TALLINN UNIVERSITY OF TECHNOLOGY
School of Business and Governance

Natia Vardanidze

Acceptance and adoption of FinTech platforms by entrepreneurs in Estonia

Bachelor's thesis

Programme International Business Administration, specialisation marketing

Supervisor: Basel Hammoda, PhD candidate

Tallinn 2023

I hereby declare that I have compiled the thesis independently
and all works, important standpoints and data by other authors
have been properly referenced and the same paper
has not been previously presented for grading.

The document length is 9758 words from the introduction to the end of the conclusion.

Natia Vardanidze N.Vardanidze

11.05.2023

TABLE OF CONTENTS

ABSTRACT

The use of fintech services have increased dramatically in the last few years, with individuals and businesses incorporating these solutions into their daily activities. Despite this trend, there are several factors that may influence the adoption rates of fintech services. Most of the existing research has concentrated on adoptions from individual point of view, however there has not been much research done on entrepreneurs or startups. The purpose of this thesis is to understand the main factors that influence the acceptance and adoption of fintech platforms among entrepreneurs in Estonia and what fintech companies need to consider to make their product more appealing to entrepreneurs. This thesis aims to find these factors which can later be beneficial for fintech companies and managers. A survey based on the principles of the technology acceptance model was administered to 57 entrepreneurs to gain a deeper understanding of these factors. The data was analysed using Pearson product-moment correlation coefficient. The results suggest that perceived ease of use and perceived usefulness of the product or service play significant roles in influencing adoption rates. Furthermore, the study found that age is a significant moderator, with older age groups exhibiting different adoption patterns compared to younger age groups. This thesis extends the application of technology acceptance model to the startup context with a focus on fintech service adoption in Estonia. It provides insights into the relationship between these influential factors and actual adoption rates of fintech services, which would later be valuable to fintech companies in order to shape their marketing campaigns and improve their value propositions .

Keywords: Fintech, Adoption rates, Entrepreneurs, startups, Estonia, Technology Acceptance Model.

INTRODUCTION

Financial technology is becoming more and more prevalent in the modern world. Fintech stands for financial services that have been further enabled by IT to improve convenience and requires no physical effort or interaction (Puschmann, 2017). While these technological solutions are taking up more of our daily lives, it's interesting to see what exactly drives their acceptance and adoption rates. Many have done case studies to assess specific product acceptance via Technology Acceptance Model, however this research will concentrate on the country of Estonia and most importantly, will understand the viewpoints of entrepreneurs in their daily business activities.

With the new developments in fintech, people are able to execute most services from the comfort of their phones and without any human interaction, e.g. payment services, credit and lending services, investment management and many more (Buckley et al., 2016) and it's only going to consume more and more areas in the future. Comparing loans for instance to the traditional methods, there's been a massive change in the time and effort needed to conduct it. Before fintech solutions, people had to physically go to the banks and provide all their documentation to secure a loan, now it can be done from the comfort of your home on the phone (Costill, 2022).

However, additional research is needed to better assess the entrepreneurs' and business owners' viewpoints in Estonia. It's obvious to assume most businesses that require financial services now are done through the new solutions, however there's various different competitors on the market, and it's interesting what factors drive these business owners in Estonia to choose one over the other, evaluate which one would be more efficient for them to use. The research will be assessed via the Technology Acceptance Model (TAM) first suggested by Davis (1989), as this theoretical framework tends to be the most accepted by the IT technology researchers.

According to TAM, two main factors that influence one's decision to adopt a new service or product are perceived ease of use and perceived usefulness. The research problem here is about which factors influence the acceptance and adoption of Fintech platforms in Estonia and how

fintech companies can use this knowledge to increase their adoption rates. With this thesis, the author aims to find the main factors affecting fintech adoption by entrepreneurs in Estonia.

To assess the aforementioned relationship and find out what factors drive entrepreneurs' decision-making, the author developed Hypotheses based on the influencing factors suggested by Davis (1989). These will help the author look into which of these factors people believe to be more essential during decision-making and what drives them to accept and adopt a specific fintech service.

To assess these relationship, two of the following hypotheses will be assumed for research:
H1: The perceived ease of use of fintech services positively influences the usage of fintech services among entrepreneurs whose business is located in Estonia.
H2: The perceived usefulness of fintech services positively influences the usage of fintech services among entrepreneurs whose business is located in Estonia.

However as previous research has shown in other case studies, additional influences and determinants will likely show. Due to this, the survey was modified to check for demographic information as such factors can play a significant role as well.

The first chapter of the thesis will be dedicated to the literature background. The author will first explain what technology acceptance model is, how it was developed, as well as go through previous research done in this perspective towards fintech adoption rates. The author will then assess the fintech history and what stages it has reached in Estonia, as well as describe the entrepreneurial ecosystem. This will help the readers understand the audience better, as it will be possible to see who they are, what kind of support they get as well as what they already wish could be done better in Estonia.

The third chapter will be dedicated to explaining data collection methods, going through the findings and analysing them. Here readers will be able to see the reasoning behind making certain decisions on how the data collection was decided to be conducted, as well what model was used for sampling.

The fourth chapter of the thesis will concentrate on the findings, going through the data collected as well discussing it against previous research. This chapter will help the readers understand how

the collected dataset affects the hypothesis before. This chapter will also include contributions which will provide future recommendations and usage possibilities for parties involved in such relationships.

The conclusion will be the last chapter of the research where the author will sum up all findings in accordance with the aim and hypotheses indicated in the introduction. List of all references and additional appendices will be provided as the last two parts of the paper.

1. LITERATURE BACKGROUND

Technology is constantly improving, and fintech has arguably disrupted everyday lives most. Currently, there is a vast amount of fintech platforms available to the public, whether they are fintech companies or solutions adopted by traditional services such as banks. Due to this, it's essential to understand what factors entrepreneurs use in their decision-making process, how they choose the companies. To assess the acceptance and adoption rates, the author will use the technology acceptance model as a basis since it has been vastly researched in terms of technology acceptance. The hypotheses have also been based on the determining principles suggested by the technology acceptance model. Additionally, the author will research the existing fintech and entrepreneurship ecosystems in Estonia to gain a deeper understanding of the market.

1.1. Technology Acceptance Model

Technology Acceptance Model (TAM) was first proposed by Fred Davis in his doctoral thesis at MIT Sloan School of Management in 1985. It has since become widely researched and used as a theoretical framework for understanding, as well as predicting, user acceptance and adoption of new technology. TAM proposes the idea that a user's attitude towards a system tends to be a significant determinant of whether they will use it. Chuttur (2009) outlined that the Technology Acceptance Model was the only one among many proposed theoretical frameworks that "captured the most attention of the Information Systems community." According to Davis (1989), two main factors to concentrate on are the following: perceived usefulness and perceived ease of use.

Perceived usefulness, the first variable in the research, points to the idea that entrepreneurs, or people in general, use new technology depending on their perception of how useful it will be for the business or other various tasks. It's defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1985). Main reason

why this variable was included in the research was due to the fact that there had been previous research done, where perceived usefulness was theorised to have an impact on actual use of technology.

The main foundational theories perceived usefulness factor was founded on were the cost-benefit paradigm, outcome judgement and channel disposition model. Outcome judgement explains the extent to which a certain behaviour, if repeated, will bring a valuable outcome (Bandura, 1982).The cost-benefit paradigm and channel disposition model are used to back both determining factors: perceived usefulness and perceived ease of use. Cost-benefit paradigm explains various decision-making strategies in terms of the effort required to use the strategy towards the resulting decision. Channel disposition model, on the other hand, includes two components such as attributed information quality and attributed access quality (Swanson, 1987).

Perceived ease of use, the second component, refers to the idea that one will use a certain system when they believe it would be free of effort. It's also mentioned by Davis (1985) that even if one believes a piece of technology or system would be useful, they may still not use it if they perceive it requires too much effort. Perceived ease of use also has some foundational theories to back it up. The cost-benefit paradigm and channel disposition model have already been explained above, but additionally perceived ease of use is also backed by Self-efficacy and Adoption of innovation theories. Self-efficacy theory refers to the idea that the decision-making process related to learning a new system is connected to both self-efficacy and the assessment of potential outcomes (Hill et al., 1987). And adoption of innovation theory suggests that compatibility, complexity and relative advantage shows the most significant correlation towards adoption rates.

