

**FROM TOUCHPOINTS TO TECHNOLOGY:
UNDERSTANDING CUSTOMER ADOPTION OF
MOBILE APPLICATIONS IN EVENT ENVIRONMENTS**

A Case Study on Mobile App Adoption in The Finnish
Housing Fairs

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ABSTRACT

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<p>Abstract</p> <p>In an age dominated by technology, the integration of mobile applications as part of the marketing strategy has revolutionized the world of events, offering new opportunities for customer engagement and interaction. In addition, applications can serve as cost-effective communication tools for companies.</p> <p>This study delves into the implementation of mobile applications in the context of event environments, and it was carried out as a commission for the Finnish Housing Fair. The research aimed to identify factors that influence customers' adoption of mobile applications in connection with trade fair events. The research data was collected through a quantitative survey through the Housing Fair application launched in the summer of 2023. The research sample consists of users of the Housing Fair application, and a total of 245 respondents answered the survey. The collected data was tested with the help of a research model. The purpose was to answer the set research question: <i>“What are the factors that influence customers' adoption of a mobile application within the context of a fair event environment?”</i></p> <p>The results indicate that ease of use is strongly related to whether users find the application useful and whether it brings them joy, which affects their intention to use the application in the future. Moreover, the study confirms that enjoyment significantly affects user experience with the application, emphasizing the crucial role of providing seamless customer experiences.</p> <p>The results of the study are in line with previous literature and provide a perspective for event organizers, emphasizing the possibilities offered by mobile applications in the event environment. By understanding the factors influencing application adoption, organizations can develop targeted strategies to optimize participants' experience.</p>	
<p>Keywords Mobile applications, mobile event applications, technology adoption, event management, customer engagement, mobile application usability</p>	
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TIIVISTELMÄ

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<p>Tiivistelmä</p> <p>Teknologian hallitsemalla aikakaudella mobiilisovellusten integrointi osaksi markkinointi-strategiaa on mullistanut tapahtumamaailman tarjoten uusia mahdollisuuksia asiakkaiden sitouttamiseen ja vuorovaikutukseen. Lisäksi sovellukset voivat toimia yrityksille kustannustehokkaina viestintävälineinä.</p> <p>Tämä tutkimus perehtyy mobiilisovellusten käyttöönottoon tapahtumaympäristöjen kontekstissa ja se on toteutettu toimeksiantona Suomen Asuntomessuille. Tutkimuksessa pyrittiin tunnistamaan tekijöitä, jotka vaikuttavat asiakkaiden mobiilisovellusten omaksumiseen messutapahtumien yhteydessä. Tutkimuksen data kerättiin kvantitatiivisella kyselyllä kesällä 2023 lanseeratun Asuntomessut-sovelluksen kautta. Tutkimuksen otanta koostuu sovelluksen käyttäjistä ja kyselyyn vastasi yhteensä 245 vastaajaa. Kerättyä dataa testattiin tutkimusmallin avulla ja tarkoituksena oli vastata asetettuun tutkimuskysymykseen: <i>”Mitkä tekijät vaikuttavat asiakkaiden mobiilisovelluksen käyttöönottoon?”</i></p> <p>Tutkimuksen tulokset osoittavat, että helppokäyttöisyys on vahvasti yhteydessä siihen, kokevatko käyttäjät sovelluksen hyödylliseksi ja tuottaako sovelluksen käyttö heille iloa, mikä puolestaan vaikuttaa heidän aikomukseensa käyttää sovellusta tulevaisuudessa. Lisäksi tutkimus vahvistaa, että koettu nautinto vaikuttaa merkittävästi sovelluksen käyttökokemukseen ja korostaa saumattoman asiakaskokemuksen tarjoamisen ratkaisevaa roolia.</p> <p>Tutkimuksen tulokset ovat linjassa aikaisemman kirjallisuuden kanssa ja tarjoava näkökulman tapahtumajärjestäjille, korostaen mobiilisovellusten tarjoamia mahdollisuuksia tapahtumaympäristössä. Ymmärtämällä sovellusten käyttöönottoon vaikuttavia tekijöitä organisaatiot voivat kehittää kohdennettuja strategioita osallistujien kokemuksen optimoimiseksi.</p>	
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1 INTRODUCTION

In an era dominated by the relentless march of technology, its pervasive influence has seamlessly intertwined with our daily existence. On an average day, individuals tend to reach for their phone approximately 144 times (Greenberg, 2023) and the time we spend on our phones daily was 3 hours and 15 minutes in 2023 (Howarth, 2023). From the moment a smartphone sounds the alarm in the morning to the evening ritual of securing one's home with an electronic alarm system, technology weaves a seamless web, linking individuals to a digital realm both directly and indirectly. This ever-present integration of technology has not only revolutionized our personal lives but has also unleashed a tidal wave of innovation in the realm of business. (Böhmer, Hecht, Schöning, Krüger, and Bauer, 2011.)

The wave of technology has passed every industry in one way or another. (Mosquera, Olarte-Pascual, and Juaneda-Ayensa, 2017) For companies that have previously relied more on physical touchpoints in the interaction with their customers, this means that they must change their way of operating. Implementing mobile technology in companies' business endeavors can bring multiple benefits for companies while enriching their customers' experiences. (Wei, Ozturk, Fairley, and Hua, 2023, pp. 486–487.)

Mobile applications have emerged as a cornerstone of this technological revolution, fundamentally altering the way we engage with the world. Of the time we spend on our phones, we dedicate almost 90% to mobile applications (Wurmser, 2020). From social media platforms connecting friends and family across continents to productivity tools simplifying work tasks, mobile apps have transformed the way we interact with the world around us (Collins & Ellis, 2015, pp. 14–15).

The omnipresence of technology has created a symbiotic relationship between consumers and businesses (Shu-Chun & Hsu, 2022). As technology's influence deepens, companies are compelled to rethink their strategies and adapt to the evolving landscape. Traditional business models are no longer sufficient in a world where customers demand seamless digital experiences, instant access to information, and products or services that align with their tech-savvy lifestyles. (Mosquera et al., 2017.) The symbiotic relationship between consumers and businesses intensifies as technology's grip tightens, necessitating strategic adaptations to meet the demands of an evolving landscape.

In the dynamic field of events, mobile applications serve as indispensable tools for customers, facilitating information retrieval, feedback mechanisms, and multi-dimensional event experiences (Wei et al., 2023). Beyond mere convenience, these applications extend the customer journey, allowing interaction initiation well before the physical attendance at the event (Mosquera et al., 2017). Event planners, recognizing the need to captivate audiences, are increasingly leveraging technology to enrich the event experience (Wei et al., 2023).

The integration of mobile applications in the event space not only allows users to seek information and provide feedback but also transforms the very essence of their interaction with the event (Ozturk et al., 2021, p. 308). Technologies like virtual reality (VR) and augmented reality (AR) are breaking new ground, revolutionizing customer interactions like never before. Mobile applications act as conduits, seamlessly merging the physical and virtual realms, thereby offering companies innovative means to elevate customer engagement in the evolving landscape of tech-savvy consumer expectations. (Chung et al., 2018.)

For event attendees, mobile applications represent more than just convenience; they extend the customer journey far beyond the physical boundaries of the event itself. By leveraging these applications, attendees can initiate interactions, retrieve information, and provide feedback well in advance of their actual attendance, thus enriching their overall event experience. (Wurmser, 2020.) This dynamic shift not only enhances convenience but also transforms the very essence of how individuals interact with live events.

This study aims to identify and understand the factors influencing the adoption process of mobile applications in the event field. The research question of the study is:

What are the factors that influence customers' adoption of a mobile application within the context of a fair event environment?

This thesis delves into the complex dynamics of customer adoption of mobile applications within the event environments, with a specific focus on the Finnish Housing Fairs as a compelling case study. While extensive research has examined the use of mobile applications in the retail sector (Khrais & Alghamdi, 2021; Shankar et al., 2010, 2010; Verhoef et al., 2015), a notable research gap exists concerning their application in the context of events. Recognizing the diversity within the field of events, from large-scale international conferences to intimate social gatherings, it is crucial to understand the specific requirements and dynamics inherent to each event type.

The Finnish Housing Fair event, categorized as a large-scale, annual exhibition specific to the housing and construction industry, attracts both public and professional audiences. Featuring a rotating location that emphasizes regional diversity and includes an educational component, this fair stands as a unique case study within the broader landscape of events. Its month-long duration, occurring once a year with customers typically visiting only once, distinguishes it from events where attendees stay for multiple days, such as music festivals. (*Asuntomessujen organisaatio*, n.d.; E. Strengell, personal communication, March 21, 2023.)

While the Finnish Housing Fairs conducts yearly quantitative research to study the overall customer experience, the 2023 event holds particular significance. The launch of the mobile application in the summer of 2023 marks the first immersive integration of technology into the event. This research differs from the organization's yearly studies as it focuses solely on the mobile application and

the customer experience surrounding it. Conducted concurrently with the initial introduction of the application in July 2023, this research aims to shed light on how customers are experiencing the application and focuses on its ease of use, usefulness, enjoyment, and overall impact on the customer experience.

In conclusion, the selection of the Finnish Housing Fairs as the focus of this study stems from a collaborative effort and mutual interest between the researcher and the event organizers, underscoring the relevance and significance of exploring the adoption of mobile applications within this specific event context. It's important to note that while the organization facilitated access to the event and its attendees, they were not directly involved in the research process or its outcomes.

1.1 Structure of the Thesis

The structure of this thesis is as follows: Chapter 2 presents a comprehensive overview of mobile applications, covering their evolution, user growth, lifecycle, design principles, and technological trends. It also explores the concept of mobile application adoption and the role of mobile applications in the fields of digital marketing and corporate communication.

Chapter 3 delves into the factors influencing mobile application adoption, examining aspects such as ease of use, usefulness, enjoyment, and overall customer experience. Furthermore, the hypotheses are presented, followed by the research model constructed based on these hypotheses.

Chapter 4 outlines the methodology employed in this study, including the research context (the Finnish Housing Fairs), quantitative research methods, data collection techniques, data preparation, analysis techniques, and the variables utilized in this study.

The results of the study are presented in chapter 5, following the discussion of the findings and conclusion in chapter 6. The final chapter also suggests directions for future research, theoretical and practical implications, and acknowledges any limitations of the study.

This paper does not contain any content generated by AI technologies. However, AI was utilized to enhance the quality of the text through proofreading and editing, ensuring clarity and coherence. Additionally, AI tools were employed to research various research methods and methodologies.

2 LITERATURE REVIEW

The origin of the word "mobile" can be traced back to the Latin word "mōbilis," which means "capable of being moved" or "easily movable." The term has been adopted into English from French, where it also means "movable". (Oxford English Dictionary, 2023b.) The term "mobile" in the context of referring to mobile telephones began to gain popularity in the mid-20th century. Throughout the 1980s and 1990s, as mobile phones became more widespread and technology advanced, the term "mobile" became a standard way to describe these portable communication devices. (Oxford English Dictionary, 2023a.)

Today, mobile technology no longer refers to voice and cellular communication. Instead, it now describes different types of technologies available to consumers and businesses (Collins & Ellis, 2015, p. 4). As the meaning of the word has evolved, so have the functions that these devices have to offer. The crown jewels of mobile technology, smartphones, are usually equipped with touch screens, as well as technology that is capable of running application software, also known as apps (Collins & Ellis, 2015, pp. 3-4). Hew and Lee (2015) stated that mobile devices were becoming a necessity for humans, and now, almost a decade later, it is safe to say that their prediction was correct.

2.1 Mobile Applications

Over the past few decades, a single technological breakthrough has transformed our perception of mobile devices and paved the way for countless other innovations: mobile applications, commonly known as mobile apps. The term 'mobile app' has gained widespread popularity as an abbreviation for mobile applications within different industries, academia, and consumer circles. (McLean, Al-Nabhani, and Wilson, 2018)., 2018.) The success of mobile applications stems from the idea that people desire their mobile devices to be more than a telephone. Pioneers in the wireless technology field, such as Apple's Steve Jobs and the co-founder of Android Andy Rubin, saw the potential in wireless technology way before the end user could even imagine the possibilities that these small devices could offer. (Mind Commerce, 2011.) Consequently, the rapid advancements in the technological field have answered these desires.

Mobile applications encompass software that can be downloaded onto a smartphone's operating system, usually via online platforms such as Apple's App Store or Google's Play Store (McLean et al., 2018). The software planted in mobile applications has one or more purposes to help the user perform tasks. These tasks can be anything from using tools, such as a flashlight, to improving productivity and from enjoying entertainment to shopping. (Bomhold, 2013; Hew et al., 2015; Islam & Mazumder, 2010; Keith et al., 2013.)

While there is no official way to categorize mobile apps, one simple way is to sort them by functionality and purpose. A study by Böhmer et al. (2011) aimed to investigate the duration of interactions users had with various mobile applications and to determine if there were variations in interaction lengths based on application categories. In this study, the researchers categorized mobile applications into 21 different categories extracted from the Android Market, the biggest category being “unknown” containing 4823 applications. (Böhmer et al., 2011.) Furthermore, a study conducted by Huseynov (2020) aimed to evaluate mobile application usage of different categories based on personality traits. In this study, 10 different mobile application categories were identified: “productivity, communication, e-commerce, entertainment & gaming, health & lifestyle, news & magazine, photography & video, searching & browsing, social networking, and tools & utilities”. (Huseynov, 2020.) The application used in this case study, the Housing Fairs application, is categorized under “lifestyle” in Apple’s App Store.

2.1.1 Evolution

When talking about the history of mobile applications, the history of mobile phones should be acknowledged. The first mobile phones in the 1980s-1990s were bulky and the primary purpose of these devices was to get in touch with other cellphone users (Campbell-Kelly & Garcia-Swartz, 2015). However, some phones did include software, which could be categorized as applications. The first smartphone, the Simon Personal Communicator, was launched in 1994 by IBM. This cell phone was equipped with a touchscreen and some basic applications such as a calendar, calculator, and notepad. When Nokia launched the Nokia 6110 in 1997 it included a game called Snake, a revolutionary addition to mobile devices. (Dainow, 2017.) Writer Ayla Angelos summarized the effects of the game as follows: “*Snake was a milestone moment for the mobile gaming industry, and much of what we see today can be linked back to the dawn of the cellular serpent navigating the small, black-and-white screen.*” (Angelos, 2021 para. 17). Although today's world of mobile apps contains applications for countless different uses, the Snake game launched by Nokia was still a pioneer in the world of mobile applications that quickly made mobile phones more than just a means of communication.

With the emergence of mobile internet in the late 1990s and early 2000s, mobile web browsing became feasible. WAP (Wireless Application Protocol) allowed users to access basic web content on their phones, laying the groundwork for the creation of simple mobile apps. WAP gateways mediate between mobile devices and internet servers by translating requests and responses into compressed binary formats. (Mann & Sbihli, 2002, pp. 13-14, 18.) In addition, Java Micro Edition (Java ME) and Qualcomm's Brew platform allowed developers to create and deploy mobile applications across a variety of devices. These early mobile apps were typically simple games, utilities, and productivity tools. (Prabhu & Krishna Prasad, 2019.)

The introduction of the first iPhone in 2007 and Apple's App Store in 2008 changed the mobile app landscape permanently. The iPhone, conceived as a user-

centric mobile communication device, transcended the conventional notions of technology refinement. It embodied a transformative vision, focusing not just on hardware and software enhancements but on holistic user experiences and lifestyle-changing applications. (Thalanany, 2015.)

Following this evolution developers could now distribute their applications to a wide audience of iPhone users, leading to an explosion of creativity and innovation in mobile app development. Google followed suit with the launch of the Android Market (now Google Play) in 2008. The widespread adoption of smartphones, particularly iOS and Android devices, fueled the growth of mobile applications. Developers began creating more sophisticated apps spanning various categories, including social media, gaming, productivity, navigation, and entertainment. (Campbell-Kelly & Garcia-Swartz, 2015; Dainow, 2017.)

As the mobile ecosystem expanded during the decade of 2010, developers sought ways to streamline app development across multiple platforms. Cross-platform frameworks such as React Native emerged, enabling developers to write code once and deploy apps across iOS and Android devices. (Zohud & Zein, 2021.)

With millions of apps available in app stores, developers turned to various monetization strategies, including freemium models, in-app purchases, subscription services, and advertising. App monetization became a significant aspect of mobile app development, driving revenue for developers and app store platforms alike. (Tang, 2016.) Technological advancements like artificial intelligence (AI), machine learning, augmented reality (AR), virtual reality (VR), and 5G networks have further expanded the capabilities of mobile applications. These technologies have enabled developers to create more immersive, personalized, and innovative experiences for users. (Lobkov, 2020.) The technological trends impacting mobile applications will be discussed in more detail in Chapter 2.1.5.

