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FINTECH SEKTORIAUS TENDENCIJOS EUROPOJE VERTINIMAS	**VALUATION OF FINTECH SECTOR TENDENCY IN EUROPE**

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List of Abbreviations

TI - Technology Innovation

PD - Process Disruption

ST - Service Transformation

FA - Fintech Adaptability

FR -Fintech Risk

FS -Financial Security

FI - Financial Inclusion

INTRODUCTION

In Europe, this is particularly true that factors such as looser domestic laws, more competition, rapid discoveries in new financial products, and the great spread of information technology have all contributed to a growing hunger for innovation in the banking sector. (Frei et al., 1998). Even though it is widely accepted that creativity and uniqueness are of the utmost importance in today's highly competitive climate, innovation has its challenges (Kuzmanova, 2020). More than half of these issues stem from how people respond to new technology. A company may innovate, but it is another thing for consumers to embrace the innovation offered (Merler, 2017). The key elements that impact bank customers' acceptance of innovations have yet to be empirically researched in Europe, even though business researchers continue to demonstrate a significant interest in innovation. However, innovation continues to arouse considerable attention (Das et al., 2018).

Banks need to develop and plan effective, innovative strategies to grow and survive in light of the increasing competition, increased customer demands, and new European regulations (Europe Banking Survey, 2010; 2011), which are expected to add complexity to banks' business models. This article will research to understand better the key components that influence whether or not banking innovations are adopted. Many theoretical and managerial implications may be drawn from the study, including the following: Using Rogers' innovation diffusion theory, the study first develops a model for analyzing the main features that promote client adoption of new e-banking products(Clemons & Weber, 1997). This concept may serve as the study's foundation. Due to the need for studies on innovation uptake in Europe's banking industry, this article will significantly add to the current body of knowledge on the subject area (Romanova & Kudinska, 2016b). A management viewpoint on how to strategically support the operations of the industry by developing policies that boost consumer acceptance of new goods is presented in this article for industry participants and policymakers (Clemons et al., 1996b). As a result, business experts can build more innovative products since they now have access to more information. In order to provide tailored solutions for European banking consumers and clients (Clemons et al., 1996a). For the most part, this research serves as a starting point for additional research into the topic.

This research is significant because it sheds light on the digital revolution's impact on the financial services sector. Because of the current pace of technological improvement, additional

opportunities for using digital banking platforms are likely to be pursued in the future. In addition, an increasing number of customers are searching for a reasonably streamlined financial solution that is practical and easily accessible. Hence, it was necessary to research to understand the financial inclusion presented by digital disruption. Individuals who bank with a variety of EUROPE banks and the owners of these banks stand to benefit the most from the findings of this research since the former will now be able to track developments in the sector under the recommendations made by the latter.

In addition, the research aims to provide recommendations about the processes that the banking sector can use to put into place essential tactics that will assist in mitigating the impact of fintech adaptability, fintech risk, and security. This was accomplished by providing the ingredients that facilitated a stable financial environment that allowed banks to flourish and peaceful co-existence with alternative financial service providers.

It is hard to emphasize the significance of innovation within the context of the more significant financial services industry (Abhishek et al., 2017). Abdulquadri et al., (2021). This happens because innovation in the financial sector drives competition, which drives down prices. When assessing a financial innovation, the most significant consideration is how well it can improve the efficiency of financial intermediation (Romanova & Kudinska, 2016b). The most crucial element is the degree to which it can do this effectively. As is the case with innovations in other parts of the economy, financial companies can create an entirely new category of products (financial instruments, techniques, and markets), improve upon already existing products, or combine the qualities of some particular products in order to increase the efficiency of financial intermediation(Ashta & Biot-Paquerot, 2018). This is similar to the case with innovations in other parts of the economy (Zuboff, 2020).

Thus, product and process innovations are the two categories of innovations. Examples of the former include newly created derivative contracts, newly created corporate securities, and newly created types of pooled investment products. Examples of the latter include newly created methods for the distribution of securities, the processing of transactions, and the pricing of transactions. The foundation upon which inventions are constructed According to the innovation diffusion theory, adoption is the fundamental notion that must be understood to appreciate the degree to which

consumers embrace freshly presented products. The process through which new products and ideas spread across a market is referred to as the diffusion process (Schiffman & Kanuk, 2009).

There is no room for ease or comfort in the banking industry. They need to reevaluate their competitive advantages in light of the significant shifts brought about by developments in information technology (IT) and the pressure from competitors in the FinTech industry. This research emphasizes the importance of relationship banking, which fosters intimate touch with bank clients, not being eliminated by financial institutions. Streamlining incentives and supporting the long-term requirements of bank clients may be accomplished via relationship banking with a focus on the long term. On the other hand, banks might be enticed into transaction banking by the availability of IT-driven economies of scale and competition from startups in the financial technology industry. In this context, this research analyses the roles that artificial intelligence, process disruption, innovative financial practices, and service transformation play in the Fintech industry of Europe.

Additionally, the banking business has become more efficient due to the advances brought forth by this sector. Therefore, improvements in electronic banking (e-banking) in Europe have assisted in improving not just efficiency but also financial intermediation. However, the variables that influence the acceptance (usage) of such innovative products in the European banking sector have yet to be the subject of any secondary research studies that analyze the scholarly literature on the valuation of the FINTECH section of Europe. The existence of this void was a primary motivation for carrying out this research. In conclusion, the purpose of the research is to provide new information to the massive amount of prior research that has previously been conducted on the banking sector. Students at all levels of education, from undergraduate to post-graduate, who are working on projects or dissertations relevant to this subject may use the results of this research as a reference for their work.

Objectives:

1. Determine the evaluation of the Fintech Sector in Europe theoretically.
2. To determine the relationship between Fintech adaptability, with financial inclusion within the Fintech sector of Europe empirically.

3. To determine the relationship between fintech security and financial inclusion within the Fintech sector of Europe empirically.
4. To determine the relationship between fintech Risk and financial inclusion within the Fintech sector of Europe empirically.
5. To determine the relationship between technological innovation and financial inclusion within the Fintech sector of Europe empirically.
6. To determine the relationship between fintech service transformation and financial inclusion within the Fintech sector of Europe empirically.
7. To determine the relationship between fintech process disruption, and financial inclusion within the Fintech sector of Europe empirically.