Several research findings were made that suggested that the usefulness and ease of use had a significant relationship towards each other as well, and Davis (1989) in his work created a chain of causality. The first determining factor would be the ease of use, followed by the usefulness, and if both factors were satisfied from potential user's point of view, then the intention to use the system would occur.

Davis (1989) also identified the six final items to use as motivators on ease of use and usefulness. For ease of use, these included factors like easy to learn, controllable, clear and understandable, flexible, easy to become skillful, easy to use. As for usefulness, the following

motivators were used: work more quickly, job performance, increase productivity, effectiveness, make job easier, and useful.

Technology Acceptance Model has since been further researched and expanded. Venkatesh and Davis (2000) published a new paper in which they conducted a field study with 156 knowledge workers using four different systems. This was called the extended technology acceptance model or TAM 2. In this paper, the authors investigated additional social forces that may affect acceptance and adoption of new systems, which in turn causes adoption or rejection of them. These were: subjective norm, voluntariness and the image.

Subjective norm is defined as a person's perception of whether people around him want to do something or not and how this affects their actual usage of that thing. This essentially means that despite the fact that someone may want to do something, they may not if they have people around them who suggest against it. Voluntariness refers in a sense to compliance, to what extent potential customers perceive that the decision to adopt a specific product is mandatory or not. Lastly the image refers to the idea of people referring to social norms in their groups to see whether new technology has a favourable image or not.

The results of the new testing from this paper found that in accordance with the previous research done by Davis (1989), TAM2 also showed the importance of perceived ease of use and perceived usefulness to be strong determinants towards the usage of the new product or a system. The main addition to the previous technology acceptance model research was that it was shown that subjective norms also had a significant influence on the usage of new technology, however this was only in cases where usage was not mandatory. However, it turns out the subjective norm and image were also one of the influential factors towards internalising perceived usefulness.

Finally, Venkatesh and Bala (2008) released another research where the purpose of the paper was to develop a comprehensive network of determinants on technology adoption and usage. This has been called TAM3. They added two moderating factors to better understand the practicality of applying TAM to adoption of new technology: experience and voluntariness. The results in this research suggested that perceived self-efficacy, computer anxiety and computer playfulness significantly affected possible perceived ease of use in the future. Venkatesh and Bala (2008) also found that perceived usefulness was the strongest determining factor on intention of usage,

where perceived ease of use, subjective norm and image significantly affected perceived usefulness.

As seen, the Technology Acceptance Model has been widely researched and with future research done, it will likely be able to more accurately assess the adoption rates by new users. This tool can come in handy for new businesses to make their platforms and systems easier to understand which will attract a bigger audience and pave the way for its success. Overall, these studies provide valuable insights into the factors that influence user adoption, however since our thesis is concentrated in fintech, the author will now look further into the applications of TAM in terms of acceptance and adoption of these new services.

According to previous research, the technology acceptance model has been widely applied to better understand Fintech adoption rate and user behaviour. According to previous research, perceived ease of use and perceived usefulness play a major part in the intention of product or system use. Another variable that often turns out to be a leading factor is also trust and due to this it has received considerable attention in terms of technological commerce. With previous research, trust has been concluded to be an influencing factor due to “the great uncertainty and risk involved in online transactions” (Gao & Waechter, 2017). This is reasonable as computer anxiety often follows new technology and entrepreneurs need to take trust factors more into account when dealing with the financial industry.

A study done by Yaghoubi and Bahmani (2010) looked into the factors affecting the adoption of online banking in Iran. They also found that adoption rates were positively affected by perceived usefulness and perceived behavioural control. Perceived behavioural control refers to a user’s perception of how easy or difficult it would be to implement the behaviour or in this case use the technology which associates to perceived ease of use for us. From here as well, it is obvious that the two main factors Davis (1989) suggested initially still play a massive role, however each factor can obviously vary depending on the person’s perceptions and what they consider easy or useful.

Later studies tend to show similar outcomes with the added factor of trust in the equation. Gao and Waechter (2017) conducted a similar study to learn the adoption rates of mobile payments. At this time, mobile payments were not as common as they are in 2023, it was a relatively new addition to the fintech industry. With these findings, they were able to better look into the trust

factor and how one perceives a new system to be trustworthy, and it turned out that the system quality and reputation were the deciding factors to incur an initial trust towards a product or a system. It can be assumed that this has not changed much as people are more and more cautious of which systems they use today due to a bigger awareness of the fintech ecosystem.

Similarly, Hu et al., (2019) looked deeper into the adoption behaviour of bank users towards new fintech systems. This essentially directs them to observe the shift from traditional services (e.g. going to the bank to make a transaction) to fintech services. In the study, government support was hypothesised to be "one of the biggest drivers of Fintech adoption", which likely connects directly to the trust factor. The findings were similar to those of Gao and Waechter (2017) as brand image seemed to have positively affected adoption rates of Fintech and perceived risk negatively, which brings us back to the trust factor. A new discovery was made as the perceived ease of use was found to have no notable impact on adoption rates. This observation may be attributed to the widespread integration of technology in our daily lives.

Another study done by Singh (2021) where 439 respondents were researched out of which almost a third were below 30 years old. This study found that social influence to be a driving factor for fintech adoption in addition to perceived usefulness and perceived ease of use. However, it also found trust to be an underlying factor for perceived usefulness and ease of use. According to this, the two original factors have consistently shown up as main influential determinants towards adoption of technology, however some other factors may also pop up in various studies where certain groups may be also influenced by image, trust, social norms and other factors.

As seen, TAM has been widely used to assess the adoption rates of fintech in different areas. However, fintech evolves so fast that factors affecting its adoption rates may change adversely year by year. The author will now go into the methodology part of the research and see what our datasets have given us in terms of the context.

1.2. Fintech and Estonian fintech ecosystem

Estonia is a small country, however it has a flourishing economic environment. With the professionalised skillsets of the workforce, as well as the government that have paved a way for

various start-ups, its scene has been constantly developing since the exit from the Soviet Union. To better understand what types of people would be participants of the entrepreneurial and fintech ecosystem, the author will explain the history of the development of fintech in general and especially in Estonia. This will help the readers get a better understanding of what factors may influence the decision-making processes when adopting fintech companies in Estonia.

Financial technology, also known as fintech, is not a new development, however it has become more and more prevalent in the last decade. Fintech improvement was brought on by the increasing digital innovations which Barroso and Laborda (2022) defined as “a product, process, or business model that is perceived as new, requires some significant changes on the part of adopters, and is embodied in or enabled by IT.” In the current world, fintech is seen as a merger of information technology and financial services (Buckley et al., 2016). There is no one specific description for fintech services, however most agree it's a new economic industry that uses technology to optimise and improve financial systems to make them more efficient (Costill, 2022; Kagan, 2022).

Fintech services are based on data and information, they usually do not include any physical components which were achieved by digitalization, “Gone are the days of walking into your local bank or financial institution to secure a loan for your small business idea” (Costill, 2022). Fintech has undoubtedly made lives easier, not just for entrepreneurs, but for personal users as well. It is optimised to help business owners and consumers better manage their finances, with more visibility and autonomy on their accounts and definitely with less effort (Kagan, 2022).

However, as mentioned before, fintech is not a new development. History of fintech has separated it into three eras, the first being during the years 1886-1967 (Buckley et al., 2016). At this time, fintech obviously did not have the face people currently know and use, instead it was more analogue and was characterised as fintech due to a first electronic fund transfer made using Morse code and telegraph. The second era of fintech lasted till 2008, where fintech became more digitised towards finance however the global crisis of 2008 brought an end of an era as it demanded for more innovation. The last era of fintech is the current developments and innovations to this day, where due to lack of trust in banks, new providers made presence. One of the biggest achievements of this era has been the development of startups and especially the fintech startups. They have received increasing support to encourage them to provide more

personalised services to businesses or other end-users. Global fintech funding reached an all time record of 132b in 2021 and it only continues to grow (Trificana, 2022).

Many have argued why fintech development has become this prominent, and what caused it. The main drivers of transformation according to Puschmann (2017) have been the changing role of IT bringing more and more new developments with it. These developments allow new systems to be optimised to offer more personalised financial services and this affects consumer behaviour to their advantage. Everyone has noticed that we are living in a growing era of electronic interactions, thus consumers have become more accustomed to technology and enjoy more optimised solutions. Additionally, changing ecosystems and regulations have also contributed to the need for innovation, especially after the 2008 financial crisis (Puschmann, 2017).

