their shopping experience. Among the most useful features, the Shop&Go function was noted to be the most helpful (74.3%). The second most helpful feature was the search function (77.1%). 22.9% of the users also found the augmented reality tool helpful. The findings showed that 57.1% of non-users considering using the app believed it would aid in their search for products and information and be helpful for purchasing goods. The main features that could sway non-users considering using the app would be a simple checkout process (58.6%), easy access to product information/reviews (44.8%) and exclusive app-only deals/discounts (51.7%). Whilst interviewing younger non-users, most respondents stated that discounts and deals would be the most effective incentive to download the app.

Among the app users, 94.3% agreed or strongly agreed that using it saved them time and effort. Moreover, 91.2% of the users found that the app provided relevant information, albeit to different extents. In the interviews, most users said the app made their shopping journey more feasible and manageable. After using the Shop&Go function, users reported a more

satisfactory and straightforward shopping experience and that the app aided the task of checking out. Leaving the store more satisfied increased the chances of the user returning to the store more often.

Many interviewees, particularly women, who used the app reported that the functions in the app facilitated planning and provided inspiration. Men tended to perceive their visit to IKEA as a burdensome task, finding that the app could make their journey more efficient. 74.3% of the users agreed or strongly agreed that the IKEA app has changed the way they shop at IKEA. However, non-users tended not to see how the app would help with their task of visiting IKEA. Hence, they did not find the app relevant or beneficial as it would change the traditional shopping journey and not add value to their individual shopping experience. This trend was more prominent for women. One interviewee, a single mother with two children, stated that the app worked great for planning the visit, however, in-store, her primary task was to successfully finish her shopping whilst managing her children. The interviewee stated that using the phone whilst shopping would obstruct her shopping journey as it added an extra element to keep track of. Women were generally more inclined to seek out staff for help than men.

Value Replicability

In the self-completion questionnaire, most of the users mainly used the app to browse products (65.7%), check availability (62.9%), and make purchases (34.3%). The value creation of these functions can all be done through the website or in store-personnel, making the app's value replicable. Currently, the only part of the app where the value is not replicable is the Shop&Go function, and only 40% of the users noted using the app for this function. As

for the non-users, a majority of consumers, 58.6% (considering non-users) and 57.1% (non-users, not considering), preferred to shop in-store.

The non-users noted that they could be swayed to use the app if it had more unique functions. From the interviews, many noted that the website could provide the same value as the app. They said they gained a better overview and perceived the interface preferable on the website. One user in the interviews indicated that they would rather have used a hand-held scanner instead of the app to mitigate the security risk that an app brings and save battery on their phones. From insights from the interview, the older generation generally noted that they did not need any technology. The app's value seems replicable, and the aspects of the app that were not replicable (Shop&Go function) were not widely used.

Technology Self-Efficacy

According to the self-completion questionnaire, the percentage of users (94.3%) and non-users considering using the app (100%) that had used other retail apps in the past was higher than amongst the non-users not considering the app (61.9%). Furthermore, 19% of the non-users not considering the app thought that the app would be difficult or very difficult to use, and 14.3% thought the app was challenging to learn how to use. 48.1% of the non-users considering the app perceived it as challenging to use and reported this as one of the main concerns with the IKEA app. Most interviewees considered themselves technologically proficient, and it was observed that those who identified themselves as highly computer-literate were more likely to use multiple functions of the IKEA app. However, some non-users, particularly older women, defined themselves as having a low *Technology Self-Efficacy*, making them reluctant towards app usage.

Perception of External Resources

The observations found that when non-users accidentally went to the Shop&Go checkout counters, men were generally more likely to download the app on the spot and check out. Personnel were present around this area to inform and assist new users, trying to sway the non-users to use the apps. Some non-users, particularly older women, noted that they would be incentivised to use the app when it has become a norm, as they could then ask anyone for assistance, not just personnel. These interviewees stated that after the app becomes normatively used, others would occupy fewer resources, and more help would be available. From the interviews, a general trend was noted that the non-users did not know how they would learn about the app and hence perceived a general lack of external resources to aid them with the app. Some participants stated the issue of not finding outlets to charge their phones and, therefore, would not use the app due to the risk of their phone battery dying.

E-Risk

According to the self-completion questionnaire, a majority of users (68.6%) strongly agreed they feel safe while using the IKEA app. The reasons contributing to their perceived safety when using apps are their familiarity with the brand IKEA (91.4%) and the easily navigated interface (74.3%). Easily accessible and clear information on the storage of personal information was also a safety-enhancing feature reported by 28.6% of the users. Non-users tended to have less trust and perceive more risk when using apps, a trend predominant amongst men. 57.1% of non-users who do not consider using the app report a lack of trust as the primary reason for not using it. Amongst the non-users considering the app, 25.9% reported that their security and privacy are one of their main concerns. During interviews, it was found that most users were aware that their personal information was being stored, which caused concern for some, especially younger men. Women tended not to express as much

concern regarding the storage of personal information. Some men conveyed their preference to use the website as cookies can be declined, for example one man stated “on the web it is easier to wipe a digital footprint” (Male, 32, interviewed at IKEA Taastrup, 5th of May 2023).

Technology Playfulness

The self-completion questionnaire found that 55.9% of app users had no difficulty learning how to operate the app, and 26.5% had little difficulty learning how to operate it. On the other hand, of the non-users who would consider using the app, 14.3% agreed that the app was difficult to learn how to operate. From the interviews, the app users could be divided into two groups: those who “played” with the app, using multiple functions, and those who exclusively used specific functions. Active users experimenting with numerous functions found learning how to use the app easier. Amongst the non-users who would consider using the app, those who expressed an interest in multiple functions and purposes, such as finding inspiration and using the augmented reality tool, perceived the app's learning curve to be less steep. In comparison, those interested in one specific function, such as Shop&Go, expressed less interest in "playing" with the app and perceived it to be more challenging.

E-Enjoyment

Among the users of the IKEA app, 57.1% agreed that their enjoyment of shopping at IKEA increased, and 20% strongly agreed with the same statement. Furthermore, 42.9% of the users agreed that the app was a source of inspiration, and 22.9% strongly agreed with the same statement. During the interviews, many users mentioned that multiple specific functions in the app increased their enjoyment. For example, the augmented reality tool was highly appreciated among interviewees when planning their store visits. The wishlist function was

also generally highly appreciated. Some interviewees reported that the available inspiration in the app was beneficial. It was noted that users who reported enjoying the app tended to use it more often and subsequently kept the app on their phones.

Objective Comparability

No evidence was found to support this concept in the survey. During the interviews, it was revealed that many customers preferred using the IKEA website on a computer over the app for shopping due to the limited screen size on the phone and a higher level of trust in web security. However, those customers who used the app's various functions found it to be more helpful and provide a better overall tool for their shopping journey.

Experience

All respondents agreed that the IKEA app was currently easy to navigate, but 14.7% of the users strongly agreed that they initially found it to have a steep learning curve. This suggests that experience with the app makes it easier to use. Interviews with employees and customers confirmed that the more a customer uses the app, the easier it is to adopt new functions within the app. Customers stated that using the app was easy after the first time. At the same time, employees at checkout reported that some customers had initial issues with using the app's different functions. After receiving assistance, they could use the app without problems.