The following is the structure of the article: A overview of the relevant previous research is presented in Section 2. Furthermore, in part three, there is a quantitative methodology selection. Moreover, in four, a quantitative results explanation performed through SPSS software was used in the course of carrying out this study. Hence, the study's conclusion and a summary of its findings are presented in the last section.

1 FINTECH THEORETICAL ASPECTS

1.1 Fintech History

The following chapter is an introduction to the world of money. After then, a description of the current investigation's supporting or driving concepts is offered. Next, it performs a literature review on relevant themes such as technological innovation, service transformation, and process disruption related to financial inclusion. Following is a description of the proposed theoretical framework and hypotheses, along with citations to relevant research.

Since the advent of Internet banking, Fintech has been undergoing continuous development. Even though the phrase has only recently come to the general public's attention, it has been influencing the whole transaction process for over a century (Broby & Karkkainen, 2017). It began in the late 19th century when the only ways to send mobile money were via Morse code and telegrams (Y. et al., 2018). Telegrams and Morse code were the only communication forms carried across the first transatlantic cable. Then came the event that would change the course of history forever: in 1967, Barclays installed the world's first automated tailor machine. At this point, one may distinguish between analog and digital methods of handling one's financial affairs. The 1990s were a pivotal decade for the early stages of the digital banking revolution (Boot, 2016). When it was first introduced in 1998, the payment system known as PayPal provided a glimpse into the potential future of money lending and other financial transactions. That era ended with the financial crisis of 2008, and in the wake of that disaster, a lack of faith in traditional financial institutions led to the creation of Bitcoin in 2009 (Alt et al., 2018).

There was also the introduction of several more cryptocurrencies. The widespread usage of mobile devices, particularly smartphones, marked a significant turning point for financial technology customers (Clemons, 1991). They eventually became the most common way consumers access the Internet and other financial services (Li et al., 2017). The time for new businesses to get their start has already started (Vives, 2017). Europe finally became the country with an enormous number of users of financial technology. Nations like Europe could adopt new resolutions and implement them more quickly than their western counterparts since they needed to have the responsibilities of banking infrastructures like those in western countries (Romanova & Kudinska, 2016a). In 2019, the mobile payment industry surpassed $1 trillion (Shim & Shin, 2016).

(Yonge & Massey, 2007) defines that UK is on the verge of the third financial revolution that has ever taken place in the world at this moment. The notion has been successfully implemented by traditional financial institutions as well, and the range of services that may be received online is constantly expanding. Regarding industrialized countries' financial infrastructure, Fintech is becoming one of the most crucial technologies (Moro-Visconti, 2021). Therefore, with new technologies like blockchain, several governments are attempting to strengthen their financial systems (Machkovska-Rusinova & Malik, 2016). To some extent, this is achieved by increasing the productivity and efficiency of these systems and making them less vulnerable to shocks and threats (Launkunga, 2021).

As a result of the practical usage of Fintech, the monetary and financial systems of the major industrialized countries have advanced. However, this technology is not exclusively available in industrialized nations (Romanova et al., 2018). Financial technology (Fintech) has also gotten off to a fast start in emerging nations' banking sectors to rethink these countries established financial systems (Lai et al., 2020). The primary purpose of this technology's application is to maximize the benefits that the technology itself promises. Financial technology has a good chance of helping developing countries with their financial afflictions (Zavolokina et al., 2017).

According to Lee et al. (2020) findings, financial institutions and individuals may utilize Fintech to their advantage. An in-depth examination of the relevant published literature sheds insight on the relevance of a research subject being examined in detail by a range of academics, most of whom are located in industrialized nations. There is still much attention being paid to growing countries like Europe (Ng et al., 2022). However, Europe has enormous economic challenges as the world's fifth most populous continent (Guenther, 2021). The country's economic status is already precarious, and the financial institutions in the country still need to create possible answers to the economic problems the country faces (Lukonga, 2018). Already, the country's economic condition is precarious. Using Fintech, Europe has an excellent opportunity to overhaul its financial system entirely. Every country's ultimate objective is to create a national financial system that meets customers' expectations while contributing to the state's progress toward economic stability (Chuang et al., 2016). Because of this, financial technology can provide new routes for the financial activity that are both productive and efficient. Despite Fintech's global success,

according to the researcher's information, Europe has yet to realize its full potential (Saleem, 2021).

Europe's financial technology ecosystem is still in its infancy at this stage. For this reason, it cannot bring any tangible benefits to the country (Ali et al., 2018). It is not a Herculean undertaking to develop Fintech in Europe, but it does face a lot of competition and uncertainty. Despite the challenges, there is a method to overcome them effectively. Financial technology in Europe is examined in this research paper from a critical perspective (Sabourin & Aka-Brou, 2020). Fintech adaptability in Europe is assessed using only three factors in this research. However, the European fintech industry faces many challenges (Saleem, 2021).

When we say "financial technology" or "FinTech," referring to a group of businesses that employ technology to improve the efficiency of financial services, Fintech's quick rise may be attributed to several factors, including the sharing economy, favorable regulations, and technological advancements in information technology (J. Lee et al., 2020). A more diversified and stable financial environment may be created via Fintech, which can upend and change the current financial sector (Saleem, 2021). Financial technology (Fintech) emerged in the wake of the 2008 global financial crisis, fusing e-finance with internet technology, social networking services, and social media, as well as artificial intelligence (AI) and extensive data analysis (Rafay, 2019). E-finance and mobile technologies for usage in financial institutions allowed for these advances. It is important to note that financial technology companies of all sizes are being examined (A, 2017). Financial technology enterprises (FinTechs) may be classed as hybrid businesses since they operate in the banking sector and use technological methods. There may be some debate over whether or not FinTechs are evaluated in the same way as banks and financial intermediaries (Kamau et al., 2018).

Companies that employ technology to provide financial services and goods are examples of technological startups (Lukonga, 2021). FinTech companies utilize cutting-edge computer programmers and algorithms to create value chains based on interactive computer platforms, artificial intelligence, and large amounts of data (Lukonga, 2018). For the delivery of financial services that depend on the transmission of data on digital platforms, creative activities are essential to the use of automated descriptive, prescriptive, and predictive technologies (King & Nesbitt, 2020). Several significant factors have contributed to the recent rise in the term "FinTech."