2.1.2 User Growth

The extensive reach of the mobile app landscape is a testament to the dynamic evolution of technology. Operating within this vibrant ecosystem are a plethora of mobile applications designed for various smartphone operating systems, such as those offered by Apple, Google, and Microsoft. By the third quarter of 2022, Google's Play Store boasted an impressive collection of more than 3.5 million apps, while Apple's App Store featured approximately 1.6 million apps (Ceci, 2023b). This proliferation underscores the diverse and expansive nature of the mobile app landscape.

Moreover, the statistics on app downloads reveal a staggering growth trend. In 2016, the number of downloaded apps worldwide stood at 140.7 billion. Fast forward to 2022, and this number surged to an astonishing 255 billion. (Ceci, 2023a.) This equates to almost 32 downloads per year for every human on the planet, highlighting the ubiquity and global significance of mobile applications.

The continuous development of mobile devices is a self-feeding cycle in which users demand more and more from devices and connections. Innovations

that were considered revolutionary just a few years ago are now charmingly vintage or entirely outdated. During the past decade, many factors have contributed to the fact that the popularity of mobile applications only continues to grow. (Collins & Ellis, 2015.) As discussed earlier, technological advancements and innovations have played a pivotal role in this evolution. The proliferation of smartphones, coupled with the widespread availability of broadband mobile connections, including 3G, 4G networks, and more recently, 5G networks, have enabled fast data transfer and improved users' ability to download and use more complex applications (Mihret & Haile, 2021; Salih et al., 2020).

The Internet holds significant prominence in the daily routines of consumers in Finland. As of 2022, Statista (2022) reports that 96 percent of Finnish households have access to the Internet, thereby positioning Finland among the most digitally linked nations globally. Moreover, Official Statistics of Finland (2021) underscore that 93 percent of individuals aged 16 to 89 avail themselves of the internet, with 82 percent engaging as daily users. In 2021 88 percent of Finns aged 16 to 89 owned a smartphone with an internet connection. (Official Statistics of Finland, 2021.)

Finland can be considered one of the most well-connected countries in terms of the internet, particularly in the realm of mobile networks. The prominent mobile operators in Finland offer only unlimited data plans and focus on providing faster connection speed. (Clausnitzer, 2022.) In 2022 the coverage of the 5G network reached more than 80 percent of Finnish households. Fast connections and unlimited data plans enable users to choose mobile networks as their main source for internet usage. 43 percent of households in Finland exclusively rely on mobile connections. (*Small Minority of Users Use the Majority of Data in Mobile Networks*, 2022.)

2.1.3 Mobile Application Lifecycle

While it's often said that all good things must come to an end, the narrative of mobile applications as a cultural and technological phenomenon is far from reaching its conclusion. If we were to assess mobile applications through the lens of the Technology Life Cycle (TLC) model developed by Little (1981), they would likely be situated in the maturity or saturation phase. Having traversed the stages of introduction, growth, and maturity, mobile applications have now proliferated extensively, catering to a wide array of needs and interests. (Little, 1981.) The market has witnessed significant expansion, with numerous application categories reaching a state of maturity. Rather than focusing solely on introducing new applications, the current emphasis lies on refining existing ones, enhancing user experiences, and exploring innovative features. (Markard, 2020.)

Instead of considering all applications as a single entity, it is preferable to examine the lifecycle of each individual application. Böhmer et al. (2011) defined the lifecycle of a mobile application in their study, identifying five stages that list

the lifecycle of an individual application: “installing, updating, opening the application, closing the application, and uninstalling”. The lifecycle of a mobile application is visualized in Figure 1.

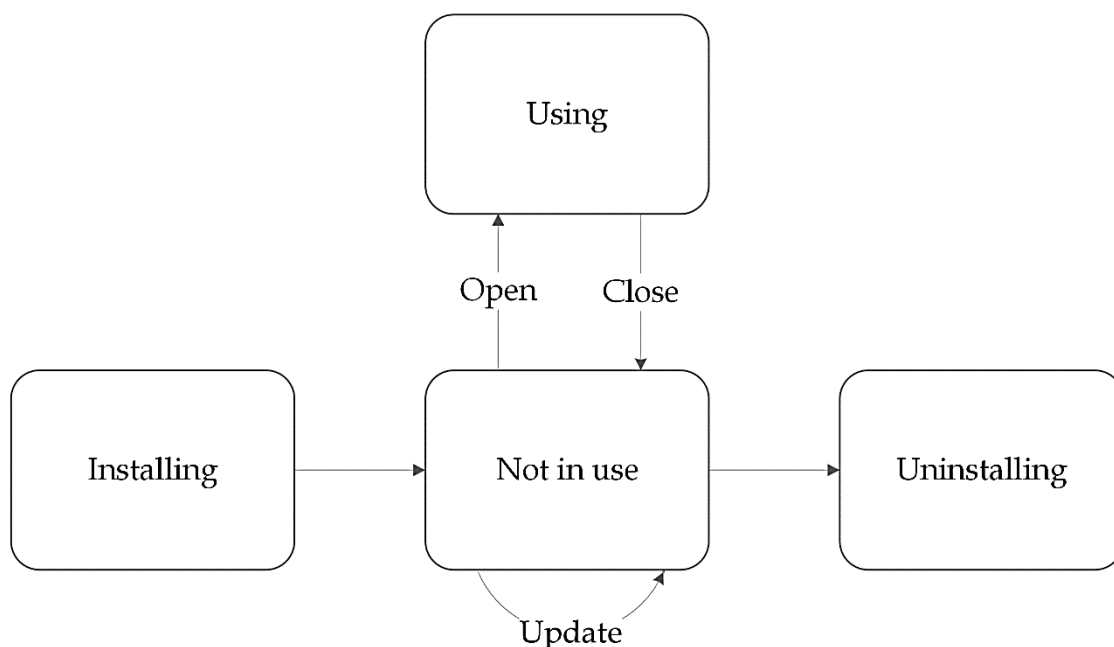


Figure 1 - Mobile Application Lifecycle (Böhmer et al., 2011, p. 48)

The first stage in the mobile application lifecycle is installing the application, i.e., downloading it. The second stage, updating, as noted by Böhmer et al. (2011), could be seen as a sign of enduring interest, although the researchers point out that updates are often automatic, so this stage may not necessarily indicate loyalty. The third and fourth stages involve the actual use of the application. Finally, the fifth stage of the cycle is uninstalling, indicating that the user deletes the application. (Böhmer et al., 2011.)

According to Localytics (2018), only 45% of users continued to use apps one month after their initial download in 2018. Similarly, the report indicated that 68% of users ceased using apps three months after their initial download. Remarkably, not all installed apps remain actively used, with the usage rate typically declining over time. (*Overall Mobile Retention Rate Benchmarks H1 2018*, 2018.) This decline stresses the dynamic nature of user engagement with mobile applications throughout their lifecycle. Furthermore, Molinillo, Aguilar-Illescas, Anaya-Sánchez, and Carvajal-Trujillo (2022) stated that users might routinely delete an application that no longer serves them.

2.1.4 Mobile Application Design and User Interface

The user interface (UI) of an app guides users through their interaction, emphasizing the smooth execution of tasks. Clear instructions are essential for ensuring

a seamless user experience (UX). Additionally, aesthetic elements, including visuals, music, and animations, enhance user enjoyment and satisfaction, potentially boosting app adoption and usage. (Tang, 2016, p. 226.)

To deliver user-centric experiences, developers must grasp user preferences. According to a 2016 study, users prioritize different attributes depending on the app type. Utilitarian apps like navigation prioritize UI and aesthetics, while hedonic apps like games emphasize emotional attachment, achievement, and social norms. Social influence, such as peer recommendations, also plays a significant role. (Tang, 2016, p. 226.)

Hoehle and Venkatesh (2015) argue that poor usability often stems from inadequate app design, where essential aspects are neglected. For instance, while replicating web content into mobile apps may seem logical, it can overload the smaller interface with excessive information. Neglecting usability leads to user dissatisfaction and poor UX. (Hoehle and Venkatesh, 2015.)

This paper will later examine the interconnections among factors influencing mobile app adoption. Specifically, the exploration will focus on how ease of use and perceived usefulness impact user experience and the intention to continue using the app. Building on established frameworks by Davis (1989) and McLean et al. (2018), the crucial role of app design in shaping user experience is acknowledged.

2.1.5 Technological Trends Impacting Mobile Applications

As technological innovations continue to reshape the mobile landscape, developers must embrace emerging trends to meet evolving user expectations and stay competitive in the market. For this study, several trends were identified and acknowledged that have shaped and will continue to shape the mobile app environment tremendously. The first two trends identified are augmented reality (AR) and virtual reality (VR). These technologies, also known collectively as extended reality (XR) have transcended the realm of novelty to become integral components of mobile app experiences. Furthermore, mixed reality (MR) combines elements from both AR and VR into one video output. (Penichet et al., 2013, p. 63.)

AR adds digital information onto the real world, whereas VR puts users into simulated environments (Sukhmani et al., 2019, p. 21). These technologies open new avenues for interactive storytelling, gamification, and immersive brand experiences. Whether enhancing shopping experiences with virtual try-ons or gamifying fitness routines, AR and VR are revolutionizing how users engage with mobile applications. (Furht, 2011.)

The next two trends identified, artificial intelligence (AI) and machine learning are catalysts for personalized and intelligent mobile app experiences. Rob Laurens (2019) divides AI into two entities, “classical AI” and machine learning. Classical AI is powered by algorithms that follow rules set by humans. With machine learning computers use raw data to come up with solutions to given problems. AI-powered chatbots simplify customer service interactions, whereas

machine learning algorithms scrutinize user data for personalized recommendations and predictive insights. (Laurens, 2019, p. 21.)

Furthermore, location-based services (LBS) emerge as another influential trend shaping mobile applications. These features leverage the geographical data obtained from users' devices to offer contextually relevant content and services. Whether it is providing personalized recommendations based on nearby attractions, optimizing route planning for navigation apps, or facilitating location-based social interactions, integrating location features enhances user engagement and utility. (Ahmed et al., 2014.) Additionally, advancements in location technology, such as GPS and geofencing, enable developers to create innovative functionalities that further enrich the user experience and meet evolving user expectations in the mobile app landscape. (McLean et al., 2018, p. 326.)

2.2 Mobile Application Adoption

Mobile application adoption refers to the process by which individuals start using and integrating mobile applications into their daily lives. It involves several stages, starting from awareness of the existence of a particular app, followed by consideration of its usefulness or relevance to the user's needs (Kumar et al., 2018). Adoption then progresses to the actual download and installation of the app onto the user's mobile device. Finally, adoption culminates in regular usage and integration of the app into the user's routine activities. (Wang et al., 2016.)

Several factors influence mobile application adoption, including perceived usefulness, ease of use, perceived enjoyment, compatibility with the user's device, social influence, and perceived risk. Users are more likely to adopt an app if they perceive it as useful, easy to use, and enjoyable. (Talantis, Shin, and Severt, 2020.) Positive feedback from friends, family, or online reviews can also influence adoption decisions. Conversely, concerns about privacy, security, or the app's reliability may hinder adoption. (McLean et al., 2018.)

Understanding mobile application adoption is crucial for app developers, marketers, and businesses seeking to attract and retain users. By identifying the factors that influence adoption, developers can design apps that better meet users' needs and preferences, thereby increasing the likelihood of adoption and long-term usage. (Kumar et al., 2018.) Additionally, businesses can use insights into adoption behavior to refine their marketing strategies and enhance user engagement with their apps. (Talantis et al., 2020.)

2.3 Mobile Applications in Digital Marketing and Corporate Communication

In this digital age, it is no longer sufficient for businesses to be available for their customers physically, but they must be reachable in all of the channels where the customers are (Gao & Huang, 2021, p. 1). According to Sese and Verhoef (2016, p. 18), today's tech-savvy customers can simultaneously engage with a brand across 10 different channels. For companies to maintain their brand image and communication with their customers seamlessly in multiple channels, they need to utilize omnichannel strategies in their operations (Gao & Huang, 2021).

Omnichannel is derived from a multichannel strategy (Gao & Huang, 2021, p. 2), yet there are some distinctive differences between them. In multichannel strategy, companies are present in several channels that work separately, whereas omnichannel strategy aims to create a seamless and unified experience for customers across all touchpoints, regardless of which channel they choose to interact with (Mosquera et al., 2017; Piotrowicz & Cuthbertson, 2014). Omnichannel embodies a holistic marketing approach that incorporates various communication channels, like mobile applications, email marketing, websites, and social media. By adopting an omnichannel approach, businesses can deliver consistent messaging and enhance customer satisfaction throughout the customer journey. (Mosquera et al., 2017.) Furthermore, according to a study by Gao and Huang (2021) high-quality implementation of omnichannel strategies can improve customer loyalty.

With the proliferation of smartphones and the prevalence of mobile internet usage, mobile channels have emerged as key components of corporate communication strategies. Unlike traditional communication channels, mobile platforms offer unparalleled accessibility and immediacy, allowing businesses to engage with their audience anytime, anywhere. As consumer behavior continues to shift towards mobile-centric interactions, organizations must adapt their communication strategies to capitalize on this trend. (Wei et al., 2023, p. 477.)

Mobile channels possess distinct attributes that differentiate them from other communication channels. Unlike websites and social media platforms, mobile applications offer personalized and immersive experiences tailored to the individual user. With features such as push notifications and location-based services, mobile apps enable businesses to deliver targeted content and engage with customers in real time, fostering deeper connections and driving brand loyalty. (McLean et al., 2018.)

Mobile applications offer several advantages in reaching and engaging with the target audience. Firstly, mobile apps provide a direct and intimate channel for communication, allowing businesses to deliver personalized content and promotions directly to users' devices (McLean et al., 2018). Additionally, mobile applications leverage the convenience of mobile technology, enabling users to access information and make purchases on the go (Chopdar & Balakrishnan,

2020). By leveraging the ubiquity of smartphones, businesses can effectively capture the attention of their audience and drive meaningful interactions.

Mobile applications seamlessly integrate into both digital marketing and corporate communications omnichannel strategies, complementing other communication channels to create a cohesive brand experience. Through strategic integration, businesses can leverage the strengths of mobile apps to enhance engagement and drive conversions across all touchpoints. Whether through cross-channel promotions or synchronized messaging, mobile applications play a pivotal role in delivering a unified brand experience to customers.

2.4 Mobile Applications in Business and Events

Several factors contribute to the appeal of mobile applications as attractive platforms for companies. Firstly, mobile applications can encompass a significant potential for customer interaction due to their features and visual appeal (Kim, Lin, and Sung, 2013). Secondly, these apps facilitate both individual and group interactions (Watson, McCarthy, and Rowley, 2013), independent of time or geographical location (Alnawas & Aburub, 2016). Thirdly, mobile applications effectively convert communication efforts into engaging customer experiences (Kim & Yu, 2016). E.g., apps enable value-generating actions like purchases and information retrieval (Natarajan, Balasubramanian, and Kasilingam, 2017). Consequently, when utilized effectively, apps provide companies with diverse avenues to attain marketing objectives, shaping and guiding the customer journey to their benefit (Wang et al., 2016). In essence, apps enable companies to adopt a digital customer-centric approach, gaining competitive edges through enhanced customer experiences (Kopalle, Kumar, and Subramaniam, 2020).

Watson et al. (2013) characterize mobile applications as “the ultimate marketing vehicle”, while Rohm, Gao, Sultan, and Pagani (2012) have identified them as “pivotal promotional tools for organizations”. The ongoing improvement of app development tools and techniques, coupled with the increasing penetration of smartphones across diverse demographics, ensures that mobile applications will remain a central focus for businesses seeking to enhance their market presence and customer engagement strategies (Collins & Ellis, 2015).

2.4.1 Mobile Applications in Event Management

In the context of events, mobile applications serve as powerful tools for engaging attendees and enhancing the overall event experience. By providing event information, facilitating registration, and offering interactive features, mobile apps play a central role in driving attendance and fostering engagement. As stated by Talantis et al. (2020, p. 101) the Meetings, Incentives, Conferences, and Exhibitions (MICE) industry is not immune to the sweeping transformations brought

about by technology. In recent years, event management professionals have observed a transformation in the conceptualization and execution of events. Among these technological innovations, mobile event applications have emerged as a transformative force within the MICE sector, witnessing remarkable growth over the last decade. These apps hold significant influence, enabling event planners to enrich every aspect of event management, allure sponsors and exhibitors, share information, spread content, gather data, and ultimately enhance the customer experience of the attendees. (Ozturk et al., 2021; Talantis et al., 2020.) Moreover, mobile applications extend the event experience beyond the physical venue, allowing attendees to stay connected and informed throughout the event lifecycle.