4.3.5 Summary Table of Key Findings

Factor	Key Findings
<i>Subjective Norm</i>	
	Majority of app users (85.7%) had the intention to make purchases using the app
	Users perceived the app as a source of inspiration (65.8%)
	Non-users considering the app found it helpful for purchasing products (55.6%)
<i>Image</i>	
	Non-users had limited knowledge of the app
	Older generation, particularly women, perceived the app as difficult to use
<i>Task Accuracy</i>	
	Most users found Shop&Go and search function helpful
	Non-users considering the app believed it would aid in their search for products and information <input type="text"/>
<i>Value Replicability</i>	
	Users mainly used the app for browsing and checking availability, replicable through website
	Non-users preferred shopping in-store, considered the website providing similar value
<i>Technology Self-Efficacy</i>	
	Users and non-users considering the app had higher experience with other retail apps
	Non-users expressed concerns about the app's difficulty of use
<i>Perception of External Control</i>	
	Non-users expressed a lack of external resources to aid them with the app
<i>E-risk</i>	
	Users felt safe using the app due to familiarity with the brand and easy navigation
	Non-users cited lack of trust and security concerns as reasons for not using the app
<i>Technology Playfulness</i>	
	App users who explored multiple functions found it easier to use
	Non-users interested in multiple functions perceived the learning curve as less steep
<i>E-Enjoyment</i>	
	App users reported increased enjoyment and inspiration with the app
<i>Objective Comparability</i>	
	No evidence found in the survey, some customers preferred the website over the app
<i>Experience</i>	
	Users found the app easier to use with experience
	Initial difficulties were overcome with assistance

4.4 Chapter Summary

This chapter focused on the Case study and began by introducing the case and the background to explain the study's relevance. The case's background included insights from literature and internal interviews with two different teams at IKEA which provided a holistic overview of the app's development phases and implementation. The chapter introduced the results and concluded the key findings in a summary table.

5.0 Analysis and Discussion

This chapter focuses on analysing the results previously mentioned and discusses the various factors' relevance for the adoption of apps. The chapter derives the analysis from the factors to provide a foundation for the discussion. Each factor's result is compared to the theory, and examined in the light of the insights from the interviews with the IKEA teams when relevant. The factors' relevance to technology acceptance is discussed, answering the research question at hand. Valuable approaches for app adoption from a firm perspective are suggested based on this analysis. The interconnections between the factors found in this case study is also presented, extending the investigated framework and its scope.

5.1 Factors Discussed

The section below discusses each factor's relevance to the technology acceptance towards apps, the possible connection to previous research as well as any potential suggestions for future app development. The discussion follows the same structure as the previous results.

Subjective Norm

Subjective Norm, the technology's usefulness for its purpose, significantly influenced app adoption (Venkatesh, 2000). In the scope of the initial TAM, identifying the usefulness for the purpose of workplace-focused technologies was relatively straightforward due to their

efficiency-driven development. However, in the context of shopping, the clarity of purpose diminished as individual shopping purposes varied, ranging from inspiration to efficiency. Consequently, an app must cater to multiple purposes to be adopted by a wide range of customers. Therefore, the findings of this case study suggest that *Subjective Norm*, as recognised by Venkatesh (2000), may not be sufficient when analysing app adoption. Some customers perceived the app as useful in terms of enhancing shopping efficiency but lacked personal interest in such efficiency. Corroborated by the self-completion questionnaire, non-users cited the absence of a recognised purpose as the main reason for not downloading the app whilst reporting it to probably be helpful. Users found the app useful for their specific purposes, and the greater diversity of purposes perceived by customers, the more they utilised the app.

Gender differences were detected, with women finding the app useful for planning and inspiration, while men emphasised a more efficient in-store experience. This aligns with previous research on gender-specific factors (Venkatesh & Morris, 2000). However, the *Subjective Norm* affected both genders in our study, albeit influenced by the differences in purposes. What could be seen is that a majority of customers, both users and non-users, had difficulty seeing the usefulness of keeping the IKEA app after shopping. The lack of post-purchase usefulness often resulted in the app being deleted after leaving the store. Multiple team members of the DK Digital team noted IKEA's aspiration to ensure that the app stays downloaded on the customers phone continuously. Alas, we can notice a gap in firm aspirations and reality. To address this, a comprehensive cradle-to-grave approach is recommended when developing a retail app, focusing on implementing usefulness post-purchase. Incorporating features like receipts storage, warranty information, and care instructions in the app may extend app retention and motivate downloads. The analysis of

these results supports the findings of previous research that it is vital to understand the customers' preferences to build a fitting app and subsequently reap the possible rewards (Hänninen et al. 2018; Kim & Baek, 2018)

Image

Image, the pre-existing notions an individual had of the digital tool, was shown to be a vital factor in determining app adoption. For customers with a perceived average computer proficiency, awareness of the app's existence was a swaying factor for usage. It is important to note that the non-users with a perceived low computer proficiency did not start to use the app when learning about it. From the interviews, there was a prominent trend amongst the older female non-users that their perceived low computer efficiency was a barrier to app adoption due to the perception of a difficult app.

It is the general understanding that the older generation tends to have more of an issue with computer literacy than the younger generation. However, what is of interest for this thesis is the difference in the gendered approach regarding this factor. Some older men agreed with the preconceived notion that the app would be too difficult to learn, but older women predominantly voiced this issue. This suggests that the factor *Image* is influenced by gender. The connection between *Subjective Norm* and *Image* was proposed by Venkatesh (2000). The interconnections between the factors has hence been proven, and the gendered approach to *Subjective Norm* has also been demonstrated (Venkatesh & Morris, 2000). This is built upon in this case study by proving a gendered approach to *Image*, which might not be surprising as its interconnected factor already is established to be affected by gender. However, this gendered trend was not reflected in the younger generation. This may be due to gender-based expectations being more prominent in the older generation. Younger generations may have

increasingly similar preconceived notions about apps between genders. *Image* was therefore proven to be an important factor in app adoption. However, to paint the complete picture of app adoption and *Image*, it might be worth investigating the factor with a gendered perspective, primarily when concerned with the app adoption of the older generation. A company might create a more adoptable app by appealing to all genders through an *Image* perspective.

Task Accuracy

The results of the case study extended the scope of the factor *Job Relevance* derived from Venkatesh and Davis (2000) by redefining it as *Task Accuracy*, where the app's relevance for the task was discussed. This factor's importance towards an individual's app adoption varied depending on the customers' unique task at hand. Not every customer at IKEA had a primary task to shop, some interviewees stated that they genuinely enjoyed the shopping experience as a tradition, and some customers had other distractions, such as children that needed their primary attention. This implies that the app could be irrelevant for some users, depending on their subjective tasks and possible distractions prevalent in-store.

Many non-users considering the app thought that it could be helpful to complete tasks relating to finding products, information and completing purchases. However, as they had not yet downloaded the app, this helpfulness was not enough incentive to convince the non-user. It can be understood that the tasks of these individual customers may extend beyond these functions. This was investigated further in consumer interviews, where the majority of non-users noted that the app might be helpful for others. Still, they themselves enjoyed the experience of going to the IKEA store and would not want the app to disrupt their normal habits at IKEA. This trend was more prominent for women. Generally, women viewed their

visit to IKEA as more of an attraction. Therefore, different forms of value creation and tasks will be prevalent between the genders. Furthermore, most women using the app described the tasks they performed with it being inspirational or to plan ahead of the visit. On the other hand, men perceived visiting IKEA as a time-consuming and inconvenient operation, and the in-store efficiencies derived from the app aligned with the experience this segment desired. When informed that the app could simplify their shopping experience, men were more likely to try it out, hence the *Task Accuracy* became a swaying factor. This implies that the tasks relevant for individuals differ between customers, which must be incorporated into the app's different functions for it to be widely adopted.

These findings substantiate Wohllebe et al.'s (2020) findings, as the predicted efficiency gains and actual benefits were imperative contributing factors to the adoption of retail apps.

Customers using the app to facilitate completing their specific tasks were more satisfied and became more frequent shoppers at IKEA. Therefore the *Task Accuracy* is an important factor for customers' app adoption. These results moreover corroborate previous theories (Venkatesh & Bala, 2008; Venkatesh & Davis, 2000) that the derivative of *Job Relevance* is an important factor for technology acceptance, and the scope of this factor can be broadened to include apps. For a retail app to be properly adopted, the tasks relevant to the target group must be investigated. Furthermore, functions within the app must aid in completing these tasks for the users to adopt it.