Customers' ambitions and fast-developing technology are only a few factors driving companies to innovate in the market (Gai et al., 2018).

In addition, the low-interest rate macroeconomic environment and the regulatory framework have a role (Lechman & Marszk, 2021). Consequently, the institutions' profits plummet, prompting further investment to increase the organizations' effectiveness (Piobbici, Rajola & Frigerio, 2019). "Fintech" refers to a broad and diversified sector disrupting the financial services industry by removing friction points for both consumers and corporations. As the banking sector undergoes a period of profound change and reorganization, it is progressing toward a platform-based and customer-focused approach (Khraisha & Arthur, 2018). It is hard to predict how new enterprises entering the market will affect the industry in the long run, but competition will heat up. Big Tech's entry into the market and the companies that dominate it will be significantly impacted by regulation (He et al., 2017). Regulators must strike a balance between supporting innovation and ensuring financial stability. Concerns about consumer safety have taken center stage (Vives, 2019). The global banking business has enormously transformed in the last several decades. The rise of a more global economy prompted monetary unions and improved and more efficient financial services, which may be somewhat to blame (Hasan et al., 2020).

In addition, the rise of the Internet may be partly to blame. Thanks to the Internet, people and businesses now have unprecedented access to various financial services (Matousek & Xiang, 2021). Globalization and technological improvements have pushed the banking sector to confront increased competition (Guenther, 2021). The banking industry has been compelled to find new methods of delivering financial services to remain competitive. Because of this, more mergers and acquisitions have led to the rise of global players in a sector that was once limited to a particular area or country (Kalliala, 2012 ; Castro et al., 2020).

AI (artificial intelligence) is also becoming more popular in business, particularly in financial institutions (Arjunwadkar, 2016). Economic growth is expected to be boosted due to increased productivity and efficiency (Mokyr, 2018). That may have hit a limit in terms of growth due to variables such as population pressures, education and debt levels, and environmental concerns (Gordon, 2018; Daly & Farley, 2011). Over the last several decades, the banking industry has seen several significant changes. The impact may be observed in the alterations in the way customers get financial services (Franco et al., 2020). In the past several decades, banks' traditional operations

have changed, but the overall structure of the banking industry has experienced a significant shift (Smoleńska et al., 2020). There has been a significant increase in alternative delivery methods for financial services in the last ten years. Deliveries such as Internet banking, mobile banking, and ATMs have mostly replaced conventional delivery methods (Erturk & Zammit-Lucia, 2020).

According to Sweeny and Morrison (2004), banking business developments have substantially impacted the delivery of financial services. These changes have impacted retail banking. Cooperation between banks and computer hardware and software businesses is providing new options for clients to view their account balances, transfer payments, pay bills, and purchase products and services without having to leave the comfort of their own homes (Frei et al., 1998). One of the most talked-about topics in recent years is innovation, according to authors like Singh (2006), Im et al. (2003), and Rogers (1995). This is because firms may gain a competitive advantage via innovation. In order to continue in business, every organization must be creative (I. Lee & Shin, 2018).

1.2 Theoretical conceptualization: Theory of Evaluation and Theory of Revolution

Because of its global reach and the vast range of financial services, the modern banking industry has grown to be one of the most extensive in the world. Due to increased competition, several industry participants have been forced to lower their prices (Gontarek, 2021). Therefore, if you want to stay ahead of the competition. Because of this, financial institutions have turned to digitization or mergers and acquisitions to obtain a competitive edge while keeping up with a rapidly developing financial market sector (Aker & Mbiti, 2010). As a result of the lightning-fast rate at which technology advances, companies have been forced to adapt, and the two have become inseparable (Kauffman et al., 2018).

However, even though retail and corporate financial institutions have been instrumental in driving global economic progress and innovation, their omnipresence as financial service providers is now in jeopardy (Kauffman et al., 2018). This is due to an increase in the number of businesses in the market. Many studies have proven that an organization's overall performance may be improved via innovation (Damanpour et al., 2009). To a large extent, the financial sector's ability to contribute positively to the economy depends on the quality of the products and services offered to customers (Haddad & Hornuf, 2017). Priorities are creating new products that meet the unique needs of your customers if you want to regain their confidence (Kumar, 2011). The benefits of

banking technology improvements may be divided into two categories: A wide range of services and products, as well as accessible banking alternatives, benefit both customers and financial institutions (Gąsiorkiewicz et al., 2020). Innovations help banks recover from the visible inefficiencies frequent in the banking industry and increase their market performance (Dwivedi et al., 2021).

It would be accurate to refer to this process as the "evolution" of inventions. What is essential for us to comprehend in this context is not merely the implementation of particular technologies or the factors that motivate their application but rather the process by which innovations develop over time, analogous to the way living organisms are prone to mutation and hybridization (Abdulquadri, & Nguyen, 2021). The study of the development of financial innovations is one of the most challenging problems to solve, although it has received very little attention. In technology studies, Schumpeter's concept of evolution, known as combinatorial evolution, is commonly recognized (Schumpeter, 1961).

The theory of evolution serves as the foundation for our theoretical approach to studying development. Following the evolutionary theory, innovation is characterized by variety, optimization, selection, and self-organization (Agarwal & Tan, 2020). In evolutionary theory, it is not taken as a given that development follows a path set for it or must meet a goal or purpose that has been explicitly specified. In the research that has been done on innovation, four distinct models of evolutionary processes have been identified. Researchers (Alnsour, 2022; Khoon, 2011; Mohamed & Ali, 2022) think these models may be applied to financial innovation. The first thing that has to be done is optimization. According to the optimization model's presumption, companies are confronted with issues that need them to look for solutions from various potential outcomes to solve the problems at hand (Agarwal & Tan, 2020). As a direct consequence of local optimization, financial institutions may develop new financial innovations to optimize the utility function of their operations (Arslanian, & Fischer, 2019).