It's essential to outline that fintech does not only associate with a startup ecosystem, traditional banks have also developed or adopted fintech solutions in their activities. In fact Puschmann, (2017) categorised fintech examples as banks, non-banks, insurers and non-insurers. Non-banks and non-insurers are usually associated with start-up companies and large IT brands. These are the companies that usually develop new solutions, and banks and other traditional entities usually adopt them from third-party businesses to optimise their processes as well. Currently, fintech services are personalised so that they're different depending on the nature of your business, e.g. whether you need Consumer contact, B2B contact, etc. However, it has been observed that younger generations, as they tend to be more adapted to new technologies, are more likely to adopt new fintech services (Kagan, 2022).

Fintech currently includes various business functions such as payment services, online banking, investment management (Barroso & Laborda, 2022). Nowadays, fintech has incorporated most financial services. As discussed before, Estonia has become "Northern Europe's hub for businesses with global ambitions" ("unrivalled growth opportunities," n.d.) and this is due to the startup and unicorn ecosystem being supported to a great extent. The author will next look at the fintech ecosystem in Estonia and how it has managed to raise user adoption rates.

Estonia has a strong startup culture as described before, and a big part of that consists of the fintech ecosystem. Many believe the success can be attributed to Estonia's small size which makes informal communication a lot easier and faster (Laidroo et al., 2021). However, small size

also brings its liabilities such as “limited domestic demand and scarcity of resources” (Avarmaa et al., 2022).

Estonia’s current fintech ecosystem includes five different players, including fintech companies, the state, FinanceEstonia, Incubators and accelerators, and R&D and education institutions. The latter is thought to be the least active participant of the ecosystem and many see FinanceEstonia as a leader of the sector despite the ecosystem not officially having one (Laidroo et al., 2021). However, despite the international focus developed by limited domestic demand, the ecosystem still seems to be “a location-specific phenomenon”. (Avarmaa et al., 2022).

Estonia’s current fintech ecosystem is successful to a great extent and this can be attributed to the government support, as well as a specialist workforce. Although fintech has to undergo quite rigorous regulations due to its nature, local regulatory developments try to keep the balance by executing types of benefits for fintech to encourage growth, whilst maintaining a secure financial sector in the country (Divissenko, 2019).

Aforementioned workforce contributes a lot to the fintech ecosystem development. The spread of English as a business language has been one of the main factors which has accelerated fintech growth in the country (Laidroo et al., 2021). “English proficiency is high, and the country’s capital, Tallinn, is a thriving fintech hotspot. It has spawned successful fintechs like Wise, Zego and Veriff as well as emerging players - including Lightyear” (Clere, 2022). It’s noteworthy to mention that although some of these companies are based in a different country, they participate in the fintech ecosystem to a great extent which encourages the emergence of more fintech startups (Laidroo et al., 2021).

On the other hand, there’s a few factors that could be considered as drawbacks for fintech startups in Estonia. Firstly, Estonia “has ceased to be a country of cheap labour and the living costs are getting higher” (Clere, 2022), thus starting a business here may not be as affordable as it might be in some other countries. However Estonia still counts as a lot more affordable than other fintech hubs such as London and Berlin. Cost of labour has increased rapidly due to competition for skilled workers, thus this can count as a negative factor for fintechs as it increases their operational costs (Laidroo et al., 2021).

Furthermore, although the Estonian state tries to support the fintech growth and development, the ecosystem still seems to be in a starting phase (Avarmaa et al., 2022). Additionally, the support targeted at fintech specifically tends to be lower than other types of startups in the country, which as a result could force some companies to “find a more suitable environment” (Laidroo et al., 2021).

Overall, currently it seems Estonia’s fintech ecosystem is still growing and this can be further proved by the increasing emergence of fintech startups lately. Its small size and support to establish a business creates a good environment for entrepreneurs to a great extent. It will be interesting to see how fintech adoption rates are affected as the current scene provides a relatively good view on fintech development and growth. However, as it has been outlined, “performance gains are often obstructed by users' unwillingness to accept and use available systems” (Bowen, 1986; Young, 1984). This is exactly why the author has chosen to assess the relationship based on principles suggested by the technology acceptance model.

1.3. Entrepreneurship in Estonia

Entrepreneurship ecosystem in Estonia has largely developed since the exit from the Soviet Union, especially compared to different countries with a similar background (Männi, 2022). In fact, nowadays Estonia is number one by the amount of unicorns per capita (“unrivalled growth opportunities,” n.d.). Over time, Estonia has developed its digital infrastructure in a way that is easy and fast to establish a business. The ease of doing business can be regarded to be one of the most important factors towards explaining a significant increase in the number of startups and unicorns in the country, which has made the country number 1 in entrepreneurial activity in the EU (“unrivalled growth opportunities,” n.d.).

Having a closer look, currently Estonia’s commercial code recognizes five different forms of business entities, including private limited company, public limited company, general partnership, limited partnership and commercial association . Out of these, private limited companies (OÜ) and public limited companies (AS) tend to be the most common (Invest Estonia, 2022). In addition to the entities listed here, “any natural person can conduct a business as a sole proprietor after being entered in the Central Commercial Register before commencing permanent business activity” (“establishing a company,” n.d.).

To start a business in Estonia, one only needs to choose the company's name, field of activity, and the contact person and then simply register ("Start a business," 2021). Additionally, Estonia created an advantage with an e-residency program which allows non-residents to open a business here and run it fully digitally. E-residence program allows entrepreneurs all over the world to open a business in record time, only 2-4 hours ("establishing a company," n.d.), and most importantly access all e-services needed to run the business, such as government services, payments services, etc (Kotka et al., 2015).

Startups are more or less encouraged everywhere, it's interesting what makes Estonia special in maintaining a good ecosystem and achieving success. Männi (2022) looked into the study Estonian scientists have done regularly to analyse local business trends and according to the findings, they established having a clear path is the leading factor of success, stating "nearly all Estonian companies have strategic plans, though the most successful of these have plans in place for the next three years at minimum. They know exactly what they do and why they do it."

Furthermore, it's important to outline that Estonia has a relatively smart, but limited workforce. According to Männi (2022), "keeping employees happy topped the list of priorities for managers," which is apparent from the interviews and surveys done on team leads and managers, in the scope of this study, where most respondents believed finding and keeping the right workers was an absolute priority. Employers also try to ensure that their employees keep the right work-life balance, as well as provide moral support.

Additionally, as mentioned before, the government has created an E-residency program, which is arguably one of the most advantageous programs to help support the business ecosystem in the country. It's a digital identity program introduced by the government of Estonia in 2014 (Kotka et al., 2015). The program provides a secure digital identity to non-Estonians, which allows them to access Estonian public services and conduct business remotely. In more detail, e-residents are able to digitally establish and administer a company, conduct all their banking, declare taxes, sign contracts and other documents, manage legal obligations and access international payment service providers (Kotka et al., 2015), which allows them to run a business without ever needing to travel to Estonia for admin tasks.

The e-residency program was created with the aim of boosting Estonia's economy and innovation, as well as establishing the country as a leader in the field of e-government and digital innovation (Kotka et al., 2015). The program has proven to be effective in attracting international entrepreneurs and investors due to its secure and easy process for starting and managing businesses in Estonia.

On the topic, it is essential to outline the advantages Estonia gives to startups and why entrepreneurs choose to participate in the e-residency program. Firstly, Estonia is a member state of the EU, and a business located here automatically brings on its advantages. The most notable one would be the consumer and investor trust (Kotka et al., 2015), and additionally becoming a part of the world's largest trading bloc. Furthermore, Estonia is known to be transparent, safe and dependable. According to the E-residency portal ("do business securely," n.d.), there is no centralised database which in itself ensures data security. Citizens and e-residents have the right to access how the information is being used by the government which contributes largely to the system's transparency.