Value Replicability

The technology acceptance factor *Value Replicability*, if the same result can be produced with another technology, was shown to be perceived as a significant factor in deterring consumers from downloading the app. The app was commonly compared to the website, and many

interviewees, both users and non-users, noted that they preferred using the website. Alas, many users noted that the benefits they got from the app could be imitated by the website or another digital tool. As for the non-users, the self-completion questionnaire found that a large majority of these individuals preferred to shop in-store. They noted that the app was not wanted or needed during their shopping.

Interestingly, some non-users noted that they might be swayed to download the app if there were more unique functions. Hence, the derivative factor of *Result Demonstrability* presented in the TAM (Venkatesh & Bala, 2000) was proven to be an important factor in this research, indicating that the scope of this factor could also be extended to explain the adoption of apps. These insights might be of value to firms in the retailing industry as the increased duplicability of the benefits derived from an app might be a factor swaying the consumers from downloading it. If a firm were to incorporate unique functions into its apps, app adoption might be facilitated.

Technology Self-Efficacy

The results show a strong correlation between *Technology Self-Efficacy* and the adoption of the app. The less digitally confident individuals perceive themselves, the less likely they are to adopt the technology. In contrast to the individuals with low *Technology Self-Efficacy*, a pattern emerged amongst individuals with higher confidence in their abilities within the system to more easily adopt it and explore more functions of it. Hence, the results of this case study suggest that Venkatesh's (2000) factor is relevant in the context of app adoption. Rahman et al. (2013) highlighted the importance of Venkatesh's (2000) factor and noted that firms should improve their offered technology to boost individual users' confidence as a

remedy to the issue. These pre-existing results were supported in the practical setting of this case study.

Rahman et al. (2013) studied website-based e-commerce, in comparison to this study which was done regarding mobile-based e-commerce (see Glossary in Appendix 10). This research noted that some individuals were comfortable using websites for e-commerce but lacked the computer literacy to use smartphones for app-based purchases. This lack of *Technology Self-Efficacy* led individuals to not download the app. To mitigate the impact of *Technology Self-Efficacy* as a deterrent, firms should address both the *Technology Self-Efficacy* that the customer feels toward both the app itself and to the smartphone. Practically, there may be little to do for a firm regarding individuals' lack of confidence in using both smartphones and apps. However, one suggestion could be to increase the resources available to the customer through easily accessible technology support. The individual's lack of confidence in using the specific app could also be addressed by creating an app aligned with insights from Rahman et al. (2013), by building the app to have a simple and confidence-boosting interface.

Perception of External Resources

The results visualise the significant impact of the *Perception of External Resources* for non-users, which aligns with the research of Venkatesh (2000). This factor refers to the available resources, opportunities and knowledge held by the external environment rather than by the individual. The results indicated that external, available help and resources positively affect the individual's app adoption. However, a difference in the genders' preferred resources has been found. As seen from the results, men were more likely to download the app after being informed by staff that it would facilitate their shopping experience by allowing them to skip long queues. The information and assistance of the

check-out personnel could therefore be seen as a vital external resource. This implies that external help and assistance, whilst facing an inconvenient situation, could increase the chance of downloading the app for men.

Women, particularly from an older demographic however, expressed that the normative usage of the app could serve as an incentive as there would be more information, resources and services available to assist with a steep learning curve. This could be connected to the self-perceived comparatively low computer proficiency in the demographic of older women. This implies that women required external resources in the form of customer service and assistance to increase their adoption of the app. This aligns with the research by Venkatesh and Morris (2000), which highlighted how certain factors affect the different genders' approach towards adopting technology. The results from the case study imply that the scope of gender affects the factor *Perception of External Resources*.

These differences are significant to highlight as they provide a spectrum to visualise how the different resources could affect various customer segmentation, furthering the gender differences in technology acceptance. As previously stated in the interview with the Ingka team, one member highlighted that the technology is not always the main reason for adoption, sometimes it is the personnel in-store that can sway customers to download the app. This is an important insight as it corroborates with the previous studies' support for the factor. However, the case study also found that the lack of available resources, such as outlets, created a barrier for app adoption. The *Perception of External Resources* could therefore be seen as an important swaying factor, both deterring customers and attracting their app adoption. These findings should be further researched in order to elaborate on the existing framework to extend the factor to be applicable to app adoption. This implies that companies

must highlight the differences in demand for external resources between the genders and create functions and available external resources that facilitate these demands.

E-Risk

This analysis supports the factor E-Risk, the perceived risk connected with e-commerce, to be swaying, aligning with previous findings of Rahman et al. (2013) and Gefen et al. (2003) that risk affects technology adoption. Most non-users reported a lack of trust as one of the main reasons for not using the app. Furthermore, security and privacy issues were a concern with the app. Most interviewees reported knowing that personal information will be stored when using apps. The concern these risks entailed proved problematic for many customers, especially among younger men. Despite recognising the app's potential usability, young men reported opting for other means due to security concerns. On the other hand, most app users felt safe when using it, implying less perceived risk. One reason contributing to the perceived safety relates to the interface of the app, with users reporting that an easy interface increases their perceived safety, corroborating previous research (Cheema et al. 2013; Gefen et al. 2003).

Previous researchers did not find a strong relationship between the familiarity of the seller and trustworthiness and proposed this to be an area for future research (Gefen et al. 2003).

The interviews and the survey noted that the familiarity of IKEA, and hence the preconceived notion of the brand positively affected trust. The consensus regarding IKEA was that many perceived the brand as familiar, which made individuals less worried about app-related safety issues and positively affected app adoption. In this case study, *E-trust* was shown to be a significant factor, which in turn is affected by familiarity towards the brand. Hence, this research proposes a connection between brand familiarity, the brand's image, and *E-Trust*.

However, future research needs to further analyse this to create a generalisable conclusion regarding these factors' potential interconnections. To accommodate app adoption, firms should therefore consider customers' perceived safety issues regarding their app and the preconceived notion of the brand.

Technology Playfulness

A strong correlation was found in this case study between the adoption of the app and the individual users' playfulness with the app. This suggests that the scope of the factor of *Technology Playfulness* could be extended to include apps. The results showed a strong correlation between those who engaged with the creative and inspiring functions of the app and those reporting that they were using it more often and perceived it as more effortless to learn how to operate. Likewise, amongst the non-users, individuals interested in the inspiring and creative functions perceived a less steep learning curve. They were more prone to downloading the app than the ones who expressed less interest. These findings strengthen existing evidence and broaden the scope of Venkatesh's (2000) findings regarding the correlation between the factor and app adoption. Firms should consider what users want when developing apps (Hänninen et al. 2018; Kim & Baek, 2018). As the factor *Technology Playfulness* was shown to be vital for app adoption, firms might want to create an efficient app for both the playful and the less playful users. By doing this, the adoptability of the app could be increased.

E-Enjoyment

The factor *E-Enjoyment*, finding the technology enjoyable when not factoring in the possible increase in performance resulting from the use of the system, was vital for user retention of the app and could therefore be seen as an important factor in continuous app adoption. With a

clear majority of users responding to the self-completion questionnaire reporting that the app increases their enjoyment of shopping at IKEA, this factor proceeded to prove interesting. These users who enjoyed the app tended to use a wider variety of functions within the app, which generally relates to enjoyment. Additionally, the users enjoying the app tended to use it more often and retain it on their phones. This aligns with the previous research of Venkatesh and Bala (2008), which proves that an increase in experience positively affects the enjoyment of technology. The research extends this by implying that the broader the use of functions, the higher the customer satisfaction of the overall shopping experience which subsequently increases the enjoyment.