In order to determine which answer is optimal, the evolutionary theory begins with the premise that there is an endless number of other answers to consider. When attempting to explain the breadth of options at any particular moment, it is standard practice to use the phrase "space of possibilities."(Bouaziz & Sghari, 2020). Companies looking into prospects must contend with the high costs of seeking and variable physical condition standards (Hasan et al., 2020). According to

Ashta and Biot-Paquerot (2018), broadening the search scope makes it feasible to discover new and improved solutions. The phrase "financial engineering" is often used to refer to the phase of the implementation process involved in introducing new financial innovations (R Rau, R Wardrop, 2021). Lastly, optimization is only sometimes successful and requires substantial practice and experimentation. Although many financial innovations were unsuccessful, they did contribute helpful information that might be used to develop successful new financial products in the future (Castro, et al, 2020).

Lukonga, (2021) interprets that **combinatorial evolution** is another crucial model that should be investigated concerning the concept of the evolution of development. Creating new financial goods and theories depends on creatively fusing components currently in the market. The self-organization model of evolution will be the last one we examine. The term "self-organization" refers to the formation of some order without the participation of a governing body or authority from the outside (Dapp, Slomka, & Hoffmann, 2014). The self-regulation of the financial industry is essential. As an example, the Securities and Exchange Commission (SEC) grants permission to self-regulatory organizations (SROs), which are groups that represent their respective industries, to draught and carry out laws that oversee the behaviors of its members (Das et al, 2017). Following the global economic crisis, there was a debate on the extent to which service transformation or process disruption had an impact on the banking sector (Alshari & Lokhande, 2022). As a result, it has been determined that both (ST and PD) may be used to investigate the application of financial innovations in order to realize the objectives of financial inclusion (Gsiorkiewicz, & Monkiewicz, 2020).

Finally, the obstacles of natural selection, which are essential to the development of financial innovation, are investigated by evolutionary theory. The concepts of natural selection and financial innovation can be investigated within this framework. The process of natural selection that drives innovation in the financial technology sector is influenced by a wide range of variables (Lechman & Marszk, 2021). On the other hand, Bettzüge and Hens (2001) state that for new financial products to be successful in the long run, they need to be traded, advertised, and provide new chances for hedging. The success and growth of financial instruments may be directly proportional to the level of security implemented in newly developed financial innovations. According to Gomber and Weber, this is the case (2018). The evolutionary model does not provide a sufficient

explanation for the emergence of financial innovations, although it demonstrates how and what causes innovations to arise (Khraisha & Arthur, 2018). The evolutionary model is superior to the life-cycle model and economic theories when it comes to explaining the process of financial innovation. Many financial innovations have unique and complicated evolutionary patterns (Gontarek, 2021). The evolutionary strategy is equally effective when financial innovations are not centered on the institution itself or the institution's final objective and conclusion (Guenther, 2021).

According to **diffusion theory**, the invention process may be lengthy and may even take several years (Rizvi et al., 2018). Once it is implemented, innovation ushers in a whole new phase of transformation for society. Compared to other nations, the strategy used in the area of Fintech in Europe is at a very early stage of development (Rafay, 2019).

However, this innovation in the form of trustworthy and user-friendly financial technology services is fully realized. In that case, the country's financial and economic system will undergo a complete and total transformation (Mendes-Da-Silva, 2018). In this light, the nation is still a considerable distance from being in a position to enjoy the most attractive benefits that may be derived from Fintech (A, 2017). The idea also posits that waves may be used to illustrate the process of innovation spreading across society. These spread patterns vary in various parts of the world (A, 2017). As a result of this, the rate of innovation adoption in some places may be faster and more rapid than in others, which may take only gradually get it. The exchange of ideas is the primary mechanism of this spread (Kamau et al., 2018). When all aspects of European society become aware of the concept of Fintech and its importance worldwide, there will be a significant increase in the level to which the technology can accomplish its intended purposes effectively and efficiently (King & Nesbitt, 2020).

1.3 FINTECH Development

Firms that use technological platforms to design goods and provide financial services more effectively are known as Fintech companies (Kala Kamdjoug et al., 2021). "Fintech stands for Financial Technology (Lechman & Marszk, 2021). For clarification, "Fintech" refers to a new breed of financial services that have emerged in the twenty-first century, using cutting-edge technology in mobile payments, money transfers, loans, fundraising, and even asset management (Lukonga, 2021). Digital wallets, peer-to-peer lending, mobile banking, and blockchain

technology are examples of how new technologies are being used in the financial sector to improve efficiency and lower client costs (Lukonga, 2018).

Customers in Sub-Saharan Africa are evaluating financial goods differently due to advances in information and communication technology (ICT) (Abor, 2004). Internet banking and PC and mobile banking are only a few new delivery channels for banking goods and services produced by technological advancements in Europe. It has become more vital for European banks to implement these developments over the years (O'Brien & Toms, 2010). Banks have always looked for new technology to help service their customers more cost-effectively and be more helpful. In order to better service its customers and increase revenues and competitiveness, its primary focus has been streamlining processes and lowering costs. The ATM is Europe's (and the world's) most breakthrough technological invention (Warner, 2017). To better serve their consumers, European banks that provide ATM services have networked their machines. Since the introduction of ATMs by Trust Bank Europe in 1995, the banking sector has embraced the technology on a vast scale (Okello Candiya Bongomin et al., 2017). ATM services are now available at almost every commercial bank in the nation. Using automated and human tellers together has increased efficiency in European banks during business hours (Khraisha & Arthur, 2018).

As a consequence of reduced lines in banking halls, clients gain immensely. Consumers who do not have to wait in line at a bank may use that time to do something more productive (Machkovska-Rusinova & Malik, 2016; Polishchuk & Britchenko, 2018). Rose (1999) states that ATMs are a cost-effective method of increasing productivity. The banking sector has embraced the use of the Internet and mobile banking. Providing banking services over the Internet and mobile phones are becoming more common, and most banks are partnering with telecommunications providers to gain a permanent competitive edge (Hinson et al., 2006; Asante et al., 2011). Internet banking aims to allow consumers to access their bank accounts through a website and perform some operations on their accounts, provided that they meet strict security requirements (Polasik et al., 2020; Romanova et al., 2018). The vast majority of banks in Europe now provide online banking services. By its very nature, Internet banking provides users with more ease, flexibility, and almost total control over their finances. Customers of European banks now have the option of receiving financial services through mobile banking (sometimes referred to as M-banking, embanking, SMS banking, etc.) (Hasan et al., 2020; He et al., 2017).