Finally, the e-residency platform support plays an important role in helping out the new business owners in Estonia. E-residents are people who likely don't know much about the Estonian ecosystem because they don't live in the country. Thus it could be fairly easy to get confused over which companies they should use as providers. Due to this, the E-residency marketplace was created with the purpose of providing information on various service providers in the country. The providers that made the list have undergone due diligence checks to ensure their trustworthiness ("Marketplace", n.d.) . Additionally, they allow e-residents to leave reviews on companies which gives a new business owner a second-hand experience on the challenges they may face dealing with certain companies.

Overall, the e-Residency program success can largely be attributed to the hard work that the Estonian government has done towards developing the program. They have provided various materials and support to new business owners in order to ensure they have information needed at hand.

As discussed above, e-residency provides a big platform for business owners who want to start their venture in Estonia. The resources also include a marketplace containing information and reviews of multiple different service providers that have undergone due diligence checks, which

these new entrepreneurs may use to their advantage. Next the author will look at fintech itself, how it was developed and what the current fintech ecosystem looks like on the Estonian market.

2. METHODOLOGY

In this chapter, the author will go through the thought process behind making decisions regarding data collection, which methods to use and how to analyse data. Findings on Estonian examples will also be analysed and assessed to see whether hypotheses were correctly assumed. The sample design will also be discussed listing limitations of the research and additionally, future recommendations will be provided to further improve the topic comprehension.

2.1. Research method

Author has decided to use a survey to assess the research method which will be conducted online using Google Forms. The decision on the type of research method was driven by the audience the author was trying to attract which includes entrepreneurs and business owners in Estonia, including E-residents. Since this is not necessarily one community, it seemed more likely that data collection would be best done via a survey and the collected data would be more standardised, which in itself provides a more accurate representation and less bias (Jain, 2021).

The survey itself is mostly quantitative in a sense that the questions are based mostly on multiple choice or likert scale response types. The possible choices for answers are provided according to the previous research done during the theoretical framework. Additionally, the author has added an open-ended question at the end for any additional feedback related to the topic which should give more qualitative data on issues and shortfalls respondents receive that have not been assumed earlier in the questionnaire.

It was essential to add an open-ended question at the end as these types of questions allow people to express their concerns regarding the topic more freely (Jain, 2021). Since the survey is anonymous, only age and country of residence information is asked of respondents, which should provide a more safe environment for respondents to speak freely.

The survey was shared mostly through Facebook groups for expats, e-residents, and startups. It was also shared through Slack channels of various companies based in Estonia. The survey was targeted to catch the attention of the entrepreneurs who own a business in Estonia, including expats and e-residents, and this was clearly explained in the introduction of the survey.

2.2. Sample design

For this research convenience sampling was used to select participants as it's a type of sampling that would be more convenient due to the existence of community channels where information can be spread (Fleetwood, 2023). These channels already include people that would be closest to the target market needed for this research to take place. In these social media channels experiences and advice are shared, and these audiences are already available for the study. Traditional sampling methods would be hard to use in this research as it's complicated or, in some cases, not possible to access more personalised data for directly targeting the specialised group. Additionally, non-probability sampling methods tend to collect data more quickly and efficiently.

Population in our case is entrepreneurs that own a business in Estonia, including expats and e-residents. The main channels of distribution were through social media, thus the survey would have reached different people of various perceptions. The questionnaire was only held in the English language as it is an established business language in a big part of businesses in Estonia. However, as other non-probability sampling methods, convenience sampling has its shortcomings (Lewis, 2021). This sample is not likely to accurately represent the whole population of the target group, as it cannot be assumed that all types of target group members have filled out the survey. Due to this, the results could be at risk of bias if generalised to the whole group.

2.3. Survey design

For this research about acceptance and adoption of fintech services among entrepreneurs in Estonia, an anonymous survey was conducted. The questionnaire was opened and shared through the social media channels, however to accumulate more responses, it was shared again at a later time in more groups and company communication channels.

The survey was split into six sections to make it easier to follow and in total included seven questions. Additionally, the first question made the survey conditional to further ensure non business-owners would not fill out the questionnaire, thus splitting it into different pages further assured the accuracy of the results.

The first section of the survey is introductory, providing respondents information about what the research is about and for which institute. Additionally, this part gives an overview of the topic being researched and how it would help the conditions improve towards fintech adoption. This section also gives assurance that answers are anonymous and will only be used for research purposes whilst informing respondents about the time it will likely take them to fill out.
The second section only includes one "Yes" or "No" question: "Do you have or are you managing a business registered in Estonia?". This was added as a precaution as even though in all posts made, it was cleared up the survey was intended for this specific target group, likely some people will still misinterpret it and start filling out the survey despite not being our target group. To avoid this confusion, answering "No" to this question automatically ends the survey and takes them to the last page.

The next section is the one where the topic of fintech service is addressed. It includes one question and checks on the frequency of usage on fintech services. Question is formed as "How often do you use FinTech services to manage your business in Estonia?" and possible answers provided vary from "Rarely" to "Daily" to get a more accurate picture on possible knowledge respondents may have due to experience.

The next section is the most important and informative for the survey, it's also the biggest question. Question is formed in likert scale with the main question being "On a scale of 1 to 5, rate the factors that influence your use of FinTech? *1 being very low, 5 being very high*". Here Davis's (1989) research points were used to assess the adoption rates from technology acceptance model viewpoint.

Perceived ease of use as described by Davis (1989) refers to "the degree to which a person believes that using a particular system would be free of effort" and various different motivators were used to assess this area. These were the following: "easy to use", "easy to learn", "clear and understandable", "flexible to use".

Perceived usefulness is another major influencer of TAM and Davis (1989) describes it as “the degree to which a person believes that using a particular system would enhance his or her job performance”. This factor was suggested by the following motivators: “usefulness”, “works more quickly”, “improves job performance”, “increases productivity”, “effective” and “makes job easier”.

To measure these influencing factors as mentioned above, a scale of 1 to 5 was used, with 5 being the very high, meaning it influences their decision making to use and adopt a fintech service to a great extent. Likert scales are widely used in various domains such as “behavioural sciences, healthcare, marketing and usability research” (Winter and Dodou, 2010) thus it will likely give an accurate representation for the research and hypothesis.

The next part of the survey contains two questions and brings the fintech research part to an end. The first question is “How likely are you to recommend FinTech services to other entrepreneurs in Estonia?” measured on a linear scale of 1 to 10, 1 being “not at all likely” and 10 being “extremely likely”. This question gives us a better insight into how useful respondents actually believe the fintech systems to be as they would only recommend the products and services they actually find easy to use and useful to their work.

Final question on this page is an open-ended question “What suggestions would you give for FinTech services in Estonia to improve their adoption among entrepreneurs?”. This question will give us a more qualitative evaluation of the fintech systems as respondents here are not limited to providing specific answers. Open-ended questions in a survey allows respondents “to express their own ideas and experiences” (Jain, 2021). Since the survey is anonymous, it will further encourage an honest response as respondents will be able to freely open up about their ideas and criticisms.

The survey concludes with demographic questions about the age group respondents belong to, and the country they live in. These questions were chosen due to the fact that it’s assumed younger people adopt new technologies more (Kagan, 2022), so it would be interesting to see if the results here reflect that general understanding. Also, since the country of residence of respondents could be anywhere around the world, it might give us a good insight into Estonian perception towards fintech services compared to the people living abroad.

Fintech was chosen as the topic for this thesis, and survey relatively, as it's becoming more and more prevalent in daily lives. Understanding its shortcomings will help fintech companies and providers improve their work according to the feedback, thus making the adjustment from traditional services to fintech slightly easier. For future research, trust factor can be more deeply researched, as lack of trust towards the new technology tends to be a side effect during every innovation (Gao & Waechter, 2017; Hu et al., 2019).

3. RESULTS

In this chapter, results received on the survey will be analysed and demonstrated visually. Acceptance and adoption rates of fintech platforms in Estonia by entrepreneurs and e-residents will be analysed in connection with TAM's two main influencing factors: perceived ease of use and perceived usefulness.

3.1. Survey findings

The survey has received 57 responses in total, out of which 9 responses were recorded with a "No" on the first question whether they own or manage a business in Estonia, and thus were directed to the end of the survey.

Age was one of the two demographic factors asked, and the responses can be seen on Figure 1 below. The majority of the respondents are between the ages of 25-35, followed by the 35-45 group. The third most common group was 18-25 year olds, and the remaining were split into the age groups of 45-55, 55-65, and 65+.