How customers adopt and utilize different mobile applications for their use has been studied broadly in different fields. In the MICE industry, studies have explored the adoption and usage of mobile applications in the context of music festivals (Luxford & Dickinson, 2015). Furthermore, several studies have investigated the use of mobile applications in diverse cultural events, including carnivals and parades (Della Lucia, 2013; Han et al., 2016; Hiramatsu et al., 2017; Larsen & Stopczynski, 2011). A study conducted by Talantis et al. (2020) specifically delved into conference attendees' attitudes toward mobile event applications. However, it's important to acknowledge that the term "MICE industry" encompasses a wide range of event types, each with its unique characteristics and requirements. Consequently, there remains a notable gap in research within the field of meetings and event management concerning the acceptance of emerging technological trends by users across various event contexts.

For instance, the case company under examination in this study, the Finnish Housing Fairs, represents a markedly distinct event category when compared to music festivals or conferences. Thus, further research is imperative to comprehensively explore how technology adoption varies across different segments of the MICE industry.

2.4.2 Mobile Event Applications

The technology used in an event setting is referred to as event technology. Event technology, either hardware or software, can be used for many different purposes before, during, and after the event. Mobile event applications (MEAs) fall under the umbrella term of event technology. Utilizing MEAs in an event setting can be beneficial for both, attendees, and event organizers. (Talantis et al., 2020, p. 102.) The general idea behind MEAs is to maximize the effectiveness of the user, whether an organizer of the event, an employee, an exhibitor, or a customer visiting the event (Luxford & Dickinson, 2015).

Talantis et al. (2020, p. 103) refer to customers' own mobile devices as "vehicles" to drive them to new technological advances, while Wei et al. (2023, p. 477) state that MEAs have the opportunity to provide both external and internal value propositions. From an external point of view, MEAs can increase attendees' efficiency while attending the event by providing important information via the

application. From an internal perspective, MEAs can appeal to attendees' hedonic values through networking, gaming, etc. Furthermore, reducing the reliance on printed materials makes the event more hassle-free and, thus more enjoyable. (Wei et al., 2023, p. 477.)

Leveraging mobile event applications represents an effective strategy for event organizers. This approach enables them to keep attendees well-informed and actively engaged. (Talantis et al., 2020, p. 103.) By utilizing MEAs at an event, the organizers are ensuring that the attendees are accessing necessary information in real time and as seamlessly as possible. Referring to the metaphor presented earlier about mobile devices as vehicles, with the help of MEAs, the organizers are creating the map in which these "vehicles" navigate. Furthermore, mobile applications offer the potential to enhance cost efficiency in event operations. There is feasibility in reducing the reliance on printed materials like schedules and event information, presenting organizers with an opportunity to champion environmentally conscious business practices by substituting traditional print materials with innovative mobile applications. (Wei, Tracy, Lu, and Hua, 2017; Wei et al., 2023.)

Finally, MEAs offer a chance to gather and analyze data in a way that wasn't possible before. In the era before mobile technology, the means by which event organizers could collect data about the attendees, especially in a live setting, were quite limited. MEAs are tools to help solve this problem. Mobile applications by nature capture data and analytics, thus providing information for not only the organizers but also sponsors, exhibitors, and other stakeholders. This two-way street benefits both ends, organizers can attract sponsors and exhibitors by providing inviting data from previous events, such as the number of attendees, and exhibitors who are present at the event can gain insights that their resources couldn't capture. (Talantis et al., 2020, p. 101.)

3 FACTORS INFLUENCING MOBILE APPLICATION ADOPTION – A THEORETICAL FRAMEWORK

In this research, the main framework that was followed is the Mobile Application Customer Experience (MACE) model created by McLean, Al-Nabhani, and Wilson (2018) which in turn is derived from several other validated theoretical models such as the Technology Acceptance Model (TAM) created by Davis (1989). The combination of the TAM and MACE frameworks offers several benefits for understanding the factors influencing user adoption and usage of mobile applications.

Overall, the TAM framework and the MACE model provide a tailored and empirically validated approach to studying mobile application adoption and usage in the event environment. Their focus on user experience, comprehensive coverage of relevant constructs, and practical utility make them ideal choices for this study compared to other models or frameworks that may lack specificity or empirical support in this context.

TAM focuses on cognitive factors like perceived ease of use and usefulness, while MACE delves into affective and experiential aspects such as satisfaction and enjoyment. By integrating both frameworks, a more comprehensive understanding of user behavior was obtained, while offering practical insights for improving mobile application design and marketing strategies. Next, the frameworks are discussed in more detail.

TAM Framework

The Technology Acceptance Model (TAM), developed by Fred Davis in 1989, is a widely used theoretical framework aimed at understanding and predicting users' acceptance and adoption of new technology. The model is grounded in behavioral psychology and posits that users' perceptions of a technology's usefulness and ease of use significantly influence their intention to use the technology, which in turn affects their actual usage behavior. (Davis, 1989.)

The central premise of the TAM framework (Figure 2) is that perceived usefulness and perceived ease of use determine users' attitudes and behavioral intentions toward adopting a new technology. Users who perceive a technology as both useful and easy to use are more likely to develop positive attitudes towards it and, consequently, express stronger intentions to use it. (Davis, 1989.)

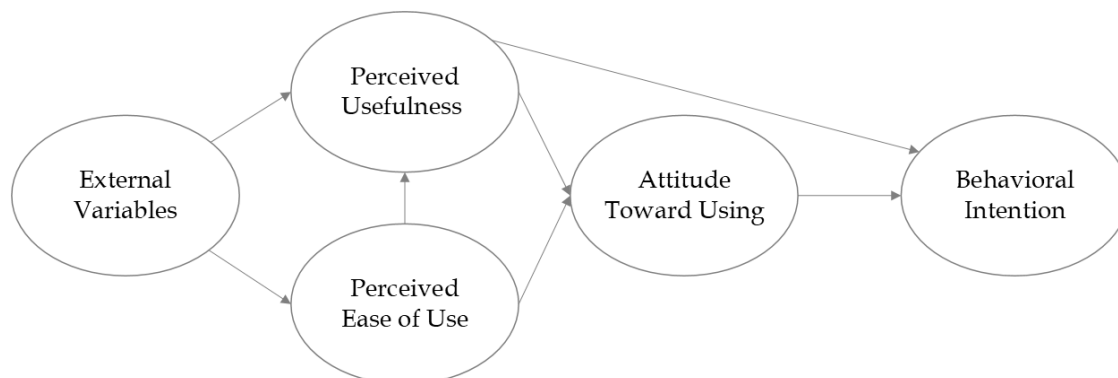


Figure 2 - Technology Acceptance Model (Davis, 1989)

TAM has been widely used in empirical research across various fields, including information systems, human-computer interaction, and marketing. Researchers often employ TAM to assess users' acceptance and adoption of specific technologies, such as mobile applications, websites, software systems, and digital platforms. By measuring users' perceptions of usefulness and ease of use, researchers can identify factors that influence technology adoption and develop strategies to foster acceptance among the intended users. (Natarajan et al., 2017; Roy, 2017; Venkatesh & Davis, 2000; Wei et al., 2023.) Lee, Xiong, and Hu (2012) used TAM to study how emotions are connected to Facebook as a marketing tool. Additionally, the researchers found that for larger local events, the utilization of mobile applications helps to streamline the event process and that the application can act as a gateway to other social media channels maintained by the company or other stakeholders. (Lee et al., 2012.)

Over the years, TAM has undergone several extensions and modifications to enhance its explanatory power and applicability to different contexts. In the TAM2 framework, Davis and Venkatesh (2000) extended the original TAM by incorporating external variables such as subjective norms, image, and job relevance to provide a more comprehensive model of technology acceptance. In addition, Venkatesh, Morris, Davis, and Davis (2003) integrated elements from various technology acceptance models, including TAM, the Theory of Reasoned Action (TRA), and the Theory of Planned Behavior (TPB), to develop a unified model, called Unified Theory of Acceptance and Use of Technology (UTAUT) that accounts for a broader range of determinants of technology acceptance. Furthermore, the MACE model, developed by McLean et al. in 2018, builds upon the foundational principles of TAM by incorporating additional constructs that focus specifically on the unique attributes of mobile apps and users' experiences with them (McLean et al., 2018).

In these studies, factors such as user experience, enjoyment, and customer satisfaction have emerged as critical determinants of mobile application usage and satisfaction. These factors provide valuable insights into understanding users' behaviors and preferences, shedding light on avenues for enhancing the design and functionality of mobile applications to better meet user needs and expectations.

MACE model

The MACE model (Figure 3), short for Mobile Application Customer Experience, was developed by McLean, Al-Nabhani, and Wilson in 2018 to provide a comprehensive framework for understanding users' perceptions and behaviors regarding mobile applications. The purpose of the MACE model is to offer a systematic framework for researchers and practitioners to analyze and evaluate various aspects of mobile application adoption, usage, and satisfaction. By considering multiple dimensions of users' experiences with mobile apps, the model aims to provide insights into factors that influence users' acceptance and continuance intentions. (McLean et al., 2018)

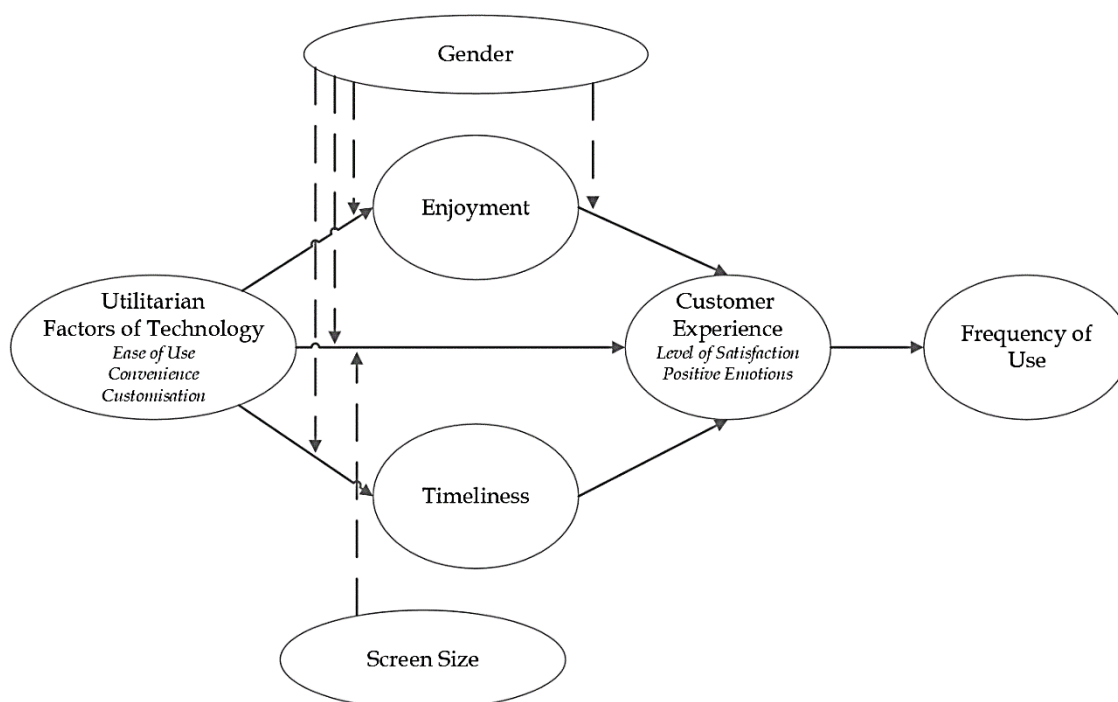


Figure 3 - Mobile Application Customer Experience Model (McLean et al., 2018, pp.332)

The MACE model has been empirically validated in previous studies (Khan et al., 2023; Molinillo et al., 2022; Stocchi et al., 2022), demonstrating its effectiveness in explaining and predicting user behavior within mobile applications. The MACE model encompasses various constructs such as usability, usefulness, enjoyment, and customer satisfaction, which are directly relevant to the research questions and hypotheses of this study. These constructs provide a solid foundation for examining the factors influencing users' adoption and continued usage of mobile applications. Moving forward, the following sections will delve into the factors affecting mobile application adoption and usage found relevant in the context of this study.

3.1 Mobile Application Ease of Use

Ease of use (EOU), as explained by McLean, Al-Nabhani, and Wilson (2018), emphasizes the simplicity with which users can learn and comprehend the basic functions of modern technology. In the realm of mobile application usability, it is important to differentiate ease of use from mobile device usability, the latter referring to the user-friendliness of the operating system, such as iOS (Hoehle & Venkatesh, 2015).

Among a plethora of studies conducted related to the factors influencing mobile application adoption ease of use as a variable has held its ground. Kim et al. (2016) developed a conceptual model that examines the factors that affect app usage among smartphone users. The research found ease of use to be one of the most significant factors. (S. C. Kim et al., 2016) Likewise, a study by Roy (2017, pp. 257–259) aligns with these results stating that perceived ease of use leads to app adoption along with perceived usefulness.

Furthermore, in the context of technology adoption, perceived ease of use is linked to perceived usefulness, as posited by both the original TAM (Davis, 1989) and its extension, TAM2 (Venkatesh and Davis, 2000). The IS Success Model, formulated by DeLone and McLean (1992), suggests that system quality, including ease of use, influences the perceived usefulness of information systems.

According to the TAM, perceived ease of use also shapes users' behavioral intention to use technology (Davis, 1989). In the context of this study, ease of use emerges as a critical factor influencing attendees' intention to continue using the mobile application for events. Venkatesh and Davis (2000) additionally propose that perceived enjoyment influences ease of use, subsequently affecting perceived usefulness. Also, user satisfaction and confirmation of expectations, including ease of use, have been shown to foster continued use (Bhattacharjee, 2001). Considering these theoretical frameworks, it is plausible to hypothesize that:

H1 Ease of use has a significant positive effect on usefulness.

H2 Ease of use has a significant positive influence on attendees' intention to continue use.

Furthermore, the TAM framework posits that perceived ease of use and perceived usefulness are key determinants of users' attitudes and intentions to use technology (Davis, 1989). Thus, it can be argued that perceived ease of use positively influences users' attitudes toward the mobile application. Research conducted by Rose, Clark, Samouel, and Hair (2012) found that ease of use plays an important role that can influence customers' emotions. Additionally, the MACE model presents that there is a direct relationship between utilitarian factors (consisting of ease of use, convenience, and customization) and the customer experience (McLean et al., 2018). Given the theoretical background, it is reasonable to hypothesize that:

H3 There is a direct relationship between ease of use and customer experience.

The current Housing Fair application does not offer customization features; thus, it was not used as a variable for this study. While some research found that within the online environment, customization might not have as significant an effect on customer experience as ease of use (Martin et al., 2015), McLean et al. (2018) found that customization, provided together with ease of use and convenience, affects customer experience and perceived enjoyment of the application. Offering customized features might make users feel like they are spending less time on the app. This, in turn, leads to a more positive overall customer experience. (McLean et al., 2018) The potential necessity of incorporating customization features into the application will be discussed later in the discussion chapter 6.

3.2 Mobile Application Usefulness

Davis (1989, p. 320) defined perceived usefulness (PU) as "the degree to which a person believes that using a particular system would enhance his or her job performance." Alongside ease of use, usefulness has been proven to be one of the most significant factors in mobile app adoption. While Davis formulated the TAM framework in a time without smartphones or mobile applications, the concept of perceived usefulness seamlessly aligns with the contemporary scenario of mobile applications. Various apps, whether facilitating navigation, networking, or conducting routine banking activities, serve distinct purposes in enhancing job performance.

The perceived usefulness of technology has been proven to significantly influence the willingness to adopt and utilize it in the future. Karjaluoto, Shaikh, Saarijärvi, and Saraniemi's (2019) research indicates that perceived usefulness positively influences behavioral intentions for future technology-based products. Wei et al. (2023) further emphasize that, in the context of MEAs, perceived usefulness is connected to enhancing enjoyment. The user experience of an MEA is less likely to be pleasant if the user does not find it useful. Usefulness is intricately entwined with enjoyment and behavioral intentions in the realm of mobile devices and applications. (Wei et al., 2023) Drawing on past research, the following hypotheses can be formulated:

H4: Perceived usefulness of the application positively influences its enjoyableness.

H5: Perceived usefulness of the application positively influences attendees' intention to continue use.

3.3 Mobile Application Enjoyment

Davis, Bagozzi, and Warshaw (1992) defined perceived enjoyment (PE) as "the level to which the level of using technology is perceived as enjoyable on its own,

without taking into account the performance consequences that the user expects". The user's perceived usefulness of the technology has been found to influence how willing they are to adopt and utilize it in the future. Research conducted by Karjaluoto et al. (2019) found that the perceived usefulness of technology-based products has a positive influence on behavioral intention in the future. Wei et al. (2023) state that in the case of MEAs, the perceived usefulness of MEA is more likely to lead to better enjoyment, and in turn, the user experience of MEA is unlikely to be pleasant if the user does not find it useful. Usefulness has been proven to live in a tight symbiosis with enjoyment and behavioral intentions when it comes to mobile devices and more specifically applications. Given these theoretical implications, past research gives a strong reason to hypothesize that:

H6: Enjoyableness positively influences attendees' intention to continue use.