Guenther, (2021) interprets that customers may now check their account balance and transaction history on the go thanks to the proliferation of mobile apps. What can we look forward to in the years to come? -- Everything about the bank's kitchen will be hot for the foreseeable future. This is particularly true when considering that central banks are keen to join the digital revolution. The ECB's Council of Governors took action to begin the investigation phase for an electronic euro project (Berg et al., 2020; Y. et al., 2018). The European Central Bank's head, Christine Lagarde, said the project's purpose is to guarantee that consumers and businesses can access the safest central bank money in the digital age. Instead of replacing real cash, the digital euro is supposed to augment it rather than replace it. A digital version of the Bahamian dollar, known as the Sand Dollar, is now in use in the Bahamas, which is worth highlighting as an example of a digital currency (Gontarek, 2021).

Payment Systems

When fintech businesses developed a series of apps and online financial services with many different forms of payment under the aims and desires of customers, they produced a breakthrough in the payment transaction landscape (Parker, 2016). Customers may now make payments without physically visiting a bank, thanks to the growth of financial technology solutions (Polishchuk & Britchenko, 2018). They can instead use one of the many online banking services available to make payments whenever and wherever they want and quickly (Kauffman et al., 2018).

Peer-to-peer online payment

If you want an easy way to send money from one bank account to another, peer-to-peer payment models are your best bet. They let you use your smartphone or computer's internet connection to send money to anybody with a bank account (Broom, 2015). Since P2P payments are entirely electronic, there is no need for an intermediary to mediate the sale between buyers and sellers (He et al., 2017; J. Lee et al., 2020; Romanova & Kudinska, 2016b). As a result, this payment method is far less expensive than the more conventional one. Aside from the fact that this strategy reduces the time and effort required to write a check or transfer money through conventional institutions,

it also maximizes the advantages for customers, such as speed, convenience, and simplicity—the author (Broom, 2015).

P2P payment providers that have done well are mentioned here.

It is a free app for your smartphone. P2P payments allow Venmo to complete financial activities such as receiving money, making payments, and transferring cash to friends and family within one business day (Kauffman et al., 2018). Neither the sender nor the recipient must be a Venmo user to conduct transactions. In order to use Venmo, consumers must pay a 3% charge on any transactions made using credit or debit cards issued by smaller banks or credit unions (Kauffman et al., 2018). However, most Venmo-linked debit cards will not be charged this fee since customers may link their bank account information instead. It is possible to transfer money from Venmo to a user's bank account anytime. In addition, individuals may send up to $2,999 weekly if they connect their Facebook accounts, their birthdays, or the last four digits of their SSN to authenticate their identities. When users in the United States wish to send money outside of the country, they should use alternative P2P payment services like PayPal instead of Venmo (Kauffman et al., 2018).

Payment services and money transfers through the Internet are the primary focus of PayPal, a corporation specializing in electronic commerce (Gąsiorkiewicz et al., 2020). A financial transaction may be completed quickly and easily using the PayPal smartphone application linked to a bank debit or credit card (Das et al., 2018).

PayPal's transaction implementation costs are the highest compared to other payment processors. Unlike Google Wallet, PayPal charges 2.9 percent plus an additional 30 cents on top of that for money transmitted from debit and credit cards, but Google Wallet does not. Customers can transfer up to $10,000 in a single transaction through PayPal if their account is validated (Dwivedi et al., 2021). As users enable it in the program settings, PayPal balances may be transferred straight to their bank accounts. In addition to being accessible in over 200 countries and 26 currencies, PayPal also removes the need for additional accounts, making it one of the world's biggest online payment processors (Clemons et al., 1996a). Therefore, due to its partnership with eBay, PayPal is now accepted by almost every online retailer (Clemons et al., 1996b).

As of (Looper, 2016), With PayPal and Venmo, Square Cash is a free smartphone application that enables users to transfer money to other people over email without knowing the senders' and

receivers' bank account details. Square cash does not require the creation of a user account. The transaction can only be completed if this application is linked to the user's email account. Square cash has a weekly transfer limit of $25,000. Users may email the individual who owes them money, with the subject field set to "request@square.com" and the amount owing in the body. After receiving the email, both the sender and the recipient will be prompted to provide their bank account details, and the payment will be processed within two business days (Clemons & Weber, 1997). Square cash, like Venmo, levies a 3% credit card fee and a 0% debit card fee. Companies that accept payments through Square Cash are charged a 1.5 percent to 2.75 percent fee. In addition to being accessible in most of the United States, this service only accepts credit and debit cards for payment. It is (Lieber, 2014).

Mobile wallets

Paying for goods and services using a credit or debit card may be done quickly and safely using a mobile wallet (Parker, 2016). In order to replace physical wallets, this payment method was developed to promote convenience, speed, and security and to build a cashless society (Anonymous, 2014). Mobile devices and payment terminals that use Near-Field Communication (NFC) exchange payment data when they are nearby. To use this high-tech payment method, you must download the provider's mobile wallet app and connect your credit or debit card information to a digital account (Pathak, 2017). Customers may pay in-store by simply swiping their NFC-enabled smartphone over the scanner. Mobile wallets may now accept contactless payments with NFC technology, which is far faster than traditional payment methods like debit cards or cash (Clemons & Thatcher, 2008).

As a result, customers do not have to carry actual wallets and may avoid losing cash or bank cards. Small businesses may take mobile payments with Square's contactless and chip readers (Ashta & Biot-Paquerot, 2018). Through the use of digital technologies such as Apple Pay, it is possible to alter the way consumers shop (Castro et al., 2020). Apple products, such as the iPhone 6, iPhone 6s, iPhone SE, the iPad Air 2, iPad Mini 3, and after This is the year of Apple Pay (Clemons, 2007). This feature allows customers to make purchases using their Apple devices or Apple Watches by storing their debit or credit card information in an electronic wallet (Gamble, 2015).

The transaction is completed in a matter of seconds as soon as the shopper puts his or her phone or Apple Watch over the payment scanner (Clemons, 1991).