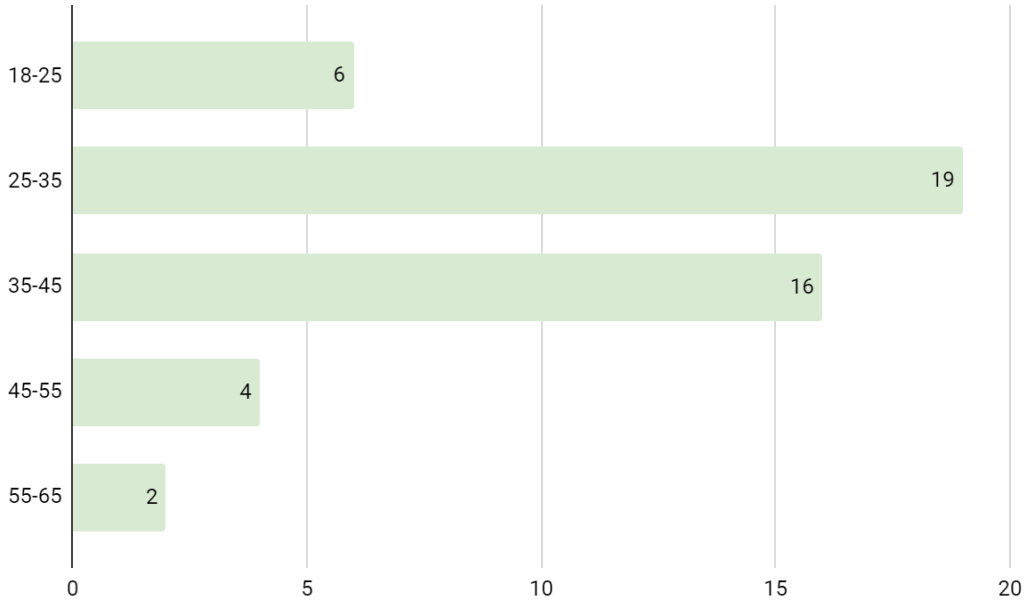

Figure 1. Age group distribution
Source: Results from survey, built Excel

To understand the different trends between the ages, the author compared age groups to the average ease of use responses, to find a correlation according to the Pearson product-moment correlation coefficient. A strong negative correlation was established, with a coefficient of -0.98, which means that the younger people are more likely to care about the ease of use of new systems when deciding to adopt it. This can be attributed to the fact that the younger generation is already accustomed to readily available simple systems, whereas the older age groups have gone through several more complicated systems before the implementation of fintech solutions.

Similar analysis was done towards the usefulness factor, comparing age group and average usefulness importance scores. Author established yet another strong negative correlation with a coefficient of -0.86. This demonstrates that the younger age groups tend to care about usefulness factors a lot more than the older age groups. Similarly, this can be attributed to the fact that younger people tend to look for alternatives, so they prioritise one that helps them most towards their work and achieving a goal.

The only other demographic question mentioned in the survey was about where the respondents live. Even though the survey was distributed to e-resident groups, most responses still came from the respondents located in Estonia - 24 responses in total. The second most common country of residence was Hungary with six respondents, whereas the rest of the countries mentioned were

filled out by one or two respondents each. These countries included the following: Finland, France, Italy, Sweden, Cyprus, UK, Indonesia and others.

The second question in the survey was in regards to fintech usage frequency, which is intended to help the author better assess the knowledge levels, according to the experience. The results indicate that the most common frequency of usage of fintech services are “weekly” and “monthly”, with 13 responses recorded towards each. Full results are shown on Figure 2.

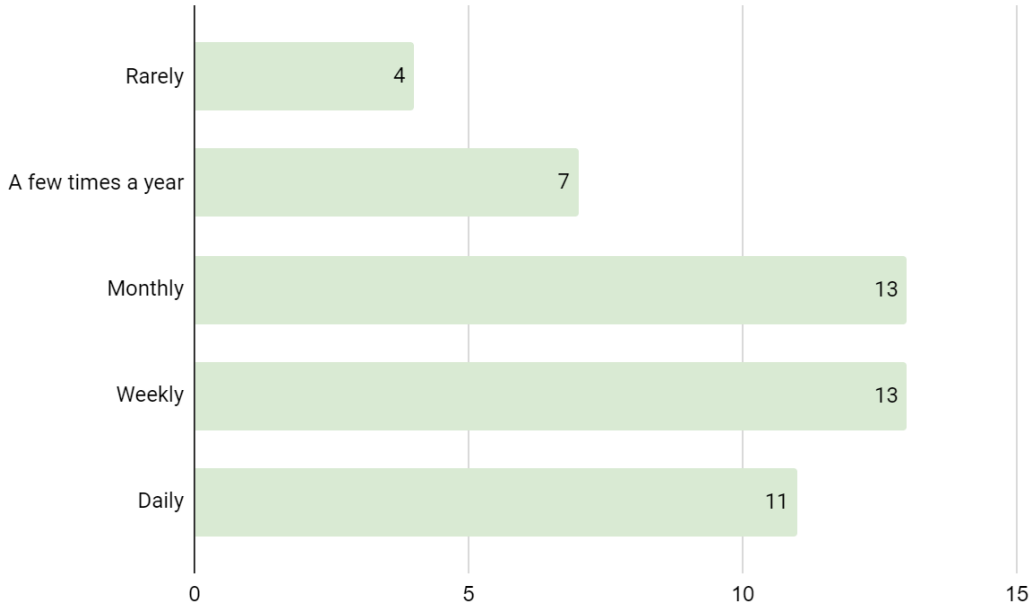

Figure 2. Question: “How often do you use FinTech services to manage your business in Estonia?”
Source: Results from the survey, built in Excel

To better understand how this factor is affected by other variables, correlation coefficient was used again to assess the relationship between frequency and the ease of use variable. A positive correlation was established, with a coefficient of 0.78. This shows that people who care about the ease of use factor, tend to use the fintech systems on a more frequent basis. Similarly, a positive correlation coefficient of 0.78 was found between the usefulness factor and the frequency of use. Likewise, this indicates that the people who use fintech services more often, tend to prioritise the usefulness factor.

The next question on the survey is the most impactful and includes the most sub-tasks. Here, the respondents were asked to rate the various determinants for ease of use and usefulness based on Davis’s (1989) initial work, on a scale of 1 to 5; 5 being the most important.

For ease of use, there were four determinants: easy to use, easy to learn, clear and understandable, and flexible to use. Ease of use factors all received a relatively good score, however, the most important underlying factor was indeed the “ease of use” with an average score of 3.92, followed by the determinant “clear and understandable” with an average score of 3.9. From here the Author that the respondents cared slightly less about how easy it would be to learn a new technology, but cared more about how easy it would be to use in general.

Determinants for “ease of use”	Average score
Easy to use	3.92
Easy to learn	3.69
Clear and understandable	3.9
Flexible to use	3.73

Figure 3. Average scores for “ease of use” determinants
Source: Results from survey, calculated in Excel

Similarly, for usefulness, there were six determinants: usefulness, work more quickly, improved job performance, increased productivity, effective, and makes job easier. The average scores suggested that “makes job easier” was the most important to the respondents, with a score of 4.02, followed by “effective” with a score of 3.92.

Determinants for “usefulness”	Average score
Usefulness	3.83
Work more quickly	3.9
Improves job performance	3.88
Increases productivity	3.83
Effective	3.92
Makes job easier	4.02

Figure 4. Average scores for “usefulness” determinants
Source: Results from survey, calculated in Excel

The next question is aimed to understand the likelihood of recommending the fintech services in Estonia. The question was framed as “How likely are you to recommend FinTech services to

other entrepreneurs in Estonia?". Most responses were relatively positive, with 19 respondents voting for 10 "extremely likely". The exact results are shown below on a chart.