Enjoyment has emerged as a contemporary factor in technology acceptance models, complementing the enduring roles of ease of use and usefulness (McLean et al., 2018, pp. 327). The level of enjoyment, as per Venkatesh (2000), assesses the subjective experience of using a system without considering its performance effects. This factor is intricately linked to ease of use and usefulness, implying that users are more likely to find an application enjoyable if they perceive it as easy to use and beneficial usefulness (Magrath & McCormick, 2013).

In the context of the Finnish Housing Fairs, the user's enjoyment is crucial, as dissatisfaction with the application's utility or ease of use may result in a suboptimal user experience, especially for those comparing the event experience with and without the application across multiple attendances over the years. Consequently, an exploration into whether the number of attendances at previous housing fairs impacts customer satisfaction becomes pertinent.

Users are more likely to embrace technology if they perceive it as easy to use. Therefore, it can be argued that ease of use is positively related to users' attitudes and intentions to use the Finnish Housing Fairs app. Moreover, the MACE model sets ease of use as an integral aspect of the user experience (McLean et al., 2018). As the level of enjoyment the user has during the use of the application has been proven to lead to satisfaction with the overall experience (Hsiao, Chang, and Tang, 2016), and the MACE model highlights that a user's perception of the app's ease of use significantly impacts their overall experience (McLean et al., 2018), it can be hypothesized that:

H7: Ease of use drives a level of enjoyment during the use of the application.

H8: The level of enjoyment a user has during the use of the application will influence a user's level of satisfaction with the user experience.

3.4 Mobile Customer Experience

Mobile Customer Experience (CX) refers to the quality of interactions and engagements that customers have with a brand or organization through mobile devices, such as smartphones and tablets (Hamouda, 2021). Abbott (1955, p. 40), cited by Lemon and Verhoef (2016), highlighted that “*what people truly desire are not just products but satisfying experiences.*” This emphasis on customer experience is driven by the evolving nature of customer interactions. Nowadays, customers interact with businesses through numerous touchpoints across various channels and media platforms. To meet customers' needs effectively, companies must understand the dynamic customer journey and identify key touchpoints along the way. (Valdez Mendia & Flores-Cuautle, 2022)

Lemon & Verhoef (2016, p. 69 & 70) emphasize the significance of these changes, suggesting that customer experience is becoming one of the most critical research challenges in customer management. They assert that understanding the customer journey involves recognizing the multitude of touchpoints and pathways the customer navigates to achieve their goals. (Lemon & Verhoef, 2016)

In contrast to traditional retail applications, where the end goal is typically a purchase, the Finnish Housing Fair application illustrates a more complex scenario. Here, the application serves as just one part of a broader customer journey, encompassing multiple touchpoints. By offering digital customer orientation and superior experiences through mobile apps, companies can gain a competitive edge (Kopalle et al., 2020). As mobile applications become increasingly integrated into event experiences, it is essential to consider the overall customer experience as a determinant of continued usage. Given the existing theory and the context of this study, it is reasonable to hypothesize that:

H9: The overall customer experience will influence how likely the user is to continue the use.

Research Model

The TAM framework and the MACE model were utilized to create a research model pictured in Figure 4 with the hypotheses. The created research model adapts to the original theoretical frameworks to understand mobile application adoption and the formation of customer experience in the mobile application. The constructs included in the model were selected based on the theoretical implications discussed earlier in this study and the case study that is the focus of this research.

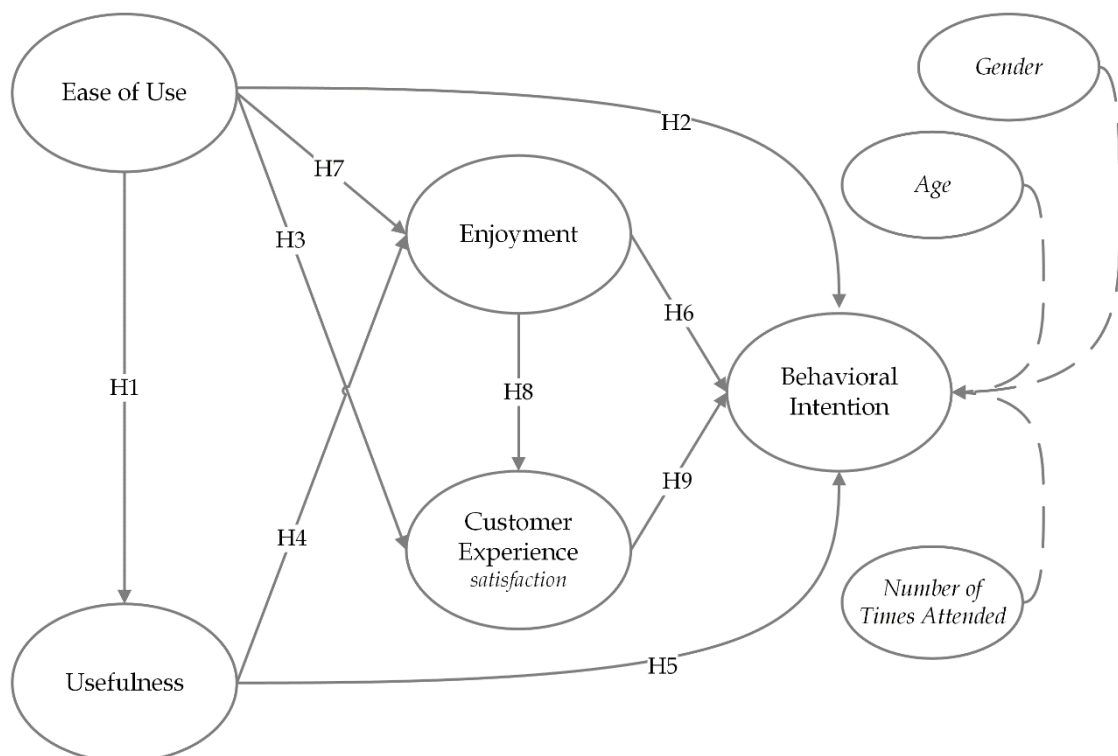


Figure 4 - Research Model

4 METHODOLOGY

In this chapter, the methodology of this study is presented. First, the context of this study is provided by introducing the commissioning company in detail. Second, the chosen research method is explained and justified. Third, the data collection methods are described, followed by the ethical considerations. Fourth, it is explained how the collected data was prepared and later analyzed. Finally, the research model formulated for this study is presented together with a detailed description of the research variables.

4.1 Research Context - The Finnish Housing Fairs

The Finnish Housing Fairs (*Asuntomessut*) is an annual event organized in Finland that showcases innovative and high-quality housing solutions. The event is organized by the Finnish Housing Fairs Cooperative (*Osuuskunta Suomen Asuntomessut*) which is a network of housing professionals, including architects, builders, and designers. The organization was founded in 1964 (Kuoppamäki, 2020, p. 55) and it has played an instrumental part in shaping the landscape of the Finnish construction, housing, and living markets ever since.

The first ever Housing Fair event was held in 1970 and the main objective was to increase knowledge and improve quality in construction and housing. Over the years, these themes have remained at the heart of the event, but as the world changes, new topical themes have been added. Concepts like energy saving, sustainability, and interior design are now playing a big part in the event. (*Asuntomessujen organisaatio*, n.d.) The event focuses on various types of homes, ranging from single-family houses to apartment buildings. The showcased homes are often fully furnished and equipped, allowing visitors to explore the latest trends in interior design, technology, and sustainable solutions.

The Housing Fair event contains several distinctive factors that make the event unique. The uniqueness lies in its commitment to innovation, quality, sustainability, public engagement, and its influence on the evolution of housing standards in Finland. (E. Strengell, personal communication, March 21, 2023) First, the event is hosted in different cities across Finland each year which highlights the diversity of Finnish architecture and urban planning. Second, the event allows industry professionals to display new concepts, materials, and techniques while reflecting on current trends. Third, the event is open to the public and allows visitors to tour the homes, gather ideas for their own living spaces, and interact with industry professionals. It provides a platform for potential homebuyers to explore different housing options and gather information about the latest developments in the housing market. Fourth, the event also serves as a networking platform for professionals in the housing industry. Architects, builders, and suppliers come together to exchange ideas, showcase their work, and establish

connections within the industry. Finally, The Finnish Housing Fair has had a lasting impact on industry standards in terms of design, construction, and planning. It has influenced and elevated the expectations for quality and innovation within the Finnish housing market. (Kuoppamäki, 2020; E. Strengell, personal communication, March 21, 2023)

4.2 Quantitative Research

With the Housing Fair application being a new addition to the event, it is meaningful to explore the attitudes of a large audience rather than focusing on a small group of eventgoers, thus a quantitative approach was deemed as appropriate methodology for this study. The data for this survey was collected using quantitative research methods and deductive reasoning. Quantitative research is usually best suited to collect and analyze large amounts of data (Vilkka, 2021), thus it was chosen for this research. Deductive reasoning begins with the construction of the theoretical framework and hypotheses which is followed by data collection and analysis. (Page, 2015, p. 296)

Quantitative research methods primarily involve capturing data in numeric form using tools like scales. In contrast, qualitative research focuses on gathering data in narrative form. Quantitative methods are particularly suitable for research involving large-scale questionnaire surveys to validate research questions or theoretical models. Within a business context, gathering quantitative data is often referred to as survey research. This method proves most effective when seeking information from a sizable group of individuals. (Hair et al., 2015, pp. 217–218, 207)

Approximately 10,000 people downloaded the application and the survey conducted for this research gained 245 responses, meaning that only about 2 % of the users who downloaded the application answered the survey. Furthermore, a research model was structured based on existing literature that will be assessed later in this thesis.

4.3 Data Collection Methods

The data for this quantitative study was collected using self-completion methods, more specifically a survey planted in the Finnish Housing Fair application which consisted of a structured questionnaire derived from theory. Self-completion methods involve delivering structured questionnaires to respondents through various channels, such as mail, fax, or electronically. These questionnaires are designed for respondents to complete independently without the presence of a

researcher. (Hair et al., 2015, p. 210) According to Hair et al. (2015, pp. 209), structured questionnaires offer a quick and convenient method for gathering quantitative data from numerous individuals efficiently.

The sampling took place in July and August of 2023, simultaneously with the Housing Fair event. The data collection needed to happen concurrently with the application launch and the event. Given that the event occurs annually and spans less than a month, it was crucial to ensure that the data collection was efficiently and sensibly planned. Structured questions were pre-tested before data collection to test the functionality and to ensure validity.

It is worth noting that although this thesis is in English, the primary language of the commissioning organization and the attendees of the Finnish Housing Fair event is Finnish. Additionally, the application this research focuses on is also in Finnish. Therefore, the survey questionnaire was provided in Finnish. Language translation accuracy was ensured through the utilization of the back translation technique (Kolb, 2008, p. 74). The questionnaire underwent an initial translation from English to Finnish by the researcher, followed by a back-translation into English by a colleague. Consistency was ensured through comparisons between the two versions.

The survey was exclusively accessible through the application, consequently delineating the study's target demographic as individuals who have downloaded and used the application. Notably, participation in the survey was not dependent on attending the Finnish Housing Fair event in person. Upon purchasing a ticket online or via the application, the user received an access code to log into the application and thus also gained access to the content offered exclusively to logged-in users. Appendices 1 and 2 contain the complete survey, with the original version presented in Finnish followed by its English translation. Additionally, a more detailed discussion of the questionnaire is provided in chapter 4.6.

4.3.1 Ethical Considerations for Data Collection and Storage

Before delving into the data preparation process, it is important to address the ethical procedures implemented for collecting and storing data following GDPR (General Data Protection Regulation) guidelines. The protection of participants' privacy and ensuring informed consent are essential aspects of any research endeavor. (Hair et al., 2015, p. 62)

In this study, ethical considerations were meticulously addressed to uphold the rights and privacy of the participants. Before data collection, all respondents were informed about the purpose of the study and the terms and conditions associated with their participation. The survey included explicit terms and conditions from both the commissioning organization, the Finnish Housing Fairs, and the University of Jyväskylä.

Moreover, participants were required to accept these terms and conditions before proceeding to answer the survey questions. A notification at the beginning of the survey clearly stated that the study was conducted jointly with the Finnish

Housing Fairs and the University of Jyväskylä for a master's thesis. It emphasized that all responses would be treated as strictly confidential, and no information would be forwarded to third parties without consent.

By adhering to these ethical standards, the study ensured that participants were well-informed about the survey's purpose and implications, and their privacy and confidentiality were protected throughout the data collection process. Additionally, it is important to note that the collected data was securely stored and will be promptly discarded after the completion of the writing process.

4.4 Data Preparation

When dealing with numerical data sets it is important to perform certain procedures to ensure correct analysis. The art of converting numerical data into knowledge is called data preparation. Data preparation procedures include editing, coding, and transforming to be correctly used in statistical analysis. (Hair et al., 2015, p. 316) Furthermore, the data was collected in Webropol using a 5-point Likert scale and later transferred to SmartPLS and SPSS for analysis, for which the pre-set structured responses had to be converted into numerical form using Excel. With this transfer, the data was coded so that each answer was assigned to a specific number. E.g., in the Likert scale questions, 1 indicated "totally disagree, 5 indicated totally agree and numbers from 2 to 4 indicated the answers between these extremes.

Before transferring the data into SmartPLS and SPSS, the data was inspected to ensure completeness and consistency. During the inspection, no inconsistencies were discovered. However, the survey was tailored based on the responses received from the respondents. This approach ensured that questions related to the 2023 Housing Fair event were relevant only to those attendees, as it would be illogical to inquire about the impact of the event application on the fair visit experience for individuals who had not attended. To avoid invalid data, some survey items were not displayed to all the respondents. If a respondent indicated during the survey that they did not physically attend the event, questions regarding the application's impact on the fair event were hidden. These hidden questions are highlighted in the survey visualization provided in Appendix 2. Consequently, the dataset contains instances of missing data, which were addressed by assigning discrete missing values. By employing this meticulous approach, the reliability, and compatibility of the data can be ensured. (Hair et al., 2015, p. 318)

4.5 Data Analysis Techniques

The data analysis techniques used in this study involved both SmartPLS and SPSS software. Initially, SPSS was used to collect descriptive statistics of the respondents, providing an overview of the sample characteristics, and to gather descriptive statistics for each variable. Later, SmartPLS was utilized to assess the variability and reliability of the research model, employing techniques such as obtaining outer loading values for each variable. Because the variables used in this study contained different numbers of measurement units and scales, the data needed to be standardized. In the context of statistical analysis, standardization refers to a process of transforming variables to have a mean of zero and a standard deviation of one. This transformation is often applied to make variables comparable and to ensure that all variables contribute equally to the analysis, regardless of their initial scales or measurement units. (Hair et al., 2015, p. 388) The standardization process was automatically performed by the PLS software. After establishing correlations between the variables, new summated variables were created for linear regression analysis using SPSS, complemented by the PROCESS extension developed by Andrew F. Hayes.

Linear regression analysis is a statistical method commonly used to examine the relationship between one dependent variable and one or more independent variables. It is particularly suitable for this thesis as it allows for the exploration of how the independent variable, e.g. ease of use impacts outcome variables like perceived usefulness, intention to continue use, and customer experience. By utilizing linear regression, the strength and direction of these relationships can be quantified, and the significance of the hypothesized associations can be assessed. Furthermore, Linear regression analysis is well-suited for this research due to its ability to assess the relationships between multiple predictor variables and one or more outcome variables simultaneously. (Montgomery et al., 2021; Uyanık & Güler, 2013)

4.6 Research Variables

All measures utilized in the survey were derived from existing literature and included a total of six variables. It should be noted that while the original validated questions were adapted from existing literature, some modifications were made to the specific context of this study. Each variable was measured with two to six indicators. Ease of use was measured with six indicators adapted and modified from McLean et al. (2018) and Davis (1989). Perceived usefulness was similarly measured with six indicators adapted from Wei et al. (2022) and Hair et al. (2009). Perceived enjoyment was assessed using three indicators adapted and modified from McLean et al. (2018) and Davis, Bagozzi, and Warshaw (1992). Customer

experience was evaluated with three indicators adapted from Chopdar and Balakrishnan (2020), G. McLean et al. (2018), and Song and Zinkhan (2008). Finally, when assessing behavioral intention, the first indicator was adapted from Huang et al. (2019) and the second was adapted from Tueanrat, Papagiannidis, and Alamanos (2021) and modified to fit the context by adapting Lemon and Verhoef (2016). The constructs and indicators used are presented in Table 1.