In this case study, mostly playful users were found utilising multiple functions, which opens up for future research on the underlying factors of a playful user. Rahman et al. (2013) describe the feeling of fun a customer may experience when shopping in traditional stores and relays that this is crucial to preserve in the online environment. This study supports this notion and its consequent factor (*E-Enjoyment*) by reinforcing Rahman et al.'s (2013) research on the relationship found between enjoyment and intentions to use the application. From a firm's perspective, this could be considered to create value for their customers. First and foremost, what value is created in the traditional stores and what their customers find to be enjoyable should be incorporated into the app. Secondly, new possible enjoyment aspects should be considered for the app to bring additional value. *E-Enjoyment* is therefore an important factor in assessing the adoption of a retail app and its subsequent success.

Objective Comparability

Objective Comparability, the derivative from the TAM factor *Objective Usability*, could not be reliably proven to be an important factor as it is difficult to ask questions about objectivity

to a sample of people as they are subjective in nature. This aspect was therefore not evaluated in the self-completion questionnaire as that method was not appropriate for this factor. During the interviews, many consumers indicated they preferred browsing on a website due to access to a larger screen. Objectively, many computers have larger screens, and hence the previously mentioned preference will be more fulfilled on a website accessed on a computer. However, those customers who used multiple functions of the app and were active users found that the app provided a better holistic shopping journey and was more helpful by simplifying the shopping process. This implies that the broader the functionality of the app usage, the more favourable the app becomes compared to the website. This could, however, be seen as a subjective opinion, and alas, due to the methodological choices of this thesis, the possible effects of this factor could not be further investigated. However, its importance could neither be disproved. This case study opens up future research, with other methodological choices to research this factor.

Experience

Experience as a factor, meaning that the more experience a user has with the technology, the more likely they are to use it further, proved to affect the app's adoption. The survey proved that the more experience a user had with the app, the easier it was to use. The interviews with the employees also showed that consumers who have used the app more are more comfortable and seek less help with its different functions than the newer, less experienced users, which implies that the factor *Experience* affects the adoptability of the app. This corroborates with the research of Venkatesh and Bala (2008), that the more experience a customer has with the app, the broader the use of functions which facilitates the consumer's shopping journey. A single download could be seen as app adoption, however, to increase the effects of certain other factors in the proposed TAM, a firm needs to build an app that

motivates continuous usage. This subsequently creates the foundation for *Experience*. Furthermore, it is important to note that the previously proposed interconnections of *Experience* with the other factors have not been examined in this case study. Hence these connections cannot be proven nor disproven.

5.2 Interconnections of the Factors

Although all factors are independently important for app adoption, certain factors were also proposed to affect others. These interconnections of the proposed factors are an intriguing area of future research. However, certain implications can be stated from this case study's results alone. This research proposes that the current TAM model and its applications are too simplistic to be extended to app adoption and therefore suggests a new, developed framework, seen in *Figure 9*. This framework builds on previous research's findings. Also, it includes and highlights the new potential relationships of certain factors, their influences and relevance on each other, and the importance of the demographic aspect, *Gender*.

This research suggests multiple connections between the factors. It is essential to highlight that these relationships mainly affect the relevance and effect of the different factors on the *Perceived Usefulness* and *Perceived Ease of Use*, which subsequently affects the adoption of the app. *Image* is affected by the individual's *Technology Self-Efficacy*, as the level of computer proficiency affects the pre-existing notion of the app. A low *Technology Self-Efficacy* could negatively affect the *Image* of the app by increasing the perceived difficulties with the technology. On the other hand, high *Technology Self-Efficacy* could positively impact the *Image* of the app.

Another interesting interconnection is that the level of *Technology Self-Efficacy* could affect the significance of impact of the *Perception of External Resources*. The results imply that low *Technology Self-Efficacy* and a low *Perception of External Resources* are barriers to app adoption. Therefore, the importance of investing in external resources increased for customers with low *Technology Self-Efficacy*. The level of the perceived *Technology Self-Efficacy*, also affects the impact that the factor *Task Accuracy* has, if the customer lacks comfort in their capabilities of using the app, it will decrease the usefulness of the tool to complete the task. This in turn could create a barrier to app adoption. Another interesting insight found was the interconnections with the familiarity of the brand, from now on referred to as the *Brand Image* of IKEA, and its effect on *E-Trust*. The case study implies that the *Brand Image* of IKEA affects the factor *E-Trust* which subsequently affects the factor *E-Risk*. This insight extends the framework of Gefen et al. (2013), who could not find this relationship, however, suggested this as an area for future research.

The result and discussion further imply that the demographic aspect of *Gender* affects *Subjective Norm*, *Image*, *Task Accuracy*, *Perception of External Resources* and *E-Risk*. This could be important for companies to include in their development of apps to ensure successful adoption. However, further research must be done to validate and make these findings generalisable. The case study could not find a relationship between *Gender* and *Value Replicability*, *Technology Self-Efficacy*, *Technology Playfulness* and *E-Enjoyment* which could be interesting for future research to investigate.

Based on the findings of this case study and the extension of previous research, the suggested new framework can be found below in *Figure 9*. This framework highlights two new contributing factors; *Gender* and *Brand Image*. These contributing factors do not

independently affect *Perceived Usefulness* or *Perceived Ease of Use*, but instead, affect certain factors' relevance and importance. As seen in the framework, the newly proposed interconnections and contributing factors are visualised through red arrows, the black arrows and factors are based on the previous generations of TAM and its modifications. The framework also highlights the new relevance of the factor *Technology Self-Efficacy*, which directly affects the factor *Image*. The factor *Technology Self-Efficacy* also affects the effects of *Task Accuracy* on the individuals *Perceived Usefulness* and the *Perception of External Resources*' effect of *Perceived Ease of Use*.