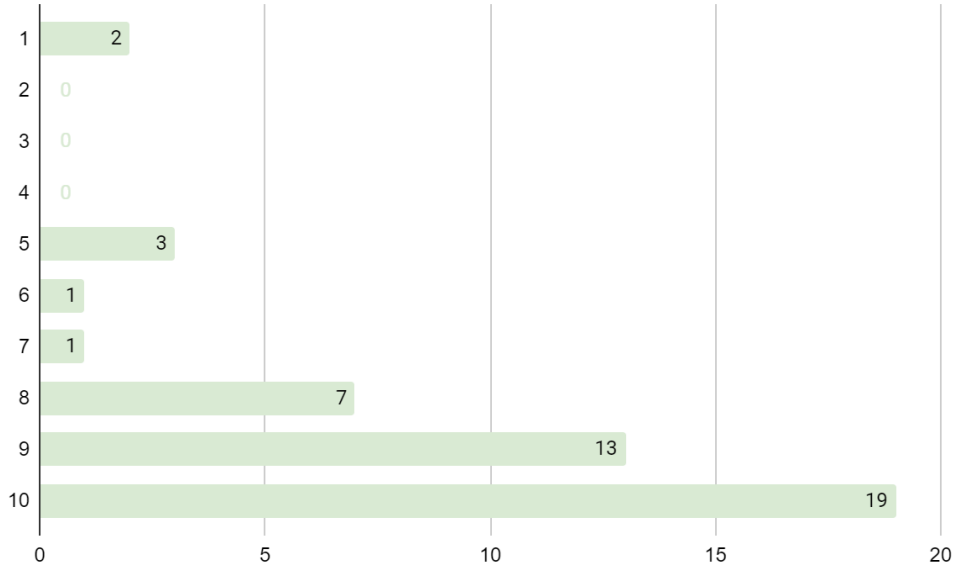

Figure 5. Question: How likely are you to recommend FinTech services to other entrepreneurs in Estonia?
Source: Results from the survey, built in Excel

Results predominantly showed nines and tens in response to this question. To understand what this means, the author employs the community of Inquiry theory (Garrison et al., 2010). Since these scores occur a lot, it indicates a strong likelihood that entrepreneurs will recommend the fintech services in Estonia. Additionally, the high occurrence of these scores indicates a strong likelihood of recommendation, highlighting a positive social presence within the community. Furthermore, the common occurrence of these high ratings suggests a thorough evaluation of such services, indicating that respondents have critically assessed the benefits, use cases and value of fintech services in Estonia.

Last question here was open-ended in order to give the respondents a chance to voice out their opinions and criticisms freely. These brought in new variables that hadn't been considered in the previous questions. Several respondents gave a suggestion of more training and education webinars, as well as better FAQs. This can point to the fact that some people still find it hard to understand the new systems, thus holding the introductory sessions on a frequent basis, by the fintech service providers, would serve as useful for their potential users.

Additionally, a few respondents pointed out that it would be great if the trial accounts implementation were more common. This brings out the convenience of testing the product or service, before fully dedicating to it. It may also diminish the trust factor as the first user-experience would be relatively risk-free.

These responses suggest that some systems are not as easy to use as one desires, this leaves a room for improvement. As the whirlwind of change sweeps the technology world, one can find it hard to keep up. Simple, yet effective measures, such as improved training and webinar sessions, as well as more detailed FAQ pages can make a significant difference.

Final feedback point that was brought up was about the lack of loyalty programs. People have grown accustomed to personalization and the loyalty programs make them feel as a part of the brand community.

3.2. Discussion

As seen above, there were a relatively big amount of findings that made sense to our previous assumptions. In this chapter, findings will be discussed in accordance with the hypotheses to see if the assumptions about acceptance and adoption rates among business owners were correct. Additionally, findings will check it against the literature reviewed above to check for similarities and differences.

The first hypotheses was:
H1: The perceived ease of use of fintech services positively influences the usage of fintech services among entrepreneurs whose business is located in Estonia.

A positive correlation between the perceived ease of use factors and the frequency of usage of fintech platforms was established, with a coefficient of 0.78. As seen by the correlation, respondents who cared more about the ease of use factors according to the survey, used the product or a service on a more frequent basis. This can also be supported by the age distribution data. As seen on age comparison results, older age groups tend to care less about the ease of use factors and relatively use the product on a less frequent basis. Thus, it can be concluded that the first hypothesis was approved according to the survey.

The second hypotheses was:
H2: The perceived usefulness of fintech services positively influences the usage of fintech services among entrepreneurs whose business is located in Estonia.

Analysing the perceived usefulness factors against the frequency of use established another positive correlation coefficient of 0.78. The biggest underlying factor contributing to the importance of usefulness was that the new fintech service made one's job easier. This establishes that individuals that prioritise the usefulness factors, tend to use the aforementioned systems on a more frequent basis. Thus, the second hypothesis was also confirmed according to the data collected.

Another interesting relationship found by the survey was due to age group differences. Comparing the different age groups to ease of use factors and usefulness factors, negative correlations were established. This means, younger age groups cared more about the ease of use factor (-0.98) and usefulness factor (-0.86). Thus older age groups tend to care less about these two factors when adopting a new fintech service.

Similarly, the relationship between the ease of use factor against the frequency of usage, and usefulness factor against the frequency of usage were analysed. Here strong positive correlations were established in both analyses. Respondents who care less about the ease of use (0.78) and usefulness (0.78) tend to use the services a lot less frequently. Thus, it can be assumed that older age groups use the services less, as they prioritised the ease of use and usefulness factors less. According to this, it can be said that the age factor significantly influences the acceptance and adoption of fintech services.

Comparing these findings to the previous research, results definitely reflect other responses. A similar study done by Yaghoubi and Bahmani (2010) which researched the adoption of online banking in Iran assumed in their hypothesis that perceived ease of use would have a direct impact on the new system usage. Although their findings differed, and perceived ease of use did not turn out to show a direct impact on the intention to use, it showed influence on perceived usefulness. With these factors taken into consideration, it still led to a greater acceptance of online banking. Furthermore, perceived usefulness also had an indirect influence on acceptance rates according to their findings as it affected the attitude of potential users.

Another similar research done by Hu et al., (2019) on adoption of fintech services for bank users found that usefulness plays an increasingly essential role for fintech adoption and banks need to correctly strategise to take into account the most useful solutions that could apply. This also partly reflects our research as with our findings there was a strong correlation between the usefulness factor and the frequency of use. Furthermore, in this research Hu et al., (2019) found that "people aged 26-35 years old accounted for the highest proportion, and new technologies and lifestyles are always first accepted by these customers." This also largely reflects our survey findings where the same age group showed the most potential on fintech product adoption.

The most interesting thing, especially related to age groups, would be to assess the trust factor in more detail in the future. Since fintech is related to movement or management of funds in some shape or form, it is likely that trust plays a big role on adoption rates, whether it is for personal users or business users.

3.3. Contributions

Contributions section will discuss the applications this research can have to the theory and literature, as well as practical applications for companies and business owners.

3.3.1. Research contributions

This research mainly used Technology Acceptance Model to assess the fintech adoption and acceptance rates by business owners. The author dug deeper into Davis's (1985) proposed model with perceived usefulness and perceived ease of use.

This theory was developed in 1985 and technology has developed at a rapid rate since. However, according to our findings, the main two influencing factors for new adoptions can still find basis in perceived ease of use and perceived usefulness.

This research was done to assess fintech adoption by entrepreneurs and e-residents in Estonia. According to our findings, perceived ease of use and perceived usefulness are still highly scored when one decides whether they should adopt a new piece of technology or service. With these findings, the author also established strong correlations between the interest of ease of use and

usefulness and frequency of usage. This means, people who care about these factors and try to understand how easy a new product or service would be to use and how useful it would be to their work, or daily lives, use the aforementioned products on a much more frequent basis.

The main research contribution here would be from the audience point of view. In previous research done when applying TAM to fintech adoption, the audience has always been either individuals, small groups of people such as teachers, or small companies. However, not much has been research from an entrepreneurial point of view. With this thesis, the thought process of these entrepreneurs has been outlined, why and according to what they make decisions on adopting new technologies to improve their startups and other businesses.

3.3.2. Practical contributions

Practical contributions of this research provides a deep insight into the factors business owners and entrepreneurs care about when adopting new products or services.

E-residency is still a relatively new development, it is not very widespread yet. Due to this, not much research has been done about the topic and how useful it can be.
E-residency, as mentioned before, allows non-residents to establish and manage a business completely online. All necessary tasks can be done online due to Estonia's highly digitalized infrastructure. It is essential to understand how different factors can affect e-residents' perception of a new product or service. As seen from our research, e-residents had a relatively similar opinion on the importance of different factors as local business owners did. Thus it can be assumed, where one is from does not affect people's perception of what's important and essential in the new technological developments.