Table 1 - Survey Variables and Indicators

Variable	Indicators	Empirical Support
Ease of Use (EOU)	<p><i>EOU1</i> I find the Housing Fair app easy to use.</p> <p><i>EOU2</i> The process of logging into the application was easy.</p> <p><i>EOU3</i> My interaction with the Housing Fair app is clear and understandable.</p> <p><i>EOU4</i> Learning to use the Housing Fair app has been easy for me.</p> <p><i>EOU5</i> I find it easy to get the Housing Fair app to do what I want it to do.</p> <p><i>EOU6</i> The appearance and design of the application are visually attractive and user-friendly.</p>	McLean et al. (2018), Davis (1989)
Perceived Usefulness (PU)	<p><i>PU1</i> When attending The Finnish Housing Fairs, using the Housing Fair app enables me to navigate better within the area.</p> <p><i>PU2</i> When attending The Finnish Housing Fairs, using the Housing Fair app made my visit smoother.</p> <p><i>PU3</i> When attending The Finnish Housing Fairs, using the Housing Fair app made my overall visit better.</p> <p><i>PU4</i> When attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly.</p> <p><i>PU5</i> When planning on attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly.</p> <p><i>PU6</i> Overall, I find the Housing Fair app useful.</p>	Wei et al. (2022), Hair et al. (2009)
Perceived Enjoyment (PE)	<p><i>PE1</i> I find that the use of the Housing Fair app evokes positive feelings in me.</p> <p><i>PE2</i> I have fun using the Housing Fair app.</p> <p><i>PE3</i> The actual process of using the Housing Fair app had a positive effect on my image of the Finnish Housing Fairs.</p>	McLean et al (2018), Davis, Bagozzi, and Warshaw (1992)
Customer Experience (CX)	<p><i>CX1</i> I am satisfied with the experience that the app provides.</p> <p><i>CX2</i> When attending the Finnish Housing Fairs, the app had a positive effect on my experience.</p> <p><i>CX3</i> My experience in this application has worked out as well as I thought it would.</p>	Chopdar & Balakrishnan (2020), G. McLean et al (2018), Song & Zinkhan (2008)

Behav- ioral In- tention (BI)	<i>BI1</i> I will use the app in the future. <i>BI2</i> I will recommend others to use.	Huang et al. (2019), Tueanrat et al. (2020), Lemon & Verhoef (2016)
----------------------------------------	--------------------------------------------------------------------------------------------	------------------------------------------------------------------------------

A 5-point Likert scale was used as the basis of measurement with the designated extremes 1 = totally disagree and 5 = totally agree. Additionally, the Net Promoter Score (NPS) with a 1-10 scale was integrated and used as one of the indicators measuring behavioral intention (BI2). Lemon and Verhoef (2016) highlight that NPS tends to focus on future outcomes, thus appropriate to use in this context. NPS, created by Reichheld (2003) is commonly used to measure attitudes and perceptions. However, NPS can provide a unique dimension of focusing on behavioral intent, i.e., the likelihood of recommending a product or service. The use of NPS also aligns with Ajzen's (1991) Theory of Planned Behavior, which posits that behavioral intent is a key predictor of actual behavior. Accordingly, this mixture provides a more holistic understanding of the situation while the Likert scale variables measure attitudes towards the use of the application, NPS assesses the intention to recommend the applications to others.

Some personal and demographic characteristics were also collected from the respondents for further analysis. The respondents were asked to indicate their age, gender, and the number of times they had attended the Finnish Housing Fairs event over the years.

5 RESULTS

The results of the study are presented in this chapter, beginning with an analysis of descriptive statistics related to the respondents' profiles. Subsequently, descriptive statistics for each variable indicator examined in the study are provided. Descriptive statistics were retrieved from the survey results by using SPSS Statistics.

5.1 Descriptive Statistics

The demographics of the respondents are presented in Table 2. Out of the 245 respondents, 74.3 percent (n = 182) were female, 23.7 percent (n = 58) were male, 0.4 percent (n = 1) self-identified as something other than female or male and 1.6 percent (n = 4) preferred not to disclose their gender. The age distribution of the study is as follows, 9.8 percent (n = 24) were 18 - 24 years old, 28.2 percent (n = 69) were 25 - 35 years old, 22 percent (n = 54) were 36 - 45 years old, 22.4 percent (n = 55) were 46 - 55 years old, 12.2 percent (n = 30) were 56 - 65 years old, and 5.3 percent (n =13) were 66 years old or older.

Table 2 - Demographic profile of respondents

Demographics	n.	(%)
<i>Total</i>	245	100
<i>Gender</i>		
Female	182	74.3
Male	58	23.7
Other	1	0.4
Prefer not to answer	4	1.6
<i>Age</i>		
18-25	24	9.8
26-35	69	28.2
36-45	54	22.0
46-55	55	22.4
56-65	30	12.2
66 or more	13	5.3

The ease of use of the application, perceived by the users, was measured with six different indicators. These indicators were derived from the theory discussed previously in Chapter 3 and were designed to measure the usability, clarity, task performance, and design aesthetics of the application comprehensively. The results, presented in Table 3, indicate that users, on average, rated the ease of use at 4.20, indicating a positive sentiment. The median (=4) and mode (=4) both align with the mean, suggesting a relatively consistent agreement among respondents.

The standard deviation of 0.896 indicates moderate variability in responses. Furthermore, the users perceived the login process as easy, with the responses averaging 4.28, indicating a high level of ease. The median and mode being at the upper end of the scale (5) suggest a strong consensus among users. The standard deviation of 0.996 indicates a moderate level of variability in responses.

In terms of how clear and understandable users perceived their interaction with the application, the average rating is 4.21, indicating positive perceptions. The median and mode align with the mean, and the standard deviation of 0.880 suggests consistent agreement among respondents. The responses regarding how easy it was to learn to use the application continue in the same line as the previous answers, the mean being 4.36, thus suggesting a high level of ease. Both the median and mode are at the upper end of the scale, indicating a strong consensus. The standard deviation of 0.830 suggests a relatively low variability in responses. The average rating for the variable focusing on task performance is 4.07, indicating positive perceptions. The median (=4) and mode (=4) align with the mean, and the standard deviation of 0.985 suggests moderate variability in responses. Finally, for the variable measuring appearance and design the average rating is 4.21, indicating positive perceptions. The median (=4) and mode (=5) align with the mean, and the standard deviation of 0.915 suggests relatively consistent agreement among respondents.

The results suggest that users generally perceive the application positively in terms of ease of use, login process, clarity, learning experience, task performance, and design aesthetics. The standard deviations indicate some variability in responses, but overall, the feedback is favorable. When taking into consideration that the Likert scale used for the measurement was a 5-point scale and the overall results for mean, median, and mode all being above 4, it can be concluded that the users found the application easy to use.

Table 3 - Descriptive Statistics for Ease of Use

		Mean	Median	Mode	Std. Dev.
EOU1	<i>I find the Housing Fair app easy to use.</i>	4.20	4	4	0.896
EOU2	<i>The process of logging into the application was easy.</i>	4.28	5	5	0.996
EOU3	<i>My interaction with the Housing Fair app is clear and understandable.</i>	4.21	4	5	0.880
EOU4	<i>Learning to use the Housing Fair app has been easy for me.</i>	4.36	5	5	0.830
EOU5	<i>I find it easy to get the Housing Fair app to do what I want it to do.</i>	4.07	4	4	0.985
EOU6	<i>The appearance and design of the application are visually attractive and user-friendly.</i>	4.21	4	5	0.915

The users perceived level of usefulness was measured with six variables focusing on the navigation within the area, the overall visit with the application, accomplishing tasks in a timely manner before and during the visit and the overall usefulness perceived by the users. The results presented in Table 4 indicate

that users generally perceive the application as useful, with slightly varying levels of positivity across different aspects. The responses of the users who attended the event before answering the survey yielded a mean of 3.88 in terms of how useful they found the application for navigation purposes in the area. This indicates a moderately positive perception among users. The median and mode both align at 4, signifying a consensus. However, the standard deviation of 0.981 suggests a moderate level of variability in responses, indicating diverse viewpoints regarding the app's role in facilitating on-site navigation.

Users expressed positive sentiments regarding the impact of the app on the smoothness of their visit, with a mean of 3.86. The median and mode, both at 4, indicate a shared perception among respondents. The standard deviation of 0.93 suggests a moderate level of variability, highlighting differing views on the extent to which the app contributes to a smoother visit. Furthermore, when measuring overall visit enhancement, the statement "When attending The Finnish Housing Fairs, using the Housing Fair app made my overall visit better" yielded a mean of 3.76. While this indicates a positive perception, the median at 4 and the mode at 3 suggest some variability in responses. The standard deviation of 1.034 underscores the diversity of opinions regarding the app's overall impact on the visitor experience.

Regarding efficiency in task accomplishment, both during and before the visit, users expressed a moderately positive perception. The mean for "When attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly" is 3.81, and for "When planning on attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly" it is 3.61. The median and mode for both statements indicate a consensus, yet the higher standard deviations (1.057 and 1.049) suggest a notable degree of variability in user opinions, particularly regarding pre-visit task efficiency. Users, on average, rated the app slightly higher in terms of efficiency when attending the event (μ : 3.81) compared to planning in advance (μ : 3.61). This suggests a relatively stronger perceived impact of the app on task efficiency during the actual visit. The slightly higher mean for the statement related to attending the event may suggest that users find the app more immediately beneficial during the on-site experience. Conversely, the lower mean for planning may indicate a perception that the app's impact on task efficiency is somewhat diminished in the preparatory phase.

When measuring the overall usefulness of the application, the statement "Overall, I find the Housing Fair app useful" gained a notably high mean of 4.3, indicating a robust positive perception among users. The median and mode, both at 5, underscore a strong consensus among respondents. The standard deviation of 0.904, while indicating some variability, aligns with the overall positive trend, emphasizing the app's perceived utility among users.

While users generally view the Finnish Housing Fairs application as a valuable tool, there exists variability in perceptions across different dimensions of its usefulness, especially in terms of overall visit improvement and efficiency in

task accomplishment before attending the event. These nuanced insights can inform strategies to further enhance the app's functionalities and address user expectations.

Table 4 - Descriptive Statistics for Perceived Usefulness

		Mean	Median	Mode	Std. Dev.
PU1	<i>When attending The Finnish Housing Fairs, using the Housing Fair app enables me to navigate better within the area.</i>	3.88	4	4	0.981
PU2	<i>When attending The Finnish Housing Fairs, using the Housing Fair app made my visit smoother.</i>	3.86	4	4	0.930
PU3	<i>When attending The Finnish Housing Fairs, using the Housing Fair app made my overall visit better.</i>	3.76	4	3	1.034
PU4	<i>When attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly.</i>	3.81	4	4	1.057
PU5	<i>When planning on attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly.</i>	3.61	4	4	1.049
PU6	<i>Overall, I find the Housing Fair app useful.</i>	4.3	5	5	0.904

Next, the perceived enjoyment of the users was measured with three variables. The results concerning the users' perceived enjoyment of the application offer insights into the affective dimension of the user experience. The construct of perceived enjoyment was assessed by considering its impact on evoking positive feelings, the enjoyment derived from app usage, and its positive influence on the organization's brand image. The results are presented in Table 5.

From the point of view of evoking positive emotions, the mean score of 3.96 indicates a generally positive sentiment among users. The median and mode, both at 4, suggest a central tendency in the responses. However, the standard deviation of 1.005 indicates a moderate level of variability, pointing to diverse emotional responses among users. Furthermore, when measuring perceived fun with the application, the statement "I have fun using the Housing Fair app" yielded a mean score of 3.92, signifying a positive but slightly lower perceived enjoyment compared to the evocation of positive feelings. The median is 4, and the mode is 5, indicating some variability in responses. The standard deviation of 1.023 suggests a moderate level of diversity in the extent to which users derive enjoyment from using the app.

Users, on average, rated the statement "The actual process of using the Housing Fair app had a positive effect on my image of the Finnish Housing Fairs" at 4.04. This suggests a generally positive impact of the app on users' perceptions of the organization's brand image. The median and mode, both at 4, indicate a consensus among respondents. The standard deviation of 0.985 reflects a moderate level of variability, highlighting differing degrees of influence the app has on

users' overall impressions. The results indicate that, overall, users perceive a positive emotional dimension in their interactions with the Housing Fair app. The app is not only seen as functional but also as capable of evoking positive feelings and contributing to a sense of enjoyment, as demonstrated by the fun users report having while using it.

While there is a general alignment in users' perceptions of positive affect, the variability in responses, as indicated by the standard deviations, suggests that the emotional impact of the app may vary among individual users. This variability could be attributed to differences in personal preferences, expectations, or experiences with the application.

Furthermore, the positive effect of the app on users' overall impressions of the Finnish Housing Fairs is noteworthy. This implies that, beyond its functional utility, the app plays a role in shaping users' broader perceptions of the event, potentially contributing to a positive and enjoyable overall experience. Understanding these aspects of perceived enjoyment is crucial for refining the user experience, as it provides insights into not only the functional aspects of the app but also its ability to elicit positive emotions and enhance users' overall engagement with the organization.

Table 5 - Descriptive Statistics for Perceived Enjoyment

		Mean	Median	Mode	Std. Dev.
PE1	<i>I find that the use of the Housing Fair app evokes positive feelings in me.</i>	3.96	4	4	1.005
PE2	<i>I have fun using the Housing Fair app.</i>	3.92	4	5	1.023
PE3	<i>The actual process of using the Housing Fair app had a positive effect on my image of the Finnish Housing Fairs.</i>	4.04	4	4	0.985

The customer experience provided by the application was measured with three variables focusing on general satisfaction, the application's positive effect on event experience, and how the use aligned with users' expectations. The results are presented in Table 6.

Users, on average, expressed satisfaction with the experience provided by the app, as indicated by a mean score of 4.02. The median and mode, both at 4, suggest a central tendency in responses. However, the standard deviation of 1.02 points to a moderate level of variability, underscoring diverse satisfaction levels among respondents. Additionally, the statement "When attending the Finnish Housing Fairs, the app had a positive effect on my experience" received an average score of 3.83, indicating a generally positive impact. The median and mode, both at 4, suggest a consensus among users. Nevertheless, the standard deviation of 1.062 points to varying degrees of influence the app had on individual experiences during the event.

Finally, on average the users indicated that their experience in the application has met their expectations, with a mean score of 3.91. The median and mode, both at 4, indicate a central tendency in responses. The standard deviation of

1.024 suggests moderate variability, reflecting differing degrees of alignment between user expectations and actual experiences.

Overall, the results depict a positive yet varied landscape of user experiences within the application. Users are satisfied with the app's performance, suggesting a generally positive sentiment. However, the variability in responses, as reflected by the standard deviations, indicates that individual experiences vary, with some users expressing higher levels of satisfaction than others.

The positive effect of the app on the overall experience during the Finnish Housing Fairs event is evident, although the degree of impact varies among users. This variability could be attributed to differences in user preferences, app usage patterns, or individual expectations regarding the app's contribution to their event experience. Furthermore, the alignment between users' experiences and their expectations, while generally positive, also exhibits diversity. Some users may find their experiences closely match their expectations, while others may perceive a gap between what they anticipated and what the app delivered.

Understanding these nuances in user satisfaction and the app's impact on overall experiences is crucial for refining the application and tailoring it to meet diverse user needs. Insights gained from these results can inform strategic improvements, ensuring that the app continues to enhance overall customer experiences within the context of the Finnish Housing Fairs.

Table 6 - Descriptive Statistics for Customer Experience

		Mean	Median	Mode	Std. Dev.
CX1	<i>I am satisfied with the experience that the app provides.</i>	4.02	4	4	1.020
CX2	<i>When attending the Finnish Housing Fairs, the app had a positive effect on my experience.</i>	3.83	4	4	1.062
CX3	<i>My experience in this application has worked out as well as I thought it would.</i>	3.91	4	4	1.024

The behavioral intention of the application was measured with two indicators focusing on the user's own intention to use the application in the future and intention to recommend the application to others. The results are presented in Table 7.

The results of users' behavioral intentions provide valuable insights into the likelihood of continued use. The statement "I will use the app in the future" received a positive mean score of 4.24, indicating a strong intention among users to continue using the application. Both the median and mode align at 4 and 5, respectively, suggesting a consensus among respondents. The relatively low standard deviation of 0.969 indicates a consistent inclination among users to utilize the app in the future. The positive sentiment bodes well for the app's sustained adoption among its user base.