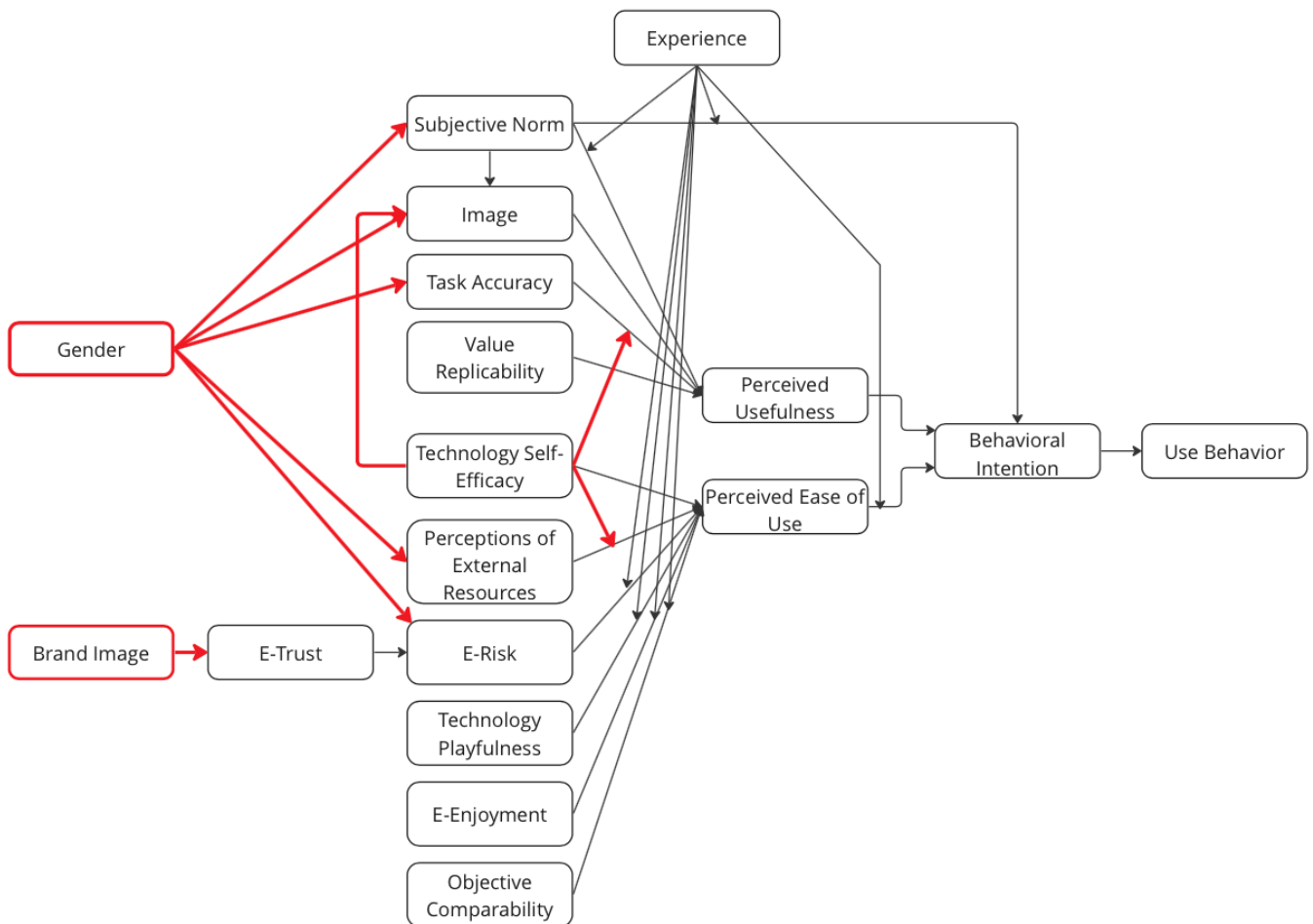


Figure 9, The new proposed the TAM framework, adapted from Figure 5 based on the findings in the case study

5.3 Chapter Summary

Chapter 5 analyses and discusses the results of the findings in the self-completion questionnaire, the interviews and the observations and compares this to theory. By doing this, the research question is answered. The chapter is divided into the different factors in focus and examines their importance and relevance to the thesis. The chapter concludes with a discussion of the various factors' interconnections. It proposes an extended comprehensive framework derived from the case study results, which could benefit future research on the technology acceptance of retail apps.

6.0 Conclusion

To answer our research question "*What factors influence consumers' technology acceptance of mobile retail apps?*" we have confirmed that most of the investigated factors were relevant to app adoption in this case study. *Subjective Norm, Image, Task Accuracy, Value Replicability, Technology Self-Efficacy, Perception of External Resources, E-Risk, Technology Playfulness, E-Enjoyment and Experience* were all shown to be significant. Firms can consider aligning their app development to reflect these factors, as detailed in Chapter 6, to create a more adoptable app. *Objective Comparability and Voluntariness* were not proven to be significant, nor were their significance disproven.

6.1 Research Aim and Objectives

The aim of this research was to broaden the understanding of different factors that could affect the customers' technology acceptance of retail shopping apps. The objective of this thesis was to possibly extend the scope of the TAM framework after applying its factors into a practical setting of a case study. By examining the framework in this particular context, this thesis could provide some important insights on how it can be applied to mobile apps which

could benefit future app development as well as future research. This could be done by garnering deeper insights from collaborating with IKEA.

6.2 Key Findings

This thesis aimed to derive factors that might interest when creating an adoptable app. From examining theory, vital factors which might be of interest to the scope and aim of this study were investigated.

Multiple insights were found in this case study, mainly indicating that the scope of all of the factors in the framework investigated, when incorporating the modified factors, could be extended and were proven significant for app adoption. Hence, the framework of the TAM seems to be extended to encompass app adoption if revised. However, the factors were adjusted and from the results, we gather that the framework needs further adjustment to properly fit the context. Another vital insight was that *Brand Image* could be directly connected to *E-Trust*. The demographic variable *Gender* was also of surprising importance as it seems to exert varying effects on these factors. When accounting for this, organisations could potentially create a more accurate app. Therefore, it might be advantageous for firms to analyse their target demographic and align their app development and implementation strategy accordingly, catering to the factors which evoke a stronger reaction from their desired demographic.

Multiple factors also seemed to be intertwined. This proposed new framework and the interconnections of factors should be further analysed in order to create a generalisable framework.

6.3 Practical Implications

The results of this case study built on existing evidence of previous research, extending the possible scope of the TAM. As these results stem from a single case study which has yet to be performed in previous literature examined, the results contribute to academia. The implications of the findings resulted in a proposed extension with possible new contributions to the original framework adapted to technology acceptance on apps. These findings are relevant for future research, laying the foundation for continued understanding and investigating technology adoption. Furthermore, these findings could also be relevant for firms seeking to develop an app with a high level of adoption, as technology acceptance amongst users is vital to comprehend to customise its functions and purpose. For example, firms could consider how they can extend the life of their app's purpose, and how they can make the app useful for this extended purpose for increased app adoption by using a cradle to grave perspective.

6.4 Future Research

Due to the limitation of the single case study, further studies of this proposed framework could benefit from being carried out for a longer duration in different countries or focused on other retail firms to analyse if the results from this study could become generalisable. More concretely, these studies could also focus on *Objective Comparability* as this factor was not proven nor disproven to be significant in this study.

When considering future research, it would be of interest to perform the study in multiple IKEA stores in different regions. Furthermore, as this study was performed in the retail sector's furniture segment it might be interesting to analyse other segments and product

categories within the retail sector to gain a holistic understanding of app adoption. This ensures that the results found in this case study are not contextual.

Regarding theory, the proposed and revised framework was chosen due to a multitude of factors and was applicable to the scope of this thesis. Further research could focus on other frameworks and theories that could be of interest, such as theories regarding consumer culture and other frameworks regarding technology acceptance. Future research could focus on meshing these theories in the context of app adoption to create synergies. This case study also focused on the demand side of app adoption. It would be of interest to further note how the supply side continuously works with app adoption to ensure smooth implementation.

Further analysis of demographic aspects such as age and gender would be of interest, as it was shown that gender strongly affects some factors. The notion of certain demographic factors could be intertwined, which may subsequently affect how one adopts technology. Socioeconomic factors could also be of interest in a demographically focused investigation of app adoption. Further analysis of these factors could create a more detailed approach to app adoption.

Another potential area of interest would be creating a factor which accounts for the consumers' individual purpose of their retail experience. This area presented some difficulty in this case study as it is a varying and subjective topic. If future research could code purposes for using retail apps and analyse the effects of the different purposes, a more accurate framework regarding the adoption of apps could be created.