However, not much of our research was evaluated by enough e-residents. Future research should concentrate on this segment specifically to get a deeper understanding of any other factors they might be taking into account that locals may not.

The biggest impact this thesis can have would be on fintech companies and managers. It can help them go back to the basics in a sense to better understand their user segment and personalise their products according to their needs. For instance, in this research age was inversely related to the acceptance and adoption of the product, and older age groups care less about perceived ease

of use or usefulness. This can be used to find out what drives this segment and personalise the product accordingly to increase its adoption rates.

Additionally, it was established that ease of use and usefulness are still major factors that lead entrepreneurs and business owners to actual use of a product or system. The author found that people who care more about this factor, actually use the product on a less frequent basis. This information can help companies build their products in a less complicated way, to fit more specialised needs, and to make it as easy as possible to understand. Furthermore, more webinars and better FAQ pages may also contribute to the ease of use factor, as if people can easily find information about how to use something, they will likely be less discouraged from using it.

Nowadays, there is no fintech area where one company specialises in something as a rule of thumb. There's competitors everywhere and it's essential to differentiate your product as much as possible. However, these differentiations usually lead to extremely complicated products or services which is counterproductive, as it apparently discourages potential users from even testing out the product. Thus, it is important to remember the two basic factors and always take into consideration that a new product or service a company releases, for one to be easy to use and also to be useful and actually tackle people's problems.

CONCLUSION

In light of the above, this thesis shed some light on the factors that influence the acceptance and adoption of fintech services among entrepreneurs and e-residents in Estonia. The findings highlight the importance of perceived ease of use and perceived usefulness, and how they can affect the actual system use. Fintech providers should try to prioritise these factors during the product design and marketing efforts to ensure larger acceptance from potential users. Furthermore, more in-depth explanations, training and webinars could reduce the risks that come with end-users not understanding the product or service fully. Another factor that showed relevance in our studies was the age group, according to which older age groups do not pay as much attention to the easiness or usefulness factors when adopting a new fintech solution. Due to this, it might be essential to personalise the fintech services to these users more so that it sparks their interest. Overall, this paper provides comprehensive insights into the relationship of influencing factors and adoption rates, and these findings may provide valuable guidance for fintech providers seeking to improve their products and services, and can also be used for further research into this topic.

LIST OF REFERENCES

Arner, D. W., Barberis, J., & Buckley, R. P. (2016). The Evolution of Fintech: A New Post-Crisis Paradigm? *Social Science Research Network*. https://doi.org/10.2139/ssrn.2676553

Avarmaa, M., Torkkeli, L., Laidroo, L., & Koroleva, E. (2022). The interplay of entrepreneurial ecosystem actors and conditions in FinTech ecosystems: An empirical analysis. *Journal of Entrepreneurship, Management and Innovation*, *18*(4), 79–113. https://doi.org/10.7341/20221843

Bandura, A. (1982). Self-Efficacy Mechanism in Human Agency. *American Psychologist (37:2)*, 122–147.

Barroso, M. F., & Laborda, J. (2022). Digital transformation and the emergence of the Fintech sector: Systematic literature review. *Digital Business*, *2*(2), 100028. https://doi.org/10.1016/j.digbus.2022.100028

Basdekis, C., Christopoulos, A., Katsampoxakis, I., & Vlachou, A. (2022). FinTech's rapid growth and its effect on the banking sector. *Journal of Banking and Financial Technology*. https://doi.org/10.1007/s42786-022-00045-w

Bourke, E. (2022, July 13). Fintech - Will it replace traditional banks? *Euronews*. https://www.euronews.com/next/2022/07/13/fintech-will-it-replace-traditional-banks

Bowen, W. (1986). The Puny Payoff from Office Computer. *Fortune*, 20–24.

Chuttur, M. (2009). *Overview of the Technology Acceptance Model: Origins, Developments and Future Directions*. AIS Electronic Library. https://aisel.aisnet.org/sprouts_all/290/

Clere, A. (2022). Fintech Frontiers: Estonia's flourishing fintech ecosystem. *FinTech Magazine*. https://fintechmagazine.com/articles/fintech-frontiers-estonias-flourishing-fintech-ecosystem

Costill, A. (2022). The Fintech Revolution. *Due*. https://due.com/the-fintech-revolution/

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *Management Information Systems Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008

De Winter, J., & Dodou, D. (2010). Five-Point Likert Items: t Test Versus Mann–Whitney–Wilcoxon. *ResearchGate*. https://www.researchgate.net/publication/266212127_Five-Point_Likert_Items_t_Test_Versus_Mann-Whitney-Wilcoxon

Divissenko, N. (2019, December 12). *Fintech Regulation in Estonia*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3575435#references-widget

Eesti.Ee. (n.d.). *Start a business in Estonia | Eesti.ee*. https://www.eesti.ee/en/doing-business/establishing-a-company/start-a-business-in-estonia

e-Residency Marketplace. (n.d.). e-Residency Marketplace. https://marketplace.e-resident.gov.ee/

e-Residency of Estonia | Apply & start an EU company online. (n.d.). e-Residency. https://www.e-resident.gov.ee/make-business-easy-at-every-stage/

Fleetwood, D. (2023). Convenience Sampling: Definition, Advantages, and Examples. *QuestionPro*. https://www.questionpro.com/blog/convenience-sampling/

Gao, L., & Waechter, K. A. (2017). Examining the role of initial trust in user adoption of mobile payment services: an empirical investigation. *Information Systems Frontiers*, *19*(3), 525–548. https://doi.org/10.1007/s10796-015-9611-0

Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. Internet and Higher Education, 13(1–2), 5–9. https://doi.org/10.1016/j.iheduc.2009.10.003

Growth opportunities for your business | e-Residency. (2023, March 13). e-Residency. https://www.e-resident.gov.ee/growth-opportunities/

Hill, T., Smith, N. D., & Mann, M. F. (1987). Role of Efficacy Expectations in Predicting the Decision to Use Advanced Technologies: The Case of Computers. *Journal of Applied Psychology (72:2)*, 307–313.

Hu, Z., Ding, S., Li, S., Chen, L., & Yang, S. (2019). Adoption Intention of Fintech Services for Bank Users: An Empirical Examination with an Extended Technology Acceptance Model. *Symmetry*, *11*(3), 340. https://doi.org/10.3390/sym11030340

Invest Estonia. (2022, November 28). *Establishing a company - Invest in Estonia*. Invest in Estonia. https://investinestonia.com/business-in-estonia/establishing-company/

Jain, N. (2021). Survey Versus Interviews: Comparing Data Collection Tools for Exploratory Research. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2021.4492

Kagan, J. (2022). Financial Technology (Fintech): Its Uses and Impact on Our Lives. *Investopedia*. https://www.investopedia.com/terms/f/fintech.asp

Kotka, T., Castillo, C. I. V. A. D., & Korjus, K. (2015). Estonian e-Residency: Redefining the Nation-State in the Digital Era. *Cyber Studies PROGRAMME*, *3*. https://www.politics.ox.ac.uk/sites/default/files/2022-03/201509-CTGA-Kotva%20T-Alvarez%20del%20Castillo%20C%20I-Korjus%20K-estonian%20e-residency.pdf

Laidroo, L., Tamre, A., Kukk, M.-L., Tasa, E., & Avarmaa, M. (2021). FINTECH REPORT ESTONIA 2021. *TalTech*. http://www.financeestonia.eu/wp-content/uploads/2021/06/FinTech-report-2021-final.pdf

Lewis, S. J. (2021). As the American Foundation for the Blind Celebrates Its Centennial, the Journal of Visual Impairment & Blindness Embarks on Its 115th Year of Continuous Publication, with Thanks to Those Who Are Making It Possible. *Journal of Visual Impairment & Blindness*. https://doi.org/10.1177/0145482x20987706

Männi, M. (2022). Why Estonian entrepreneurs are so successful – a study explains. *Invest in Estonia*. https://investinestonia.com/why-estonian-entrepreneurs-are-so-successful/

Puschmann, T. (2017). Fintech. *Business & Information Systems Engineering*, *59*(1), 69–76. https://doi.org/10.1007/s12599-017-0464-6

Secure & trusted business environment for entrepreneurs. (n.d.). e-Residency. https://www.e-resident.gov.ee/do-business-securely/

Singh, S., Sahni, M. M., & Kovid, R. K. (2021). Exploring Antecedents of FinTech Adoption Using Adapted Technology Acceptance Model. In Lecture notes in mechanical engineering (pp. 337–352). Springer Nature. https://doi.org/10.1007/978-981-15-8025-3_34

Swanson, E. B. (1987). Information Channel Disposition and Use. *Decision Sciences (18:1)*, 131–145.