The statement "I will recommend others to use" was measured using the Net Promoter Score (NPS) on a scale of 1-10. The average score of 7.95 is notably

high, reflecting a strong likelihood that users would recommend the app to others. The median and mode, both at 8 and 10, indicate a consensus among users. However, the higher standard deviation of 2.19 suggests a greater degree of variability in users' likelihood to recommend the app, highlighting diverse opinions among respondents. This variability could be influenced by factors such as individual user experiences, preferences, or perceived value of the app to others.

These findings collectively suggest that users are not only inclined to continue using the app themselves but also express a favorable disposition towards recommending it to others. While the variability in recommendation intentions implies differing degrees of advocacy among users, the overall positive trend underscores the potential for the Housing Fair app to benefit from word-of-mouth promotion and continued user engagement. Strategic efforts to address the concerns of users with lower recommendation intentions may further enhance overall user satisfaction and advocacy.

Table 7 - Descriptive Statistics for Behavioral Intention

		Mean	Median	Mode	Std. Dev.
BI1	<i>I will use the app in the future.</i>	4.24	4	5	0,969
BI2	<i>I will recommend others to use.</i>	7.95	8	10	2,190

5.2 Validity and Reliability Testing

The examination began by obtaining outer loading values of the indicators to assess the reliability and validity of the measurement model. When examining the outer loadings for individual indicators (Table 8), all indicators gained a value higher than 0.5. More specifically, all indicators except EOU2 (value of 0.567) gained a value higher than 0.7. The commonly cited threshold of acceptable factor loading in SEM is 0.7, however, loading between 0.5 and 0.7 is considered moderate. (Hair et al., 2015) It is also considerable that the indicator value of EOU2 could still be interpreted to explain more than half of the variance of the variable. Thus, it was decided not to remove any indicators from the model. It's worth noting that EOU2 measured a slightly different aspect (log-in process) compared to the other indicators, which could account for its slightly higher outer loading value.

Table 8 - Outer Loadings

Indicator	Outer Loading
EOU → EOU1	0.907
EOU → EOU2	0.567
EOU → EOU3	0.852
EOU → EOU4	0.843
EOU → EOU5	0.876
EOU → EOU6	0.827
PU → PU1	0.791
PU → PU2	0.845
PU → PU3	0.850
PU → PU4	0.833
PU → PU5	0.867
PU → PU6	0.792
PE → PE1	0.936
PE → PE2	0.928
PE → PE3	0.919
CX → CX1	0.926
CX → CX2	0.846
CX → CX3	0.915
BI → BI1	0.932
BI → BI2	0.923

Furthermore, to test the reliability and validity of the research model the Average Variance Expected (AVE) and composite reliability should be examined. According to Hair and Page (2015, p. 448), the benchmark for AVE to be considered acceptable is 0.5. The results presented in Table 9 indicate good reliability, as the AVE on three of the five variables, BI, CX, and PE, demonstrate strong convergent validity (values ranging from 0.803 to 0.861). The AVE for ease of use (0.752) indicates satisfactory convergent validity while the AVE of perceived usefulness (0.689) indicates moderate convergent validity. The generally acceptable values for composite reliability are values above .7 and values above .9 can be considered excellent (Hair et al., 2015, p. 448). As seen in Table 9 composite reliability of the variables ranged from 0.925 to 0.949. Thus, the results are in line with the AVE values indicating strong internal consistency and reliability. Additionally, the composite mean and median for each summated variable are presented.

Table 9 - Reliability and Validity of the Model

	AVE	Composite Reliability	Composite Mean	Composite Median
Ease of Use EOU	0.752	0.938	4.21	4.40
Perceived Usefulness PU	0.689	0.930	3.82	3.83
Perceived Enjoyment PE	0.861	0.949	3.98	4.00
Customer Experience CX	0.803	0.924	3.96	4.00
Behavioral Intention BI	0.860	0.925	4.21	4.50

The results presented in the correlation matrix (Table 10) show the relationships between the constructs of the structural model, along with the square root of the Average Variance Expected (AVE) values on the diagonal, which represent the constructs' convergent validity. Upon reviewing the results, it becomes evident that the square root of AVE exceeds the correlations among the latent variables. According to the Fornell-Larcker Criterion, the square root of the average variance extracted by a construct must exceed the correlation between the construct and any other construct (Fornell & Larcker, 1981). These observations confirm the presence of discriminant validity. Overall, the results suggest that the measurement model exhibits good reliability and validity, as evidenced by the strong correlations between constructs and satisfactory AVE values.

Table 10 - Correlation Matrix with AVE Square Roots on Diagonal

	BI	CX	EOU	PE	PU
BI	0.937				
CX	0.826	0.896			
EOU	0.774	0.797	0.867		
PE	0.811	0.833	0.731	0.928	
PU	0.724	0.810	0.621	0.696	0.830

5.3 Hypothesis Testing

In this chapter, the hypotheses formulated earlier will be put to the test using quantitative analysis techniques. The primary objective is to examine the relationships between various factors influencing users' adoption and usage of mobile applications within the context of event environment.

Additionally, the analysis will delve into the impact of moderator variables, age, gender, and the number of times attended to the event, on the dependent variable: intention to use. Understanding how demographic factors influence users' intentions to continue using mobile applications can offer valuable insight for tailoring marketing strategies and enhancing user engagement. The results of the linear regression analysis are presented in Table 11.

Table 11 - Results of Linear Regression Analysis

	Hypotheses	Path Coefficient β	t-value	p-value	Support
H1	EOU \rightarrow PU	.6569	10.8183	.0000	Supported
H2	EOU \rightarrow BI	.2042	2.9217	.0040	Supported
H3	EOU \rightarrow CX	.3222	6.2119	.0000	Supported
H4	PU \rightarrow PE	.4503	7.5806	.0000	Supported
H5	PU \rightarrow BI	.1934	2.7977	.0058	Supported
H6	PE \rightarrow BI	.3517	4.5017	.0000	Supported
H7	EOU \rightarrow PE	.4251	6.9803	.0000	Supported
H8	PE \rightarrow CX	.3599	6.2062	.0000	Supported
H9	CX \rightarrow BI	.2091	2.2189	.0279	Supported

Overall, the results of the research support each of the nine hypotheses. The findings indicate that there is a statistically significant relationship between ease of use and usefulness. As commonly used threshold for statistical significance is $p < 0.05$. and $t > 1.96$ (Hair et al., 2015), the analysis reveals that ease of use significantly influences perceived usefulness ($\beta = 0.6569$, $t = 10.8183$, $p = 0.000$), demonstrating a strong positive effect within the context of mobile application adoption in an event environment. About 42.36% of the variance in perceived usefulness can be explained by ease of use alone. Hence, it can be stated that H1 is supported.

In support of H2, the results suggest that ease of use directly impacts attendees' intention to continue using the application. The statistically significant beta coefficient ($\beta = 0.2042$) indicates that for every one-unit increase in ease of use, there is a corresponding increase in attendees' intention to continue using the application. Furthermore, the high t-value ($t = 2.9217$) and low p-value ($p = 0.0040$) suggest that the relationship is statistically significant, providing robust evidence to support H2.

The results also indicate that ease of use directly affects the overall customer experience. The significant beta coefficient ($\beta = 0.3222$) signifies that there is a positive relationship between ease of use and customer experience and the high t-value ($t = 6.2119$), and extremely low p-value ($p = 0.000$) indicate that this relationship is statistically significant, thus supporting H3.

In support of H4 and H5, the results indicate that the perceived usefulness not only influences the enjoyableness of the application but also the intention to continue using it in the future. For H4 the results of the beta coefficient ($\beta = 0.4503$) indicate a strong positive relationship between perceived usefulness and perceived enjoyment and the high t-value ($t = 7.5806$), and very low p-value ($p = 0.000$) demonstrate that this relationship is statistically significant. Based on the provided values, H4 can be supported. The results for H5 suggest a slightly weaker relationship compared to other hypotheses, with the beta coefficient ($\beta = 0.1934$) indicating a positive relationship, moderate t-value ($t = 2.7977$), and low p-value ($p = 0.0058$). However, the results still provide credible evidence to support H5.

In line with other hypotheses, the results for H6 indicate that the enjoyableness of using the application directly influences attendees' intention to continue using it. The beta coefficient ($\beta = 0.3517$), the high t-value ($t = 4.5017$), and the very low p-value ($p = 0.000$) demonstrate that a strong positive relationship exists between these variables and that it is statistically significant, thus it can be concluded that H6 is supported.

In addition to perceived usefulness, customer experience, and intention to continue use, the results show that ease of use positively affects the level of enjoyment experienced by users. The beta coefficient ($\beta = 0.4251$) indicates a strong positive connection, supported by a high t-value ($t = 6.9803$) and an extremely low p-value ($p = 0.000$), which collectively demonstrate its statistical significance and provide convincing evidence for supporting H7.

Furthermore, it is evident that the level of enjoyment experienced by users directly impacts their satisfaction with the user experience, as hypothesized in H8. The strong positive relationship is underscored by the significant beta coefficient ($\beta = 0.3599$). This association is further supported by the high t-value ($t = 6.2062$) and exceptionally low p-value ($p = 0.000$), providing strong statistical evidence in favor of H8.

Similarly, H9 posits that the overall customer experience influences users' likelihood of continuing to use the application. The beta coefficient ($\beta = 0.2091$) highlights a positive relationship in this regard. Although the t-value ($t = 2.2189$) is moderate and the p-value ($p = 0.0279$) slightly higher, indicating some statistical significance, it still lends support to H9.

Table 12 - R²-values

Dependent variable	R ² -value	Effect
PU	.4236	Fairly moderate
PE	.6603	Moderate
CX	.8104	Significant
BI	.7222	Nearly significant

In addition, based on the provided R²-values in Table 12, it is evident that each of the mediating and dependent variables (usefulness, enjoyment, customer experience, and behavioral intention) accounts for a significant portion of the variance in the model. According to Hair et al. (2015), R²-values indicate the degree to which the independent variable explains changes in the dependent variables. R²-values can vary between 0 and 1, depending on the strength of the effect. Ease of use significantly impacts various aspects of user perception and behavior across different domains. For perceived usefulness, ease of use explains approximately 42.36% of the variance, characterized as "fairly moderate." Perceived enjoyment demonstrates a moderate influence, with ease of use explaining about 66.03% of the variance. For customer experience, ease of use significantly affects around 81.04% of the variance, labeled as "significant." Finally, behavioral intention is also notably influenced, with ease of use explaining approximately 72.22% of the variance, described as "nearly significant." These results strengthen the validity of the relationships examined in the hypotheses.

Moderating Variables

In addition to studying the independent, mediating, and dependent variables, some moderating variables were added to examine if age, gender, or the number of times attended affects the intention to use the application in the future. The decision to focus on the possible relationship between the moderating variables and the dependent variable was made based on two factors. First, by focusing on the moderating effects of age, gender, and the number of times attended specifically on behavioral intention, the analysis is streamlined to the key relationships

relevant to the research objectives. This targeted approach allows for a more focused investigation into the factors directly impacting users' intentions to continue using the mobile application.

Second, given that the research model primarily examines the factors influencing behavioral intention, it is logical to prioritize the examination of moderators that directly influence this outcome variable. Age, gender, and frequency of attendance are potential moderators that could impact individuals' intentions to continue using the application, thus warranting investigation in this context.

Table 13 - Analysis Results for Moderating Variables

Moderating variables	Path Coefficient β	t-value	p-value
Age	.0895	1.9183	.0568
Gender	.0491	1.1638	.2462
Number of times attended	-.0045	-.0968	.9230

The values of the moderating variables are presented above in Table 13. The results indicate that gender may have a moderate influence on attendees' intention to continue using the mobile application with a beta coefficient value of 0.491. However, the t-value being relatively low ($t = 1.1638$) and the p-value ($p = 0.2462$) being over the benchmarked < 0.05 the relationship is not statistically significant. While the beta coefficient implies a positive association, the lack of statistical significance suggests that gender may not play a significant moderating role in influencing attendees' behavioral intention to continue using the application. These findings contradict prior research indicating that gender can have a notable influence on the factors deemed significant by users. In a study by McLean et al. (2018), it was discovered that female users derive enjoyment from utilitarian aspects of the application, such as ease of use. In contrast, male users are primarily influenced by their perception of enjoyment derived from the application.

In terms of age, the beta coefficient ($\beta = 0.0895$) suggests a positive but relatively weak relationship between age and behavioral intention. This indicates that age may have a slight influence on attendees' intention to continue using the mobile application. The t-value ($t = 1.9183$) is relatively high, suggesting a potential degree of significance. However, the p-value ($p = 0.0568$) is slightly above the conventional threshold of 0.05, indicating that the relationship is not statistically significant at the typical significance level. The positive beta coefficient implies that older attendees may have a slightly stronger intention to continue using the application compared to younger attendees. While the relationship shows some promise, the lack of statistical significance suggests that age may not be a significant moderator of behavioral intention in this context.

Based on the results, the number of times attended to the event does not significantly impact attendees' intention to continue using the mobile application. The near-zero beta coefficient ($\beta = -0.0045$) and lack of statistical significance ($t = -0.0968$ and $p = 0.9230$) suggest that the frequency of attendance at the event has minimal to no effect on attendees' intention to continue using the application. These findings underscore the importance of considering various factors beyond event attendance when examining user behavior and intention in the context of mobile application adoption.

6 DISCUSSION AND CONCLUSION

In this part of the research, the findings and conclusions are discussed to answer the initial research question *“What are the factors that influence customers' adoption of a mobile application within the context of a fair event environment?”* Following this, both, theoretical and practical implications are presented. Subsequently, suggestions for further studies are provided, and finally, the limitations of this study are deliberated.

6.1 Discussion

In this section, the initial research question is discussed by summarizing the key insights gained from the study while comparing and contrasting them with existing knowledge.

The primary research question aimed to identify the factors influencing the adoption of mobile applications within a fair event environment. The analysis revealed several significant findings that shed light on the dynamics of mobile application adoption and usage in this context.

Firstly, the results consistently highlight the critical role of ease of use in driving mobile application adoption within fair events. Ease of use influences usefulness, which aligns with the original TAM (Davis, 1989) as well as other previous research (Venkatesh and Davis, 2000). Additionally, ease of use influences behavioral intention, as indicated by existing research (Ozturk et al., 2021).

Moreover, the study demonstrates that ease of use affects overall customer experience, echoing the findings of McLean et al. (2018), who found that the ability to complete tasks in a timely manner, plays a crucial role in the overall customer experience.

Usefulness influences perceived enjoyment and behavioral intention, which is consistent with previous research (Wei et al., 2023), suggesting that when users find value in the application's features, they are more likely to enjoy using it and express intent to engage with the application in the future. Notably, the results align with previous studies (Ozturk et al., 2021; Wei et al., 2023) conducted specifically within the context of the MEA environment; thus highlighting the importance of these relationships.

Furthermore, the study found that perceived enjoyableness influences behavioral intention, consistent with the findings of Wei et al. (2023), who found that if event attendees find value in the use of the application, they are less inclined to continue using it solely based on its usefulness, yet more inclined to continue using it if they find it enjoyable.

Regarding the relationship between ease of use and perceived enjoyment, the results conflict with some previous studies (Hernandez, Jimenez, and Jose

Martin, 2009; Balouchi et al., 2017; Talantis et al., 2020). Talantis et al. (2020) suggested that ease of use might not significantly impact perceived enjoyment if the user is "smartphone and app savvy." However, given that the respondents in this study consisted of individuals across all age groups and this event marked their first experience with an application integrated into the event, it can be argued that not all respondents were "smartphone and app savvy," explaining the significant relationship between ease of use and perceived enjoyment.

Furthermore, the study found that enjoyment impacts customer experience with the application, aligning with previous research (Gao and Huang, 2021). Overall satisfaction with the customer experience influences behavioral intention, consistent with previous research (Verhoef et al., 2009; McLean, Al-Nabhani, and Wilson, 2018), underscoring the importance of delivering a seamless and satisfying user experience to drive engagement and loyalty among users.

While age, gender, and frequency of attendance were examined as potential moderating variables, the results suggest that they may not significantly impact users' intention to continue using the mobile application within the fair event context. While there are slight indications of age influencing the intention to continue using the application, the lack of statistical significance suggests that these factors may not play a significant moderating role. However, past research (McLean et al., 2018) offers an interesting perspective on the importance of app customization and personalization. The continuous development of applications to meet customer preferences is therefore crucial.

Overall, these findings enhance the understanding of the factors that influence the adoption of mobile applications within fair event environments, highlighting the importance of addressing user-centric factors such as ease of use, perceived usefulness, and customer experience in designing and implementing mobile applications within this context. By prioritizing these factors, event organizers can enhance user satisfaction, engagement, and ultimately, the success of their events.