Thanks to Google's Android Pay, Android 4.4 and subsequent users now have access to a mobile wallet. Like Apple Pay, this app enables clients to pay instantly by unlocking their phones and placing them near a payment scanner. The buyer must unlock the phone to pay $30 (Arjunwadkar, 2016). Only the United States and the United Kingdom presently have access to Android Pay. Waving your phone in front of a payment scanner is all it takes to pay using Samsung Pay, a new payment platform for the latest Galaxy phones, including the Galaxy S6, S6 edge, and S7. In addition to NFC, Samsung Pay uses Magnetic Strip Technology (MST) to accept payments from devices that do not support NFC. Over 30 million retail locations accept Samsung Pay because of this fundamental difference (Abhishek et al., 2017).In the near future, smartphones will replace credit cards and cash in all payment transactions since they have become valuable instruments for making network payments in recent years. As a result, younger generations will be able to live in a cashless society (Abdulquadri et al., 2021).

Cryptocurrency and Blockchain

Regarding financial activities like payments or money transfers, Y. et al., (2018) explain that cryptocurrency is a sort of electronic currency that computer users can use. Users can interact with merchants who accept Bitcoins as payment in the form of Bitcoins, a typical example of the digital currency introduced in 2009. (Carrick 2016). Because Bitcoin is decentralized and cannot be influenced or aided by anybody, every transaction is carried out independently (Bitcoin, 2014). Due to the low transaction fees, clients may purchase Bitcoin for nothing or as little as a few cents. Franco (2014) says that digital money may assist by reducing the country's collapse and inflation risks. Even in countries where the value of their currency has depreciated, inflation is always a risk since countries are printing more money (Franco, 2014). As Bitcoin is meant to be finite, it will eventually remove the possibility of inflation. Only 21 million Bitcoins have been distributed so far, which will continue to shrink in the future (Franco, 2014). As a virtual currency not controlled by the government, Bitcoin has a very low danger of collapse (Carrick, 2016).

Additionally, using Bitcoin may improve the safety, simplicity, speed, and efficiency of financial transactions for customers. Bitcoin is a far superior alternative to PayPal from the buyer's

perspective. Because of its P2P payment architecture rather than other intermediaries, Bitcoin simplifies and speeds up transactions from the buyer's standpoint (Arjunwadkar, 2016; Ashta & Biot-Paquerot, 2018).

The introduction of blockchain, a data format that allows users to create a digital record of their transactions and distribute them widely across a network of computers, was the most significant change in the global payment system (Murinde et al., 2022). Due to blockchain technology, no third parties are required to safely manipulate the ledger (Romanova & Kudinska, 2016b). There are several reasons why it is difficult or impossible to erase data from a blockchain ledger after it has been added to it: When someone wishes to update the blockchain ledger with new information, these programs will run a series of algorithms to analyze and verify the correctness of the transaction suggested and then distribute that information to all parties using the software (Blockchain, 2016). A transaction is only considered genuine if most interested in it click the "agree" button, showing their agreement with adding new information (Polasik et al., 2020). In addition, the blockchain will record all transactions and make the information public to anybody who uses this software, rather than keeping a private database of the records like conventional banks often do (Polishchuk & Britchenko, 2018). Instead of relying on additional intermediaries, the blockchain acts as a trusted mediator between the parties involved in the transactions (Mohamed & Ali, 2022). The present banking system is slower, more complicated, and more expensive than the new blockchain-based banking system (Romanova et al., 2018).

1.4 Fintech and Traditional Banking

A significant part of international finance has always been conventional banking. Global economic growth is now driven mainly through digital channels, thanks to rapid technological advances (Berg et al., 2020). In short, Fintech companies have caused a significant change in the turbulent financial markets (Skan, Dickerson & Masood 2015). Due to financial technology advancements, a broad range of new business models and consumer expectations have arisen. These regulations impact banking, payment services, and financial legislation (Salmony, 2014). New electronic services have been steadily given to the markets, gradually filling in the voids in the financial markets. The newly created solutions feature an easy-to-navigate array of service providers, fast transaction speeds, and minimal entry barriers (Polishchuk & Britchenko, 2018). The financial sector started its gradual but steady shift to the digital era with the introduction of the World Wide

Web, with services such as the online payment gateway PayPal and the cryptographic currency Bitcoin (Gonzalez, 2004).

Businesses and organizations face various obstacles in the digital era, including a rise in market dynamics, instability in client expectations, and the constant appearance of fresh breakthroughs in IT (Rachinfger et al., 2019). As a consequence, an IT transformation is required to ignite improvements throughout the whole enterprise. Bhatadwaj et al. (2013) state that digital processing, offers, and business models are all part of organizational business transformation based on information technology. Organizations strive to become more agile to manage their various digital transformations. This will help them (Rogers and Mares, 2016). The "Agile" approach will assist the organization in dealing with digital transformation-related concerns and help the organization become more agile. Becky et al. (2001) argue that agile approaches, as opposed to plan-based ones, are more customer-friendly because they prioritize meeting customer needs, adapting to change, and deploying quickly. Currently, agile approaches are becoming more popular with companies in the IT and software sectors and those in other industries, such as new product development (Jeff et al., 2016).

According to Ciara et al. (2016), there are many obstacles and concerns in managing complicated management programs and portfolios and programs when there is a fierce market rivalry. The agile technique has grown in favor recently, particularly among multinational corporations. These companies provide their stakeholders and customers with cutting-edge business goods and services through creative, sophisticated, and one-of-a-kind programs and initiatives (Gąsiorkiewicz et al., 2020).

A growing number of companies are turning to agile methods to increase their flexibility and speed up the time it takes to get a return on their investment (Gontarek, 2021; Kauffman et al., 2018). To sum it up, agile software development involves reducing conventional software development approaches' reliance on heavy lifting in favor of rapid responsiveness to various factors, such as tightening deadlines, changing customer needs, and other variables (Abhishek et al., 2017; Pathak, 2017). Some of the most significant issues and challenges in modern prog include more transparency in project planning, better cooperation and communication with customers, more efficient projects, a faster time to market, more development and innovation, more predictable

delivery to customers and teams, and better project and portfolio management (Machkovska-Rusinova & Malik, 2016).