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Appendix 2

Interview Guide: Ingka App Developer Team

Period	Aspects	Questions
Introduction	<ul style="list-style-type: none"> - The interviewee (name, title, task, work) - The team at IKEA (vision, goal, structure, business activities) 	<p>The interviewee:</p> <ol style="list-style-type: none"> 1. Name and title 2. Job description together with day-to-day activities 3. How long have you worked at IKEA? <p>The team at IKEA:</p> <ol style="list-style-type: none"> 1. Can you explain your team's structure, members, vision, and goals? <ol style="list-style-type: none"> a. Follow-up question: What are the main focuses of the different teams? 2. What are the expansion ambitions of the different goals?
Exploration of present aspects	<ul style="list-style-type: none"> - Idea of the app - Examining app usage 	<p>Idea of the app</p> <ol style="list-style-type: none"> 1. Please describe the process of creating and developing the IKEA app, from its conception to its launch. <ol style="list-style-type: none"> a. Follow-up question: How do you define success? <p>Examining app usage</p> <ol style="list-style-type: none"> 1. What is the process of involving customer feedback in the adaptation of the app? 2. How is customer satisfaction in regard to the app measured? 3. Feature-wise, what aspects of the app do you find most usable and what feature do most customers gravitate towards?
Exploration of future aspects	<ul style="list-style-type: none"> - Goals and future ambitions with the app 	<p>Goals:</p> <ol style="list-style-type: none"> 1. Before we move forward to the goals, is there anything you would like to add to the current situation? 2. Can you explain the main objective and goals your team had when developing the mobile

		<p>app? Have these evolved over time?</p> <ol style="list-style-type: none"> 3. In what way has the app helped your team achieve your goals and KPIs? 4. Do you have any additional insights regarding the focus groups
Finish	<ul style="list-style-type: none"> - Summarization (by the interviewer) - Acknowledgements and leave-taking 	<p>Summarization:</p> <ol style="list-style-type: none"> 1. To conclude, we have discussed XXX. Do you agree with this? 2. Do you have anything else to add? <p>Acknowledgements and leave-taking:</p> <ol style="list-style-type: none"> 1. We greatly thank you for your contribution, goodbye

Appendix 3

Interview guide: DK Digital Team

Period	Aspects	Questions
Introduction	<ul style="list-style-type: none"> - The interviewee (name, title, task, work) - The team at IKEA (vision, goal, structure, business activities) 	<p>The interviewee:</p> <ol style="list-style-type: none"> 1. Name and title 2. Job description together with day-to-day activities 3. How long have you worked at IKEA? <p>The team at IKEA:</p> <ol style="list-style-type: none"> 1. Can you explain your team's structure, members, vision, and goals?
Exploration of the present aspects	<ul style="list-style-type: none"> - Idea of the app - Ways of examining app usage 	<p>Idea of the app</p> <ol style="list-style-type: none"> 1. Please describe the process of how you are working with the IKEA app 2. Please explain the process of how you are integrating the new functions of the IKEA app into the market? 3. Generally with digital tools one needs to balance advanced functionality with user-friendliness, have you faced this issue and if you have, what's your approach to this issue? 4. How are you dividing and working with the active projects throughout the road map? <p>Examining app usage</p> <ol style="list-style-type: none"> 1. What is the process of involving customer feedback in the adaptation of the app? <ol style="list-style-type: none"> a. Follow-up question: How are you working with increasing the customers' awareness of the app b. Follow-up question: How are you working to be interactive with the market and in-store? 2. Feature-wise, what aspects of the app do you find most usable and what feature do most customers gravitate towards? <p>Possible issues arose:</p>

		<ol style="list-style-type: none"> 1. Does IKEA work with any other companies that have the “shop & go” function in order to gain inspiration, information etc? 2. Can you explain the main issues you have with the app? <ol style="list-style-type: none"> a. Follow-up question: How do IKEA ensure user retention?
Exploration of future aspects	<ul style="list-style-type: none"> - Goals with the app - Future ambitions 	<p>Goals:</p> <ol style="list-style-type: none"> 1. Can you explain the main objective and goals your team had when developing the mobile app? Have these evolved over time? <ol style="list-style-type: none"> a. Follow-up question: Can you explain how the demographic changes within the purchases of the app? b. How does the app's launch differ in Denmark versus other countries? c. How do you share knowledge internationally through the organisation? d. How do you decide what other countries implement what functions at which times? <p>Future ambitions:</p> <ol style="list-style-type: none"> 1. What are the next steps for the app?
Finish	<ul style="list-style-type: none"> - Summarization (by the interviewer) - Acknowledgements and leave-taking 	<p>Summarization:</p> <ol style="list-style-type: none"> 1. To conclude, we have discussed XXX. Do you agree with this? Do you have anything else to add? <p>Acknowledgements and leave-taking:</p> <ol style="list-style-type: none"> 1. We greatly thank you for your contributions and say goodbye

Appendix 4

Follow-up Interview Guide: Ingka App Developer Team

Period	Aspects	Questions
Introduction	<ul style="list-style-type: none"> - The individual's everyday task - The team at IKEA (vision, goal, structure, business activities) 	<p>The interviewee:</p> <ol style="list-style-type: none"> 1. Job description together with day-to-day activities <p>The team at IKEA:</p> <ol style="list-style-type: none"> 2. Can you explain your team's structure, members, vision, and goals? <ol style="list-style-type: none"> a. Can you clarify the team's structure? b. How many people are you in the team and the Ingka App Developer team? 3. Can you describe the interaction of the Global App teamwork and how it affects the individual countries? Specifically with Denmark
Exploration of the present aspects	<ul style="list-style-type: none"> - Organisational interaction - The Shop & Go function - Customer feedback - App development 	<p>The organisation interaction between IKEA Global and IKEA Denmark</p> <p>The team at IKEA:</p> <ol style="list-style-type: none"> 5. Can you explain your team's structure, members, vision, and goals? 6. Can you describe the interaction the Global Teamwork and how it affects the individual countries? Specifically with Denmark 7. Can you explain the importance of Denmark as a pilot country for Ingka? <p>The Shop & Go function</p> <ul style="list-style-type: none"> - The inspiration of the Shop & Go function - Can you further explain the roadmap of the Shop & Go function - What beneficial factors are you focusing on when developing the different functions? <ul style="list-style-type: none"> - Profitability, customer satisfaction etc? <p>Customer feedback</p> <ul style="list-style-type: none"> - How are you getting feedback from the active app users?

		<ul style="list-style-type: none"> - How are you targeting the customers who are not using the app? <p>App development</p> <ul style="list-style-type: none"> - What factors are you studying besides KPIs when implementing a new function? <ul style="list-style-type: none"> - How are you working with the discovery part of the work process?
Finish	<ul style="list-style-type: none"> - Summarization (by the interviewer) - Acknowledgements and leave-taking 	<p>Summarization:</p> <ol style="list-style-type: none"> 2. To conclude, we have discussed XXX. Do you agree with this? Do you have anything else to add? <p>Acknowledgements and leave-taking:</p> <ol style="list-style-type: none"> 2. We greatly thank you for your contributions and say goodbye

Appendix 5

Self-Completion Questionnaire, IKEA Consumers

Question	Measurement	Conditional Code
Age	Demographic	1
Gender	Demographic	1
Are you an active user of the app	Dichotomous Yes/No - If yes → Section 2 - If no → Section 3	1
When do you use the IKEA app?		2
How often do you use the app?		2
I mainly use the IKEA app to	Multiple choice - Browse products - Find inspiration - Make purchases - Find stores - Check stock availability - Shop&Go - Track orders	2
Have you used other retail apps in the past?	Dichotomous - Yes/No	3
I find that the IKEA app saves me time and effort when shopping	Likert Strongly disagree - Strongly agree	3
I find relevant information which helps me when using the IKEA app	Likert Strongly disagree - Strongly agree	3
I feel safe using the IKEA app	Likert Strongly disagree - Strongly agree	3
When using an app, which of the following makes you feel safe when shopping?	Multiple choice - External institutions supporting the app, such as payment options - Familiarity with the brand - Easy navigated interface - Easily accessible and clear information on storage of my personal information - Safe check-out options - other	3
Which of the following features of the IKEA app do you find the most helpful? (Select all	Multiple choice - Search function	3

that apply?	<ul style="list-style-type: none"> - Store locator - Augmented reality tool - Personalised recommendations - Shop&Go - other 	
When using the app I intend to make a purchase	<ul style="list-style-type: none"> - Yes, always - Most often - Almost never - No, never 	3
I find the IKEA app to be easy to navigate	Likert Strongly disagree - Strongly agree	3
I found it difficult to learn how to navigate the app and its different functions	Likert Strongly disagree - Strongly agree	3
I can easily find what I am looking for when using the IKEA app	Likert Strongly disagree - Strongly agree	3
I find the IKEA app to be a source of inspiration	Likert Strongly disagree - Strongly agree	3
I find the IKEA app to increase the enjoyment of shopping	Likert Strongly disagree - Strongly agree	3
How much do you agree with the following statement: “the IKEA app has changed the way I shop at IKEA”	Likert Strongly disagree - Strongly agree	3
Would you consider using the app?	Dichotomous - Yes/No	4
Have you heard about the IKEA app before taking this study?	Dichotomous - Yes/No	5
Have you used other retail apps in the past?	Dichotomous - Yes/No	5
What are the primary reasons you have not used the IKEA app?	Multiple choice <ul style="list-style-type: none"> - I prefer shopping in-store - I prefer shopping on the website - I don't know how to use the app - I don't think I need the app - I did not know about the app before today - I don't see the potential benefits 	5
What functions would motivate you to use the IKEA app?	Multiple choice <ul style="list-style-type: none"> - Exclusive app-only deals or discounts - Easy access to product information and reviews - A better selection of products - A personalised experience based on 	5