Trificana, J. (2022). What is fintech? 6 main types of fintech and how they work. *Plaid*. https://plaid.com/resources/fintech/what-is-fintech/

Venkatesh, V., & Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. *Decision Sciences*, *39*(2), 273–315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. Management Science, 46(2), 186–204. https://doi.org/10.1287/mnsc.46.2.186.11926

Yaghoubi, N. M., & Bahmani, E. (2010). Factors Affecting the Adoption of Online Banking-An Integration of Technology Acceptance Model and Theory of Planned Behavior. *International Journal of Business and Management*, *5*(9). https://doi.org/10.5539/ijbm.v5n9p159

Young, T. R. (1984). The Lonely Micro. *Datamation (30:4)*, 100–114.

APPENDICES

Appendix 1. Survey questions

Acceptance and adoption of FinTech platforms in Estonia

This survey is part of the bachelor thesis for Tallinn University of Technology. All answers are anonymous and will only be used for research purposes.

This survey aims to uncover the challenges associated with acceptance and adoption of fintech solutions for business owners in Estonia. Your insights will provide valuable feedback on the user experience of fintech, enabling companies to identify areas for improvement and make necessary changes to enhance the usefulness and ease of adoption of these services for you.

Thank you for taking the time to fill it out. It shouldn't take more than 2-3 minutes to finish!

Image title

Section 2 of 6

Untitled Section

Description (optional)

Do you have or are you managing a business registered in Estonia? *

- Yes
- No

Section 3 of 6

Untitled Section

Description (optional)

How often do you use FinTech services to manage your business in Estonia? *

- Rarely
- A few times a year
- Monthly
- Weekly
- Daily

Section 4 of 6

Untitled Section

Description (optional)

On a scale of 1 to 5, rate the factors that influence your use of FinTech? *1 being very low, 5 being very high* *

	1	2	3	4	5
Easy to use	○	○	○	○	○
Easy to learn	○	○	○	○	○
Clear and Unde...	○	○	○	○	○
Flexible to use	○	○	○	○	○
Usefulness	○	○	○	○	○
Work more qui...	○	○	○	○	○
Improves job p...	○	○	○	○	○
Increases prod...	○	○	○	○	○
Effective	○	○	○	○	○
Makes job easi...	○	○	○	○	○

Section 5 of 6

Untitled Section

Description (optional)

How likely are you to recommend FinTech services to other entrepreneurs in Estonia?

	1	2	3	4	5	6	7	8	9	10	
Not at all likely	○	○	○	○	○	○	○	○	○	○	Extremely likely

What suggestions would you give for FinTech services in Estonia to improve their adoption among entrepreneurs?

Long answer text

Section 6 of 6

Untitled Section

Description (optional)

Which age group do you belong to?

- 18-25
- 25-35
- 35-45
- 45-55
- 55-65
- 65+

Which country do you live in?

Short answer text

Appendix 2. Survey results

Question 1	Multiple Choice	Responses
Do you have or are you managing a business registered in Estonia?	Yes	48
	No	9

Question 2	Multiple Choice	Responses
How often do you use FinTech services to manage your business in Estonia?	Rarely	4
	A few times a year	7
	Monthly	13
	Weekly	13
	Daily	11

Question 3: Multiple choice grid: On a scale of 1 to 5, rate the factors that influence your use of FinTech? 1 being very low, 5 being very high					
Criteria	1	2	3	4	5
Easy to use	3	3	8	15	19
Easy to learn	3	5	11	14	15
Clear and Understandable	2	7	5	14	20
Flexible to use	2	6	9	17	14
Usefulness	5	5	5	11	22
Work more quickly	2	6	9	9	22
Improves job performance	2	4	11	12	19
Increases productivity	2	5	8	17	16

Effective	2	4	8	16	18
Makes job easier	1	5	6	16	20

Question 4: How likely are you to recommend FinTech services to other entrepreneurs in Estonia? Ranked answer from 1 to 10. 1 being Not at all likely, 10 being Extremely likely	Responses
1	2
2	0
3	0
4	0
5	3
6	1
7	1
8	7
9	13
10	19

Question 5	Responses:
What suggestions would you give for FinTech services in Estonia to improve their adoption among entrepreneurs?	● More training and education webinars. Trial account would help as well ● No fee for new account opening ● Better advertisement and seminars for young entrepreneurs about the impact of fintech ● First, remove restrictions for those countries that they consider not reliable ● Free trials to test out the product ● Make more public events to explain the services better ● Loyalty programs, gamification, fast and clear user experience

	● Cooperation with startup incubators and accelerators ● Better FAQ ● make it easier for foreigners to take part e.g. geoblocking for Apps. ● Personal touch and human interaction ● Stop copying your customers' businesses and paying off e-residency and prosecutors to cover up your crime ● I think they do a good job. I do think more events, sponsoring key conferences etc

Question 6	Multiple Choice	Responses
Which age group do you belong to?	18-25	6
	25-35	19
	35-45	16
	45-55	4
	55-65	2
	65+	0

Question 7	Responses
Which country do you live in?	● Cyprus (1) ● EE (6) ● Eesti (1) ● Estonia (16) ● Europe (1) ● Finland (1) ● France (1) ● Georgia (1) ● HU (1) ● Hungary (5) ● Indonesia (1) ● Italy (1)

	• Latvia (1) • Russia (1) • Sweden (2) • Ukraine (1) • United Kingdom (1) • eesti (1)

Appendix 3. Calculations in Excel

Age group	age group numbering	Average ease of use score
18-25	1	4.083333333
25-35	2	4.026315789
35-45	3	3.734375
45-55	4	3.4375
55-65	5	3.25
Correlation	-0.9836095351	

Age group	age group number	Average usefulness score
18-25	1	4
25-35	2	4.149122807
35-45	3	3.885416667
45-55	4	3.625
55-65	5	2.75
	-0.8613745555	

Frequency	Frequency numb	Average ease of use
Rarely	1	3.25
A few times a ye	2	2.214285714
Monthly	3	3.788461538
Weekly	4	4.307692308
Daily	5	4.454545455
	0.7826876442	

Frequency	Frequency numbering	Average usefulness
Rarely	1	3.333333333
A few times a ye	2	2.404761905
Monthly	3	3.987179487
Weekly	4	4.282051282
Daily	5	4.484848485
	0.7831394902	

Appendix 4. Non-exclusive licence

A non-exclusive licence for reproduction and publication of a graduation thesis[1]

I Natia Vardanidze

1. Grant Tallinn University of Technology free licence (non-exclusive licence) for my thesis Acceptance and adoption of fintech platforms by entrepreneurs in Estonia,

supervised by Basel Hammoda, PHD candidate,

1.1 to be reproduced for the purposes of preservation and electronic publication of the graduation thesis, incl. to be entered in the digital collection of the library of Tallinn University of Technology until expiry of the term of copyright;

1.2 to be published via the web of Tallinn University of Technology, incl. to be entered in the digital collection of the library of Tallinn University of Technology until expiry of the term of copyright.

2. I am aware that the author also retains the rights specified in clause 1 of the non-exclusive licence.

3. I confirm that granting the non-exclusive licence does not infringe other persons' intellectual property rights, the rights arising from the Personal Data Protection Act or rights arising from other legislation.

11.05.2023

[1] *The non-exclusive licence is not valid during the validity of access restriction indicated in the student's application for restriction on access to the graduation thesis that has been signed by the school's dean, except in case of the university's right to reproduce the thesis for preservation purposes only. If a graduation thesis is based on the joint creative activity of two or more persons and the co-author(s) has/have not granted, by the set deadline, the student defending his/her graduation thesis consent to reproduce and publish the graduation thesis in compliance with clauses 1.1 and 1.2 of the non-exclusive licence, the non-exclusive license shall not be valid for the period*