6.2 Conclusion

This study has clarified the critical factors shaping the adoption of mobile applications within fair event environments. The findings underscore the important role of ease of use in driving app adoption and its subsequent impact on perceived usefulness, enjoyment, and overall customer experience, aligning with existing research. However, while these results contribute to a better understanding of mobile app adoption dynamics, they do not offer groundbreaking insights or explicitly bridge identified research gaps.

Moving forward, future studies must go beyond the confines of existing theory and delve deeper into the specific contexts of mobile app adoption within fair events. By contextualizing findings within broader theoretical discussions and identifying novel insights, researchers can enhance the contributions of their

work to the existing literature on the Technology Acceptance Model (TAM) and the Mobile Application Customer Experience (MACE) model. This entails exploring the applicability of theoretical frameworks in diverse event contexts and explaining unique insights that advance the theoretical understanding.

In conclusion, while this study provides valuable insights into the factors driving mobile app adoption in fair events, there is room for further exploration to enrich theoretical discussions and uncover new dimensions of mobile app usage dynamics. By embracing this challenge, researchers can propel the field forward and uncover deeper insights into the intricate interaction between technology adoption and user experience within event settings.

6.3 Theoretical Implications

The omnipresence of technology necessitates strategic adaptations by MICE industry stakeholders. Traditional business models must evolve to meet the demands of tech-savvy consumers who expect seamless digital experiences and instant access to information. Integrating mobile applications into event strategies allows organizers to stay relevant and competitive in the evolving landscape. As the results of this study highlight, a highly successful and implemented integration of an application into an event can increase customer satisfaction and boost customer loyalty. Satisfied customers are also willing to recommend the application to others.

While the results of the study are largely in line with the previous theory and research, it highlights the important role each variable plays in whether consumers continue to use an application. Depending on the purpose for which the application was created and whether the application is intended to serve as a communication channel between the company and customers outside of the event, it is important to consider the overall effect created by individual variables. Moreover, the study underscores the importance of continuous improvement and innovation in meeting the evolving needs and preferences of users, ultimately driving long-term success and sustainability in the mobile application market.

The data collection of this survey took place within the same application environment that the users were already in. This goes to show that mobile applications provide valuable insights into attendee behavior and preferences, enabling data-driven decision-making for event organizers. Analyzing app usage patterns and feedback allows organizers to tailor event experiences to better meet attendees' needs and preferences, ultimately enhancing satisfaction and loyalty.

In the context of the Finnish Housing Fairs, the user did not need to attend the event physically to be able to access the materials planted in the application. In other words, users had access to the event on their phones. The integration of mobile applications opens opportunities for innovation in the MICE industry. By embracing new technologies and leveraging mobile platforms creatively, event

organizers can differentiate themselves, attract a broader audience, and deliver memorable and impactful event experiences tailored to the preferences and convenience of their clientele, regardless of time or location.

The overall tone of the results is positive; thus, it can be concluded that the respondent perceived the application as a good addition to their event experience. However, there are some practical implications to be made for companies operating in the event field and who are planning to utilize applications for their events.

6.4 Practical Implications

Given the significant impact of ease of use on various aspects of mobile application adoption, organizations should prioritize enhancing the user experience of their application. This includes streamlining navigation, simplifying features, and ensuring intuitive design to make it easy and enjoyable for users to interact with the app.

Since perceived usefulness positively influences both enjoyment and intention to continue using the application, organizations should focus on highlighting the most valuable features of the app to users. This could involve showcasing how the app helps attendees navigate the fair, access important information, or engage in interactive experiences.

Recognizing the importance of customer experience in driving satisfaction and continued usage, organizations should invest in strategies to enhance engagement with the app. This could include personalized content recommendations, interactive features like gamification or quizzes, and timely notifications to keep users informed and engaged throughout the fair. Furthermore, theoretical insights (Huseynov, 2020; McLean et al., 2018; Mosquera et al., 2017) suggest that incorporating such features can significantly enhance the user experience. Customization allows users to tailor the application to their preferences, reducing time spent navigating irrelevant content and increasing engagement with personalized features. Integrating customization options can further differentiate the application and provide users with a more tailored and enjoyable experience.

6.5 Limitations & Suggestions for Future Research

While this study provides valuable insights, it is essential to acknowledge its limitations. In this chapter, some limitations are discussed together with ideas for future research. First, the context of this study is specific in terms of the industry and geographical location. As discussed earlier, the Finnish Housing Fair event is unique and possesses characteristics not found in other fair event environments. This limits the generalizability of the findings to other contexts within the

MICE industry. Future research might benefit from a comparison between the adoption and usage patterns of mobile applications across diverse types of fair events (e.g., trade shows, conferences, exhibitions) to identify similarities, differences, and factors influencing adoption in diverse event contexts.

Second, the sample size of respondents for the survey conducted as part of this research was relatively small compared to the total number of users who downloaded the application. With approximately 10,000 downloads of the application, the survey garnered only 245 responses. This low response rate, representing approximately 2% of the application users, raises concerns about the generalizability of the findings to the broader population of application users. The small sample size limits the extent to which the results can be extrapolated and may not fully capture the diverse perspectives and experiences of all application users.

Third, while the variables and the research model utilized in the analysis were derived from existing theory, the study focused on specific factors influencing mobile application adoption within the context of a fair event environment. Other potentially relevant variables, such as socio-economic status, technological proficiency, or prior experience with similar applications, were not explored, which could impact the comprehensiveness of the findings. The decision not to explore certain variables was a deliberate choice made to maintain the focus and feasibility of the study within the context of fair events. While these variables may indeed be relevant in other contexts or for broader research inquiries, they were not prioritized in this study to ensure clarity, depth, and relevance to the specific research question at hand.

Even though all the nine hypotheses set were confirmed, the moderating variables did not deliver trustworthy results. As discussed, based on the results gender did not have a significant relationship with the intention to continue using the application. Further investigation or larger sample sizes may be necessary to confirm this relationship conclusively. In terms of age and similarly with gender further exploration with larger sample sizes or additional variables might provide clarity.

Furthermore, this research focused on the effect and relationship between the moderating variables and the dependent variable. Therefore, it did not identify the possible effect the moderating variables might have on other independent or mediating variables. Future research could benefit from exploring the influence of demographic factors on users' adoption and usage of mobile applications to better understand the varying needs and preferences of different user segments.

Fourth, although the collected data was carefully inspected before the analysis, it must be recognized that the survey was anonymous. While anonymity may encourage more honest responses, it also limits the ability to follow up with respondents for clarification or additional information. This may result in incomplete or ambiguous responses that could affect the interpretation of the data. Furthermore, respondents voluntarily opted to take part in the survey, potentially leading to self-selection bias. This occurs when individuals who are

highly engaged or hold strong opinions about the application are more inclined to respond. This could skew the results and may not accurately represent the views of all users.

Fifth, the study may be influenced by external factors beyond the researcher's control, such as concurrent events, technological disruptions, or changes in user preferences. These external factors could confound the results and limit the study's validity. Furthermore, the data was collected solely through a survey within the event application, which may limit the depth of insights obtained. Complementing survey data with qualitative methods such as interviews or focus groups could provide richer insights into users' motivations and experiences. If it is decided to utilize the application in future events, it would be particularly useful to conduct qualitative research to get more in-depth answers.

Sixth, the study utilized a cross-sectional design, where data was collected at a specific moment in time. This makes it difficult to determine cause and effect or see how user behavior changes over time. To get a better understanding of behavioral patterns and changes, it would be helpful to conduct a longitudinal study, which tracks users' adoption and use of the mobile application over a longer period.

Finally, as mentioned before, the year in which the data was collected was also the first year the application was utilized in this specific event. This means that there is no earlier data on the satisfaction of the users in terms of the application or their user preferences. The commissioning company would benefit from future research after the next events to compare the data and find user patterns. Exploring strategies for continuous improvement and optimization of mobile applications in fair event environments could reveal missing features of the application.

REFERENCES

- Ahmed, A. M., Qiu, T., Xia, F., Jedari, B., & Abolfazli, S. (2014). Event-Based Mobile Social Networks: Services, Technologies, and Applications. *IEEE Access*, 2, 500–513. <https://doi.org/10.1109/ACCESS.2014.2319823>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Alnawas, I., & Aburub, F. (2016). The effect of benefits generated from interacting with branded mobile apps on consumer satisfaction and purchase intentions. *Journal of Retailing and Consumer Services*, 31, 313–322. <https://doi.org/10.1016/j.jretconser.2016.04.004>
- Angelos, A. (2021, February). *The history of Snake: How the Nokia game defined a new era for the mobile industry*. <https://www.itsnicethat.com/features/taneli-armanto-the-history-of-snake-design-legacies-230221>
- Asuntomessujen organisaatio. (n.d.). Asuntomessut. Retrieved January 8, 2024, from <https://www.asuntomessut.fi/organisaatio>
- Böhmer, M., Hecht, B., Schöning, J., Krüger, A., & Bauer, G. (2011). Falling asleep with Angry Birds, Facebook and Kindle: A large scale study on mobile application usage. *Proceedings of the 13th International Conference on Human Computer Interaction with Mobile Devices and Services*, 47–56. <https://doi.org/10.1145/2037373.2037383>
- Bomhold, R. C. (2013). Educational use of smart phone technology: A survey of mobile phone application use by undergraduate university students. *Program*, 47(4), 424–436. <https://doi.org/10.1108/PROG-01-2013-0003>
- Campbell-Kelly, M., & Garcia-Swartz, D. D. (2015). *From Mainframes to Smartphones: A History of the International Computer Industry*. <https://web-p-eb-scohost-com.ezproxy.jyu.fi/ehost/ebookviewer/ebook/ZTAwMHh3d19fMTAw-NDMwMI9fQU41?sid=1dca46a1-0fc0-49ae-8d6e-11fc75c27780@redis&vid=0&format=EB&rid=1>
- Chopdar, P. K., & Balakrishnan, J. (2020). Consumers response towards mobile commerce applications: S-O-R approach. *International Journal of Information Management*, 53, 102106. <https://doi.org/10.1016/j.ijinfomgt.2020.102106>
- Chung, N., Lee, H., Kim, J.-Y., & Koo, C. (2018). The Role of Augmented Reality for Experience-Influenced Environments: The Case of Cultural Heritage Tourism in Korea. *Journal of Travel Research*, 57(5), 627–643. <https://doi.org/10.1177/0047287517708255>
- Clausnitzer, J. (2022). *Internet usage in Finland – Statistics & facts*. Statista. <https://www.statista.com/topics/7400/internet-usage-in-finland/>

- Collins, L., & Ellis, S. R. (2015). *Mobile Devices: Tools and Technologies*. Chapman and Hall/CRC. <https://doi.org/10.1201/b18165>
- Dainow, E. (2017). *A Concise History of Computers, Smartphones and the Internet*. Ernie Dainow.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace¹. *Journal of Applied Social Psychology*, 22(14), 1111–1132. <https://doi.org/10.1111/j.1559-1816.1992.tb00945.x>
- Della Lucia, M. (2013). Economic performance measurement systems for event planning and investment decision making. *Tourism Management*, 34, 91–100. <https://doi.org/10.1016/j.tourman.2012.03.016>
- Finland: Smartphone penetration by age group 2022. (2022). Statista. <https://www.statista.com/statistics/564643/share-of-smartphone-users-in-finland-by-age-group/>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39. <https://doi.org/10.2307/3151312>
- Furht, B. (Ed.). (2011). *Handbook of Augmented Reality*. Springer New York. <https://doi.org/10.1007/978-1-4614-0064-6>
- Gao, M., & Huang, L. (2021). Quality of channel integration and customer loyalty in omnichannel retailing: The mediating role of customer engagement and relationship program receptiveness. *Journal of Retailing and Consumer Services*, 63, 102688. <https://doi.org/10.1016/j.jretconser.2021.102688>
- Greenberg, O. (2023, October 2). *Mobile App Download Statistics & Usage Statistics (2024)*. <https://kurve.co.uk/blog/app-downloads-statistics>
- Hair, J. F., Wolfinbarger, M., Money, A. H., Samouel, P., & Page, M. J. (2015). *The Essentials of Business Research Methods* (3rd ed.). Routledge. <https://doi.org/10.4324/9781315716862>
- Hamouda, M. (2021). Purchase intention through mobile applications: A customer experience lens. *International Journal of Retail & Distribution Management*, 49(10), 1464–1480. <https://doi.org/10.1108/IJRDM-09-2020-0369>
- Han, K., Shih, P. C., Beth Rosson, M., & Carroll, J. M. (2016). Understanding Local Community Attachment, Engagement and Social Support Networks Mediated by Mobile Technology. *Interacting with Computers*, 28(3), 220–237. <https://doi.org/10.1093/iwc/iwu040>
- Hew, J.-J., Lee, V.-H., Ooi, K.-B., & Wei, J. (2015). What catalyses mobile apps usage intention: An empirical analysis. *Industrial Management & Data Systems*, 115(7), 1269–1291. <https://doi.org/10.1108/IMDS-01-2015-0028>

- Hiramatsu, Y., Sato, F., Ito, A., Hatano, H., Sato, M., Watanabe, Y., & Sasaki, A. (2017). *Designing Mobile Application To Motivate Young People To Visit Cultural Heritage Sites*. <https://doi.org/10.5281/ZENODO.1339650>
- Hoehle, H., & Venkatesh, V. (2015). Mobile Application Usability: Conceptualization and Instrument Development. *MIS Quarterly*, 39(2), 435–472.
- Howarth, J. (2023, December). *Time Spent Using Smartphones (2024 Statistics)*. Exploding Topics. <https://explodingtopics.com/blog/smartphone-usage-stats>
- Hsiao, C.-H., Chang, J.-J., & Tang, K.-Y. (2016). Exploring the influential factors in continuance usage of mobile social Apps: Satisfaction, habit, and customer value perspectives. *Telematics and Informatics*, 33(2), 342–355. <https://doi.org/10.1016/j.tele.2015.08.014>
- Huseynov, F. (2020). Understanding Usage Behavior of Different Mobile Application Categories Based on Personality Traits. *Interacting with Computers*, 32(1), 66–80. <https://doi.org/10.1093/iwc/iwaa005>
- Islam, Dr. M. R., & Mazumder, T. (2010). Mobile application and its global impact. *International Journal of Engineering & Technology*, 10, 72–78.
- Karjaluoto, H., Shaikh, A. A., Saarijärvi, H., & Saraniemi, S. (2019). How perceived value drives the use of mobile financial services apps. *International Journal of Information Management*, 47, 252–261. <https://doi.org/10.1016/j.ijinfo-mgt.2018.08.014>
- Keith, M. J., Thompson, S. C., Hale, J., Lowry, P. B., & Greer, C. (2013). Information disclosure on mobile devices: Re-examining privacy calculus with actual user behavior. *International Journal of Human-Computer Studies*, 71(12), 1163–1173. <https://doi.org/10.1016/j.ijhcs.2013.08.016>
- Khan, I., Hollebeek, L. D., Fatma, M., Islam, J. U., Rather, R. A., Shahid, S., & Sigurdsson, V. (2023). Mobile app vs. desktop browser platforms: The relationships among customer engagement, experience, relationship quality and loyalty intention. *Journal of Marketing Management*, 39(3–4), 275–297. <https://doi.org/10.1080/0267257X.2022.2106290>
- Khrais, L. T., & Alghamdi, A. M. (2021). The Role of Mobile Application Acceptance in Shaping E-Customer Service. *Future Internet*, 13(3), 77. <https://doi.org/10.3390/fi13030077>
- Kim, E., Lin, J.-S., & Sung, Y. (2013). To App or Not to App: Engaging Consumers via Branded Mobile Apps. *Journal of Interactive Advertising*, 13, 53–65. <https://doi.org/10.1080/15252019.2013.782780>
- Kim, S. C., Yoon, D., & Han, E. K. (2016). Antecedents of mobile app usage among smartphone users. *Journal of Marketing Communications*, 22(6), 653–670. <https://doi.org/10.1080/13527266.2014.951065>