According to Desai (2015), the extraordinary growth of the Internet began in earnest in the year 2000. For Fintech to grow, the Internet had to be able to connect and be extensively used in most nations throughout the globe, which is why it was so important. Furthermore, there was a lot of Fintech infrastructure with complex features and high-end apps developed and extensively utilized in various financial domains, including risk management, data analysis systems, and automated online trading. Several Fintech firms have emerged due to the Internet's rapid advancements in recent years. The author (Desai, 2015) Despite this, Fintech has significantly impacted the financial industry by generating a new look and offering various innovative solutions to the issues and hurdles that clients confront in their transactions (Guru et al., 2020). One of the most well-known and widely used instances of financial technology is PayPal. Rather than needing to travel to the bank, it was one of the pioneers of online trade and payment services, revolutionizing how people handled their money (Pallathadka et al., 2021).

An e-commerce site known as eBay was another example that highlighted the rise of Fintech. Using this website, clients may acquire a broad selection of things from several merchants and instantly make safe payments over the network (Polishchuk & Britchenko, 2018). In addition, they may set up trading marketplaces or run auctions to advertise their items better. It was seen as a massive leap in financial technology in this digital age (Desai, 2015). This was followed up by the fast rise of mobile technology, which allowed for the additional optimization and simplification of financial transactions through smartphone-based financial assistance apps (Berg et al., 2020). For example, customers may use an online banking application on their mobile phones instead of making a trip to the bank to transfer money. Customers may save time and money by using this service since the receivers can get their money immediately and do not have to wait. Then came the invention of robot advisors, whose goal was to assist consumers and provide the knowledge they needed fast while also decreasing the expenses associated with engaging private experts (Romanova et al., 2018). To provide more online services with tremendous advantages for clients, such as online lending, online crediting, online payment, and online funding, new financing channels and fundraising sites were launched and extensively used in various ways. Consequently,

conventional banks are under tremendous stress and strain as Fintech continues to grow and expand (Polishchuk & Britchenko, 2018).

Therefore, "adoption" refers to the acceptance and use of a product by the population it was designed to build for in the first place (Polasik et al., 2020). The variables that are responsible for the degree of inventiveness The perceived characteristics that an invention has, the fact that the decision to adopt it is taken voluntarily, and the channels via which innovation is conveyed to the adopter are all aspects that may be included in adoption (Rogers, 1995). Although it has been discovered that personal characteristics are significant predictors of consumers' adoption of an innovation, multiple researchers have shown that perceived attributes of the innovation itself, as opposed to the characteristics of the innovators, are stronger predictors of the adoption decision (Baba et al., 2021). This is the case even though certain personal qualities have been identified as critical indicators of the degree to which customers would accept a new product or service (Black et al., 2001; Polatoglu & Ekin, 2001). Launching a brand-new product or service must adhere to a particular set of protocols (Polishchuk & Britchenko, 2018).

1.4.1 Artificial Intelligence

The importance of people in banking must be reevaluated in light of the emergence of artificial intelligence (Peters, 2017). There are several more fields where computers have overtaken humans, including chess, the game Go, Jeopardy, and even poker. In other words, will computers eventually replace human bankers, who gather soft information about borrowers through direct contact (Uchida et al., 2012)? As another way of putting it, can computers outperform humans when managing information asymmetry issues in banking? Despite technological developments, relationship banking continues to be beneficial (Marin, 2013). When opaque forms are paired with transactional banks, as opposed to those paired with relationship banks, Ferrari and Murro (2015) find that credit rationing rises (Ferri & Murro, 2015). In contrast to lending based on hard facts, lending on soft information gives borrowers with strong management abilities and character more extraordinary negotiating leverage (Grunert & Norden, 2012). It begs the issue of how much discretion loan officers need when lending, given that computers may readily replace people in codifiable, repetitive operations that follow well-defined protocols (Autor & Dorn, 2013).

Cerqueiro et al. (2011) found that tiny and unsecured loans, opaque and small businesses and businesses situated far from a lender are the most likely to exercise discretion. Loan officers'

freedom of decision-making is most often exercised in the pricing of loans, not in the origination process itself. Homo economicus, a rational and self-interested agent, may be evaluated and responded to by artificially intelligent machines. The human mind is only sometimes capable of logical decision-making when confronted with a highly uncertain circumstance like a bank lending one. There are two things to think about. An officer's human behavior is one thing, but a borrower's human behavior is quite another (Kauffman et al., 2018). When loan officers are at work, they are motivated by their interests. It has been shown that loan officers' lending choices are influenced by their mood, overconfidence, and career worries (Cortés et al., 2016; Ho et al., 2016).

Personal characteristics of loan applicants, such as appearance, race, and age, may influence lenders' judgments (Ravina, 2012). Loan officers may even use soft information to their advantage, even if it means ignoring factual data (Berg et al., 2016; Agarwal & Ben-David, 2014). Incentives for loan approval drive loan officers to inflate and distort credit ratings when paid a flat rate (Das et al., 2018). As processing power increases, organizations can deploy AI at a larger scale since the capacity to make decisions based on massive quantities of data now surpasses humans (Brock & von Wangenheim, 2019; Casares, 2018). Telecoms, high-tech companies, and financial institutions lead the way in AI deployment (Chui & Malhotra, 2018). Artificial Intelligence (AI) is being utilized by financial services businesses to differentiate themselves in the operational and risk management sectors (Clemons & Weber, 2017; Dwivedi et al., 2021).

Moreover, Natural language text recognition and machine learning are the most impressive AI capabilities (Chui & Malhotra, 2018). Artificial Intelligence (AI) is often used with other technologies, such as big data analytics, cloud computing, APIs, open-source algorithms, and the Internet of Things (McWaters et al., 2018). (IoT; Curran et al., 2017; Dhar et al., 2017; Duin & Bakhshi, 2018). On the other hand, human-in-the-loop (HITL) AI systems are becoming more widely accepted as a way to improve human intellect rather than replace it (Dhar et al., 2017). AI should be used to enhance human intelligence rather than be a replacement for it. Because of clients' rising expectations for AI in FinTech, incumbents unable to keep up will have their growth curtailed (Dhar, Holly, Ryan, & Galeaz, 2017). In-house AI implementers often encounter challenges locating qualified personnel, subject matter experts, and relevant data (Ernst & Young, 2019). Firms must spend heavily on data generation and acquisition to reap AI's full benefits (McWaters et al., 2018). One of the most popular mobile payment apps is iZettle (purchased by

PayPal), which launched in 2011 with a mini-chip card reader. Card readers have been used to produce data on merchant sales since 2015, which may subsequently be used as a historical database for lending money to retailers. iZettle was not the only company to make a significant investment in its data: In 2019, 66 percent of financial service organizations in EUROPE used machine learning (a subset of AI) (Curran, Garrett, & Puthiyamadam, 2017), while 54 percent of corporations invested significantly in AI in 2017. Jung, Mueller, Pedemonte, Places, & Thew, 2019). It is more difficult for incumbents, despite strong AI adoption rates, since new technologies need significant changes to existing information systems. This issue does not apply to challengers, which are more often used (Ryll et al., 2020).