	<ul style="list-style-type: none"> my preferences - Easier check-out process 	
What concerns, if any, do you have about using the IKEA app?	<p>Multiple choice</p> <ul style="list-style-type: none"> - Security and privacy concerns - The app being difficult to use - The app not functioning properly - other 	5
Do you think that the app would be helpful for searching for and finding goods?	<ul style="list-style-type: none"> - Yes - No - Somewhat helpful - I don't know 	5
Do you think that the IKEA app would be helpful for purchasing goods?	<ul style="list-style-type: none"> - Yes - No - Somewhat helpful - I don't know 	5
Do you think that the IKEA app could simplify your in-store experience, for example through its Shop&Go function?	<ul style="list-style-type: none"> - Yes - No - Somewhat helpful - I don't know 	5
How likely are you to download and use the IKEA app in the future?	<p>Likert</p> <p>Very unlikely - Very likely</p>	5
Have you heard about the IKEA app before taking this survey?	<p>Dichotomous</p> <ul style="list-style-type: none"> - Yes/No 	6
Have you used other retail apps in the past?	<p>Dichotomous</p> <ul style="list-style-type: none"> - Yes/No 	6
What are the primary reasons you are not considering using the IKEA app?	<p>Multiple choice</p> <ul style="list-style-type: none"> - I prefer shopping in-store - I prefer shopping on the website - I don't know how to use the app - I don't think I need the app - I don't trust the security of the app - The app doesn't offer the features I need - I prefer not using apps - Other 	6
Which of these factors influence your perceived safety of the app?	<p>Multiple choice</p> <ul style="list-style-type: none"> - Lack of trust in app security - Lack of familiarity with the app - Limited functionality of the app - Lack of familiarity/trust for IKEA as a brand - other 	6

I think that the IKEA app would be difficult to use	Likert Strongly disagree - Strongly agree	6
I think that the IKEA app would be difficult to learn how to operate	Likert Strongly disagree - Strongly agree	6
How likely are you to download and use the IKEA app if it had more features that you find useful?	Likert Very unlikely - Very likely	6
Section 1: For all participants; Section 2: For active users; Section 3: For active users; Section 4: For non-active users; Section 5: For non-active users, considering using the app; Section 6: For non-active users, not considering using the app;		

Appendix 6:

Interview Guide: IKEA Consumers

Background questions:

- Age:
- Gender:
- Are you an active app user:
 - Yes/No

Questions for Users

Main Question	Probing Questions
How often do you visit IKEA and how often do you use the app?	<ul style="list-style-type: none"> - Do you use the app when you are not here? - Do you use the app when shopping here (in-store)? - Why do you use the app? - How does the purpose of using the app differ when being at IKEA and when not? <ul style="list-style-type: none"> - (Example: Finding inspiration, buying products, shop&go etc.) - Have you used any other retail apps in the past? For example H&Ms or one for your grocery store? If comparing them to IKEA's app, is there anything that you would instinctively say differs? - What motivated you to start using the IKEA app? Was it because of a particular feature or function? - When using the app, do you intend to make a purchase?
What are your initial thoughts about the app?	<ul style="list-style-type: none"> - Do you easily find what you are looking for? - Do you think the IKEA app is easy to navigate? <ul style="list-style-type: none"> - Is there anything that could be improved? - Do you have any difficulties when using the app? - Do you use the app differently than you thought when downloading it? - Did you find the IKEA app to be easy to learn how to operate? - Do you find that you can easily get support for difficulties with the app or your shopping experience in general? <ul style="list-style-type: none"> - Staff etc.
Do you feel safe when you use the IKEA app?	<ul style="list-style-type: none"> - What makes you feel safe/why do you not feel safe? - Do you feel familiar with the IKEA brand and if so, does this familiarity make you feel safer using their app? - How do you feel about the security and privacy of your personal data when using the IKEA app? <ul style="list-style-type: none"> - Do you have any concerns? - Have you found the information regarding this easily accessible?
Has the IKEA app changed your shopping experience?	<ul style="list-style-type: none"> - Do you find that the app makes your shopping experience easier, does it save you time and effort? Could you please elaborate a bit? - Do you find the relevant information that you need when using the app? - What are the most helpful features of the app and why? - If you were looking for something specific to buy, would you prefer to buy it on the app or in-store? Why?

	<ul style="list-style-type: none"> - Has the IKEA app changed the way you shop at IKEA? - how
What are the key features of the app and why?	<ul style="list-style-type: none"> - What do you enjoy the most with that FEATURE? - What sort of information are you looking for when using the IKEA app? Specific product information, store locator etc? - In your opinion, what are the benefits of using the IKEA app?
Do you think that shopping apps increase the enjoyment of shopping?	<ul style="list-style-type: none"> - Do you find that the app has made your shopping experience at IKEA more enjoyable? Why/why not? - Do you find inspiration when using the app?

Question for Non-users, considering the app

Main Question	Probing Question
How often do you visit IKEA?	<ul style="list-style-type: none"> - What makes you consider using the IKEA app? - How do you prefer to gather information about products and make purchases? - Do you prefer to browse online or in person, and why? - In your opinion, how does the IKEA app compare to other ways of shopping, such as visiting a physical store or using a website?
Have you used any other shopping apps in the past?	<ul style="list-style-type: none"> - What is your experience, good or bad? - In your opinion, what are the benefits of using a shopping app like the IKEA app? How do you think it can make your shopping experience better?
Do you feel safe using apps?	<ul style="list-style-type: none"> - What concerns or reservations do you have about using the IKEA app or other shopping apps? Are there any features or functions that you are not comfortable with? - How do you feel about the security and privacy of your personal data when using a shopping app like the IKEA app? Are there any concerns you have in this regard?
What general thoughts do you have about the app?	<ul style="list-style-type: none"> - Do you think that the IKEA app is easy to use and navigate? - What do you think would motivate you to start using the IKEA app? - Based on your knowledge and understanding of the IKEA app, would you be willing to give it a try? If not, what would it take for you to change your mind?
Do you enjoy shopping at IKEA?	<ul style="list-style-type: none"> - Do you believe that using the IKEA app makes your shopping experience more enjoyable or efficient? Why or why not? - What is the biggest challenge/inconvenience that you encounter when shopping at IKEA? If this could be resolved through a feature in the app (e.g. queuing - shop&go?) Would you reconsider your stance towards the app?