- Kolb, B. (2008). Marketing Research: A Practical Approach. In *Marketing Research: A Practical Approach* (pp. 69–85). SAGE Publications Ltd. <https://doi.org/10.4135/9780857028013>
- Kopalle, P. K., Kumar, V., & Subramaniam, M. (2020). How legacy firms can embrace the digital ecosystem via digital customer orientation. *Journal of the Academy of Marketing Science*, 48(1), 114–131.
- Kumar, D. S., Purani, K., & Viswanathan, S. A. (2018). Influences of ‘appscape’ on mobile app adoption and m-loyalty. *Journal of Retailing and Consumer Services*, 45, 132–141. <https://doi.org/10.1016/j.jretconser.2018.08.012>
- Kuoppamäki, E. (2020). Asuntomessuja toteutettu 50 vuotta! *Yhdyskuntasuunnittelu-Lehti*, 58(1), 55–61. <https://doi.org/10.33357/ys.95388>
- Larsen, J. E., & Stopczynski, A. (2011). A Festival-Wide Social Network Using 2D Barcodes, Mobile Phones and Situated Displays: *International Journal of Mobile Human Computer Interaction*, 3(3), 14–30. <https://doi.org/10.4018/jmhci.2011070102>
- Laurens, R. (2019). *Get Fit for Digital Business: A Six-Step Workout Plan to Get Your Organisation in Great Shape to Thrive in a Connected Commercial World* (1st ed.). Routledge. <https://doi.org/10.4324/9780429462146>
- Lee, W., Xiong, L., & Hu, C. (2012). The effect of Facebook users’ arousal and valence on intention to go to the festival: Applying an extension of the technology acceptance model. *International Journal of Hospitality Management*, 31(3), 819–827. <https://doi.org/10.1016/j.ijhm.2011.09.018>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience Throughout the Customer Journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Little, A. D. (1981). *The Strategic Management of Technology*. Arthur D. Little.
- Lobkov, K. (2020). Monetization Of Applications With Augmented And Virtual Reality. 786–795. <https://doi.org/10.15405/epsbs.2020.12.102>
- Luxford, A., & Dickinson, J. E. (2015). The Role of Mobile Applications in the Consumer Experience at Music Festivals. *Event Management*, 19(1), 33–46. <https://doi.org/10.3727/152599515X14229071392909>
- Magrath, V., & McCormick, H. (2013). Marketing design elements of mobile fashion retail apps. *Journal of Fashion Marketing and Management: An International Journal*, 17(1), 115–134. <https://doi.org/10.1108/13612021311305173>
- Mann, S., & Sbihli, S. (2002). *The Wireless Application Protocol (WAP): A Wiley Tech Brief*. John Wiley & Sons.
- Markard, J. (2020). The life cycle of technological innovation systems. *Technological Forecasting and Social Change*, 153, 119407. <https://doi.org/10.1016/j.techfore.2018.07.045>

- Martin, J., Mortimer, G., & Andrews, L. (2015). Re-examining online customer experience to include purchase frequency and perceived risk. *Journal of Retailing and Consumer Services*, 25, 81–95. <https://doi.org/10.1016/j.jretconser.2015.03.008>
- McLean, G., Al-Nabhani, K., & Wilson, A. (2018). Developing a Mobile Applications Customer Experience Model (MACE)- Implications for Retailers. *Journal of Business Research*, 85, 325–336. <https://doi.org/10.1016/j.jbusres.2018.01.018>
- Mihret, E., & Haile, G. (2021). 4G, 5G, 6G, 7G and Future Mobile Technologies. *American Journal of Computer Science and Technology*, 9, 75.
- Mind Commerce. (2011, February). *Mobile Applications and Widgets: Portable Applications on Mobile Platforms*. <https://web-p-ebsohost.com.ezproxy.jyu.fi/ehost/ebookviewer/ebook/ZTAwMHh3d19fND-kxMzAzX19BTg2?sid=732e7d08-f1c7-42e3-ba90-0d8bf11c5e2c@redis&vid=0&format=EB&rid=1>
- Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R., & Carvajal-Trujillo, E. (2022). The customer retail app experience: Implications for customer loyalty. *Journal of Retailing and Consumer Services*, 65, 102842. <https://doi.org/10.1016/j.jretconser.2021.102842>
- Montgomery, D. C., Peck, E. A., & Vining, G. G. (2021). *Introduction to Linear Regression Analysis*. John Wiley & Sons.
- Mosquera, A., Olarte Pascual, C., & Juaneda Ayensa, E. (2017). Understanding the customer experience in the age of omni-channel shopping. *Revista ICONO14 Revista Científica de Comunicación y Tecnologías Emergentes*, 15(2), 92–114. <https://doi.org/10.7195/ri14.v15i2.1070>
- Natarajan, T., Balasubramanian, S. A., & Kasilingam, D. L. (2017). Understanding the intention to use mobile shopping applications and its influence on price sensitivity. *Journal of Retailing and Consumer Services*, 37, 8–22. <https://doi.org/10.1016/j.jretconser.2017.02.010>
- Overall Mobile Retention Rate Benchmarks H1 2018*. (2018). Localytics. <https://uplandsoftware.com/localytics/resources/cheat-sheet/overall-app-benchmarks-h1-2018/>
- Oxford English Dictionary. (2023a, July). *Mobile*, (n.⁵), sense 4. https://www.oed.com/dictionary/mobile_n5?tab=meaning_and_use#36482503
- Oxford English Dictionary. (2023b, December). *Mobile*, (adj.¹), Etymology. https://www.oed.com/dictionary/mobile_adj1?tab=etymology#36482874
- Ozturk, A. B., Wei, W., Hua, N., & Qi, R. (2021). Factors affecting attendees continued use of mobile event applications. *Journal of Hospitality and Tourism Technology*, 12(2), 307–323. <https://doi.org/10.1108/JHTT-03-2020-0058>

Penichet, V. M. R., Peñalver, A., & Gallud, J. A. (Eds.). (2013). *New Trends in Interaction, Virtual Reality and Modeling*. Springer London. <https://doi.org/10.1007/978-1-4471-5445-7>

Piotrowicz, W., & Cuthbertson, R. (2014). Introduction to the Special Issue Information Technology in Retail: Toward Omnichannel Retailing. *International Journal of Electronic Commerce*, 18(4), 5–16. <https://doi.org/10.2753/JEC1086-4415180400>

Prabhu, S., & Krishna Prasad, K. (2019). *Wireless Technology Leading Innovator- A Case Study of Qualcomm*. <https://doi.org/10.5281/ZENODO.3545059>

Reichheld, F. F. (2003). The One Number You Need to Grow. *Harvard Business Review*.

Rohm, A., Sultan, F., Pagani, M., & Gao, T. (Tony). (2012). Brand in the hand: A cross-market investigation of consumer acceptance of mobile marketing. *Business Horizons*, 55, 485–493. <https://doi.org/10.1016/j.bushor.2012.05.004>

Rose, S., Clark, M., Samouel, P., & Hair, N. (2012). Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes. *Journal of Retailing*, 88(2), 308–322. <https://doi.org/10.1016/j.jretai.2012.03.001>

Roy, S. (2017). APP ADOPTION AND SWITCHING BEHAVIOR: APPLYING THE EXTENDED TAM IN SMARTPHONE APP USAGE. *Journal of Information Systems and Technology Management*, 14(2), 239–261. <https://doi.org/10.4301/S1807-17752017000200006>

Salih, A., Zeebaree, S., Abdulraheem, A., Zebari, R., M.Sadeeq, M., & Ahmed, O. (2020). Evolution of Mobile Wireless Communication to 5G Revolution. *Technology Reports of Kansai University*, 62, 2139–2151.

Sese, F. J., & Verhoef, P. C. (2016). Redefiniendo la experiencia del cliente en el entorno omnicanal. *UNIVERSIA BUSINESS REVIEW*.

Shankar, V., Venkatesh, A., Hofacker, C., & Naik, P. (2010). Mobile Marketing in the Retailing Environment: Current Insights and Future Research Avenues. *Journal of Interactive Marketing*, 24(2), 111–120. <https://doi.org/10.1016/j.intmar.2010.02.006>

Shu-Chun, H., & Hsu, Y.-P. (2022). Paving the Way for Digital Transformation: Investigate Customer Experiences of Using Mobile Apps. *Pacific Asia Journal of the Association for Information Systems*, 14(1), 3. <https://doi.org/10.17705/1pais.14103>

Small minority of users use the majority of data in mobile networks. (2022, March 15). Traficom. <https://www.traficom.fi/en/news/small-minority-users-use-majority-data-mobile-networks>

Stocchi, L., Pourazad, N., Michaelidou, N., Tanusondjaja, A., & Harrigan, P. (2022). Marketing research on Mobile apps: Past, present and future. *Journal of the*

Academy of Marketing Science, 50(2), 195–225. <https://doi.org/10.1007/s11747-021-00815-w>

Strengell, E. (2023, March 21). *Interview with Elina Strengell, Business Development Manager of the Finnish Housing Fairs*. [Personal communication].

Sukhmani, S., Sadeghi, M., Erol-Kantarci, M., & El Saddik, A. (2019). Edge Caching and Computing in 5G for Mobile AR/VR and Tactile Internet. *IEEE MultiMedia*, 26(1), 21–30. <https://doi.org/10.1109/MMUL.2018.2879591>

Talantis, S., Shin, Y. H., & Severt, K. (2020). Conference mobile application: Participant acceptance and the correlation with overall event satisfaction utilizing the technology acceptance model (TAM). *Journal of Convention & Event Tourism*, 21(2), 100–122. <https://doi.org/10.1080/15470148.2020.1719949>

Tang, A. K. Y. (2016). Mobile App Monetization: App Business Models in the Digital Era. *International Journal of Innovation, Management and Technology*, 224–227. <https://doi.org/10.18178/ijimt.2016.7.5.677>

Thalanany, S. (2015). *Mobile Evolution: Insights on Connectivity and Service*. CRC Press. <https://doi.org/10.1201/b18137>

Tilastokeskus – Väestön tieto- ja viestintätekniikan käyttö 2021. (2021). Tilastokeskus. https://tilastokeskus.fi/til/sutivi/2021/sutivi_2021_2021-11-30_tie_001_fi.html

Tueanrat, Y., Papagiannidis, S., & Alamanos, E. (2021). A conceptual framework of the antecedents of customer journey satisfaction in omnichannel retailing. *Journal of Retailing and Consumer Services*, 61, 102550. <https://doi.org/10.1016/j.jretconser.2021.102550>

Uyanık, G. K., & Güler, N. (2013). A Study on Multiple Linear Regression Analysis. *Procedia - Social and Behavioral Sciences*, 106, 234–240. <https://doi.org/10.1016/j.sbspro.2013.12.027>

Valdez Mendia, J. M., & Flores-Cuautle, J. J. A. (2022). Toward customer hyperpersonalization experience – A data-driven approach. *Cogent Business & Management*, 9(1), 2041384. <https://doi.org/10.1080/23311975.2022.2041384>

Venkatesh, Morris, Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425. <https://doi.org/10.2307/30036540>

Venkatesh, V., & Davis, F. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46, 186–204. <https://doi.org/10.1287/mnsc.46.2.186.11926>

Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). From Multi-Channel Retailing to Omni-Channel Retailing. *Journal of Retailing*, 91(2), 174–181. <https://doi.org/10.1016/j.jretai.2015.02.005>

Wang, R., Kim, S. J., & Malthouse, E. (2016). *Branded apps and mobile platforms as new tools for advertising*. <https://doi.org/10.13140/RG.2.1.3744.3042>

- Watson, C., McCarthy, J., & Rowley, J. (2013). Consumer attitudes towards mobile marketing in the smart phone era. *International Journal of Information Management*, 33(5), 840–849. <https://doi.org/10.1016/j.ijinfomgt.2013.06.004>
- Wei, W., Ozturk, A. B., Fairley, J., & Hua, N. (2023). What drives event attendees' intention to continue using mobile event apps? The role of app attributes, social exchange and social-image. *Journal of Hospitality and Tourism Technology*, 14(3), 476–489. <https://doi.org/10.1108/JHTT-04-2022-0097>
- Wei, W., Tracy Lu, Y., & Hua, N. (2017). Attendees' User Experience of Social Media Technology During Multiphase Participation In Conventions: A Consumption Values Approach. *Event Management*, 21(3), 347–364. <https://doi.org/10.3727/152599517X14942648527554>
- Wurmser, Y. (2020, July). *The Majority of Americans' Mobile Time Spent Takes Place in Apps*. Insider Intelligence. <https://www.insiderintelligence.com/content/the-majority-of-americans-mobile-time-spent-takes-place-in-apps>
- Zohud, T., & Zein, S. (2021). Cross-Platform Mobile App Development in Industry: A Multiple Case-Study. *International Journal of Computing*, 46–54. <https://doi.org/10.47839/ijc.20.1.2091>

APPENDIX 1 Original Survey Questionnaire

	Nainen	Mies	Muu	En halua vastata		
Sukupuoli	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	18-25	26-35	36-45	46-55	56-65	66+
Ikä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1	2-3	4-5	6-7	8+
Kuinka monta kertaa olet käynyt paikan päällä Asuntomesuilla?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sovelluksen helppokäyttöisyys

	Ei lainkaan samaa mieltä	Osittain eri mieltä	Ei samaa, eikä eri mieltä	Osittain samaa mieltä	Ehdottomasti samaa mieltä
Asuntomessut-sovellus on mielestäni ollut helppokäyttöinen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovellukseen kirjautuminen oli sujuvaa.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Siirtyminen sovelluksen eri osioiden välillä on ollut helppoa ja yksinkertaista.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minun on ollut helppoa oppia käyttämään sovellusta.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Löysin nopeasti tarvitsemi tiedot tai ominaisuudet sovelluksesta.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovelluksen ulkoasu ja muotoilu ovat visuaalisesti houkuttelevia ja käyttäjäystävällisiä.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sovelluksen hyödyllisyys

	Ei lainkaan samaa mieltä	Osittain eri mieltä	Ei samaa, eikä eri mieltä	Osittain samaa mieltä	Ehdottomasti samaa mieltä
Sovellus helpotti messuille saapumista.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovellus teki messuvierailustani sujuvamman.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minulla oli parempi messukokemus käydessäni Asuntomessuilla, kun minulla oli sovellus käytössäni.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovelluksen käyttäminen säästi aikaa ja vaivaa etsiessäni tarvitsemaani suunnitellessani messuvierailuani.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovelluksen käyttäminen säästi aikaa ja vaivaa etsiessäni tarvitsemaani messuvierailuni aikana.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koen, että sovellus täydensi Asuntomessuvierailuani.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minusta Asuntomessut-sovellus on hyödyllinen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sovelluksen tuoma ilo

	Ei lainkaan samaa mieltä	Osittain eri mieltä	Ei samaa, eikä eri mieltä	Osittain samaa mieltä	Ehdottomasti samaa mieltä
Asuntomessut-sovelluksen käyttö saa minussa aikaan positiivisia tunteita.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minusta on hauskaa käyttää Asuntomessut-sovellusta.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovellus vaikutti myönteisesti mielikuvaani Asuntomessuista.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sovelluksen käyttökokemus

	Ei lainkaan samaa mieltä	Osittain eri mieltä	Ei samaa, eikä eri mieltä	Osittain samaa mieltä	Ehdottomasti samaa mieltä
Olen tyytyväinen sovelluksen tarjoamaan käyttökokemukseen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovellus vaikutti positiivisesti messukokemukseeni.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovelluksen käyttö vastasi odotuksiani.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Olen halukas käyttämään sovellusta tulevaisuudessakin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kuinka todennäköisesti suosittelisit Asuntomessut-sovellusta ystäville tai tuttavillesi?

	0	1	2	3	4	5	6	7	8	9	10	
En lainkaan todennäköisesti	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Erittäin todennäköisesti

APPENDIX 2 Translated Survey Questionnaire

	Female		Male		Other		Prefer not to answer
Gender	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	18-25	26-35	36-45	46-55	56-65	66+	
Age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	0	1	2-3	4-5	6-7	8+	
Number of Times Attended the Housing Fair Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Ease of Use

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I find the Housing Fair app easy to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The process of logging into the application was easy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My interaction with the Housing Fair app is clear and understandable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learning to use the Housing Fair app has been easy for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I find it easy to get the Housing Fair app to do what I want it to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The appearance and design of the application are visually attractive and user-friendly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Perceived Usefulness

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
When attending The Finnish Housing Fairs, using the Housing Fair app enables me to navigate better within the area. *	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When attending The Finnish Housing Fairs, using the Housing Fair app made my visit smoother. *	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When attending The Finnish Housing Fairs, using the Housing Fair app made my overall visit better. *	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly. *	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When planning on attending the Finnish Housing Fairs, the Housing Fair app helps me accomplish things more quickly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall, I find the Housing Fair app useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When attending The Finnish Housing Fairs, using the Housing Fair app enables me to navigate better within the area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Perceived Enjoyment

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I find that the use of the Housing Fair app evokes positive feelings in me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have fun using the Housing Fair app.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The actual process of using the Housing Fair app had a positive effect on my image of the Finnish Housing Fairs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Customer Experience & Satisfaction

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am satisfied with the experience that the app provides.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When attending the Finnish Housing Fairs, the app had a positive effect on my experience.*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My experience in this application has worked out as well as I thought it would.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will use the app in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How likely would you recommend the Housing Fair application to your friends or acquaintances?

	0	1	2	3	4	5	6	7	8	9	10	
Not at all likely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Extremely likely

*questions hidden if the respondent indicated they did not attend the 2023 Housing Fair event