Question for Non-users, not considering the app

Main question	Probing question
How often do you visit IKEA?	<ul style="list-style-type: none"> - What is your preferred way of shopping at IKEA? Online or in-store? Why? - How do you prefer to gather information about products and make purchases? - Do you prefer to browse online or in person, and why?
Have you used any other shopping apps in the past?	<ul style="list-style-type: none"> - If so, what was your experience like? If not, what are your reservations about using a shopping app like the IKEA app? - Have you ever used IKEA's website? If so, for what and how was your experience? If not, is there any specific reason?
Do you feel safe using apps?	<ul style="list-style-type: none"> - How do you feel about the security and privacy of your personal data when using a shopping app like the IKEA app? Are there any concerns you have in this regard?
Can you tell me why you're not willing to use the IKEA app?	<ul style="list-style-type: none"> - Is there anything about the app that you find unappealing or concerning? - Is there anything you find appealing with the app? - Do you think that the app might be difficult to learn how to operate and use? - Do you know of any of the features of the IKEA app? If so, why do you think they are not useful to you? -
Do you enjoy shopping at IKEA?	<ul style="list-style-type: none"> - In your opinion, what are the benefits of not using the IKEA app as opposed to using the app? How does it change your shopping experience? - Are there any incentives that would make you reconsider using the IKEA app? For example, discounts, exclusive offers, or personalised recommendations? - What is the biggest challenge/inconvenience that you encounter when shopping at IKEA? If this could be resolved through a feature in the app (e.g. queuing - shop&go?) would you reconsider your stance towards the app?

Appendix 7

Table 1, Results Users

Category	Percentages
<i>Amount of users from the sample</i>	
Users	40.5%
<i>App Usage</i>	
In-store and outside of the store	65.7%
Solely when shopping in-store	20.0%
Solely outside of the store	14.3%
<i>Main App Usage</i>	
Browsing products	65.7%
Checking stock availability	62.9%
Using Shop&Go function	40.0%
Make purchases	34.3%
<i>Helpful Features</i>	
Search function	77.1%
Shop&Go function	74.3%
Store Locator	28.6%
Augmented Reality tool (Planner)	22.9%
Personalised recommendations	17.1%
<i>Used Other Retail Apps in the Past</i>	
Yes	94.3%
No	5.7%
<i>Intention to Purchase via IKEA App</i>	
Yes, always	11.4%

Most often	85.7%
Almost never	2.9%
<i>Perception of Time and Effort Saved</i>	
Strongly agreed	54.3%
Agreed	40.0%
Disagreed	5.7%
<i>Perception of Finding Relevant Information</i>	
Strongly agreed	47.1%
Agreed	44.1%
Neutral	8.8%
<i>Perception of IKEA App Safety</i>	
Strongly agreed	68.6%
Agreed	14.3%
Neutral	11.4%
Disagreed	5.7%
<i>Safety-Enhancing App Features</i>	
External institutions supporting the app, such as payment options	17.1%
Familiarity with the brand	91.4%
Easy navigated interface	74.3%
Easily accessible and transparent information on the storage of my personal information	28.6%
Safe check-out options	25.7%
<i>Perception of Easy IKEA App Navigation</i>	
Strongly agreed	48.6%
Agreed	51.4%
<i>Difficulty in Learning IKEA App Navigation</i>	

Strongly agreed	14.7%
Agreed	2.9%
Disagreed	26.5%
Strongly disagreed	55.9%
Perception of the IKEA App as an Inspiration Source	
Strongly agreed	22.9%
Agreed	42.9%
Neutral	25.7%
Disagreed	2.9%
Strongly disagreed	5.7%
<i>IKEA App increases shopping enjoyment</i>	
Strongly agreed	20.0%
Agreed	57.1%
Neutral	22.9%
<i>"The IKEA app has changed the way I shop at IKEA"</i>	
Strongly agree	20.0%
Agree	54.3%
Disagree	5.7%
Neutral	20.0%

Appendix 8

Table 2, Results Non-Users, Considering the App

Category	Percentage
<i>Consideration of the IKEA App among Non-Users</i>	
Amount of non-users, considering the app	58.0%
<i>Awareness of the app</i>	
Yes	31.0%
No	69.0%
<i>Used retail apps in the past</i>	
Yes	100.0%
<i>Main reasons for not using the app</i>	
Prefer to shop in-store without digital tool	58.6%
Preference for website shopping	3.4%
Lack of app navigation knowledge	3.4%
Perceived unnecessary need for the app	24.1%
Lack of prior awareness about the app	37.9%
The perceived absence of potential benefits	10.3%
<i>Functions That Could Sway Non-Users to Download</i>	
Exclusive app-only deals/discounts	51.7%
Easy access to product information/reviews	44.8%
Easier checkout process	58.6%
Better product selection	6.9%
Personalised experience based on my preferences	24.1%
<i>Main Concern Regarding the App</i>	
Difficulties of use	48.1%
Security and privacy concerns	25.9%
Functionality issues	25.9%
Low anticipated app usage frequency	7.4%
<i>Perception of the app's helpfulness in purchasing goods</i>	

Yes	55.6%
Somewhat helpful	33.3%
I don't know	11.1%
<i>The perception that the app is helpfulness for purchasing goods</i>	
Yes	59.3%
Somewhat helpful	22.2%
I don't know	18.5%
<i>Perception of the IKEA app simplifying the in-store experience</i>	
Yes	70.4%
Somewhat helpful	25.9%
I don't know	3.7%
<i>Likelihood of downloading and using the IKEA app in the future</i>	
Agreed	37%
Neutral	63%

Appendix 9

Table 3, Results Non-Users, Not Considering Using the App

Category	Percentage
<i>IKEA App Usage</i>	
Would not consider using it	42.0%
<i>Awareness of the app</i>	
Yes	28.6%
No	71.4%
<i>Used retail apps in the past</i>	
Yes	61.9%
No	38.1%
<i>Reasons for Not Considering the IKEA App</i>	
Prefer in-store shopping without digital tools	57.1%
Prefer online shopping	4.8%
Lack of app navigation knowledge	14.3%
Perceived unnecessary need for the app	33.3%
Lack of trust in app security	47.6%
Missing desired app features	0%
Preference for not using apps	14.3%
<i>Importance of Factors in Not Using the IKEA App</i>	
Lack of trust in app security	57.1%
Lack of familiarity with the IKEA app	28.6%
Perceived limited functionality of the IKEA app	19%
Lack of familiarity/trust for IKEA as a brand	9.5%
<i>Agreement with App Difficulty Statement</i>	
Strongly disagree	23.8%
Disagree	28.6%
Neutral	28.6%
Agree	9.5%
Strongly agree	9.5%

<i>Agreement with the app's difficulty in learning to operate the IKEA app</i>	
Strongly disagreed	42.9%
Agreed	19.0%
Neutral	23.8%
Agreed	14.3%
<i>Likelihood of downloading and using the IKEA app with additional useful features</i>	
Strongly agreed	23.8%
Agreed	19%
Neutral	47.6%
Disagreed	9.5%

Appendix 10

Glossary

Digitization: The term is also known as digital enablement, and refers to the process of converting analogue information to a digital format. It can also mean turning a manual process into a digital one (Gobble, 2018).

Digitalisation: The broader process of integrating digital technologies and data into various aspects of business, society, or everyday life. Digitalization encompasses the broader impact and implications of digital technologies on various domains and may involve the use of digital tools, platforms and technologies. For businesses, it usually involves the use of technological tools to harvest value (Gobble, 2018).

Mobile Application (App): A software application created to be used on mobile devices.

Technology Acceptance Model (TAM): A model initially developed to analyse the implementation success of technology within a professional setting. This model handles the users' acceptance of the new technology.

Perceived usefulness: Refers to the individual's perception of how much a specific system can aid in achieving gains in work performance

Perceived ease of use: How easy the system or technology is perceived to be to use

Retail: The industry of selling goods, typically for consumption, in small quantities.

E-commerce: The exchange of goods and services in an online environment

Mobile-based e-commerce: Trade between seller and buyer in an online platform taking place on an app through a smartphone

Website-based e-commerce: Trade between seller and buyer in a online platform taking place on a website through a computer