1.5 Fintech tendencies valuation and Inclusion in Europe

Technology's role in automating the delivery and usage of financial services is referred to as "fintech," an acronym for "financial technology." Many countries have begun integrating Fintech into their domestic and international financial systems and equipment (Rafey, 2019). Innovating delivery and use of financial services transformation (ST) with process disruption (PD) in an automated manner has the potential to completely transform the traditional financial system, resulting in outcomes such as prompt delivery, the elimination of errors, and other kinds of human mistakes, and the tractability of technological innovation (TI) in Europe (Shah, 2019).

The term "fintech" was first used in the 21st century, making it a relatively new notion. There has been a tremendous expansion and contraction of the phrase's meaning and scope since it was initially defined. Initially, the term described the technology utilized to support existing financial institutions. It has now spread to various sectors (Rashid, 2020). Non-financial organizations, such as those in the education sector, are increasingly using the services of Fintech to run their finance departments. There is a citation required for this. It is the only way ahead for all financial concerns in all businesses. Despite its youth, the financial technology industry is proliferating. The primary goal of financial technology is to modernize current financial services and improve company operations simultaneously. Software, applications, processes, and a wide range of other things may be used depending on what financial institutions need and what they can afford (Jaffery, 2021). Fintech firms in Europe are involved in a wide range of activities, including the transfer of money, the lending of money, and so on (Hasan & Khan, 2020; He et al., 2017).

According to the latest data, 74 nations' firms have contributed $4.5 billion to bitcoin-related projects. An estimated $19.5 billion has been invested in 449 insurance technology startups since 2012. This group of firms hails from a total of 61 nations. For capitalization, only six other entrepreneurial fields can compete with the fintech sector: transportation technology (642 companies with $95 billion), energy technology (544 companies with $59.9 billion), retail technology sector (1.151 companies with $54.5 billion), health care technology sector (1.497 companies with $54.2 billion), and the Internet of things sector (1.291 companies with $45.4 billion) (Khraisha & Arthur, 2018). During the early 2000s economic crisis, venture capital funding for new businesses increased significantly. At a period when e-commerce and the Internet were only starting to take off, and even then, on a much smaller scale, they first appeared in the late 1990s. Ibrahim et al. (2014) say that these capital-building activities can be linked to one of the biggest jumps in entrepreneurship in modern economies like the UK.

The pillars of financial technology innovation are the foundation for the revolution that is about to take place. As previously mentioned, creating new financial services technology generates a large portion of the global economy's income. The shift in the financial services industry of Europe has intrigued the Economist because it combines a procedural upheaval and technological innovation in startup finance, both of which have wreaked havoc on other industries' journeys toward financial inclusion. New firms are springing up in the wake of the financial sector's recent reorganization, and many are vying for the industry's billions of dollars in income (Lechman & Marszk; Lukonga, 2021).

According to McWaters (2020), in contrast to what the financial sector has hitherto been able to provide, these startups are creating and deploying new technology and services. Financial service providers routinely address their customers in direct and advantageous ways. As a result, they have revolutionized the way banks and credit unions deliver financial services to clients by making these services accessible outside of usual business hours. Using digital sensors and big data analytics, companies have been able to increase their personalization skills, find new methods to replace conventional banks, and fund activities that were previously only possible via other means, such as developing crowd-funded, platform-based organizations. These are only a few instances of the financial industry's transformation brought about by new technology (Lukonga, 2018). A study of Fintech inclusion and revolution in Europe thus begins with a review of the three pillars

mentioned above: technical innovation, disruption in business practices, and transformation in business offerings (Romanova et al., 2018).

1.5.1 Fintech in Europe

The research focuses on the European Banking System because of the rising integration of financial technology into the European Banking System and the momentum generated by FinTech investments (Navaretti et al., 2018). Atalay et al., (2013) focus on whether FinTech may affect positive change in the financial system, which would suit banks' bottom lines. The rapid growth of the FinTech industry in Europe has raised this concern. The effect of FinTech on the banking sector has been the subject of several studies, although its precise nature remains unclear. To this end, we have established the following research question: How do cutting-edge technological advancements in the banking sector affect long-standing European institutions? Fintech's actual value, according to recent research (Bambrough, 2018), may lay in its ability to transform the present financial system into one with lower financial leverage and higher economic performance.

In the United Kingdom as a whole, the Open Bank API Framework is a significant initiative. This is done so that individuals and small and medium-sized organizations (SMEs) may use application programming interfaces (APIs) to get their banking information (Forbes, 2018). Application programming interfaces (APIs) are protocols that developers may use to build programs that tap into the resources and data available via a network. It provides new ideas and challenges the banking status quo as we know it. New banks are already using it, often known as challenger and disruptor banks. They have created "off-the-shelf" digital business solutions that may be used by any company (I. Lee & Shin, 2018).

Disruptive financial institutions include Metro Bank, Number 26 Bank, Starling Bank, and Tesco Bank in Europe. The world's leading financial hubs are fueling the fintech revolution. Within the United Kingdom and the European Union, Europe's membership positions it farther from the center than the periphery (which is, of course, subject to change) (Kauffman et al., 2018). In this regard, the financial technology business is well-established in many European countries, and competition between financial technology firms is fierce in many regions (Gulamhuseinwala et al., 2015). completely new, ground-up structure for operations. Because of the advent of the single financial passport, fintech firms have had great success in the consumer market. People born far later in history have shown a remarkable ability to adjust to new circumstances quickly. European

companies must develop their financial technology or form partnerships with other European and American businesses to meet the rising demand (Haddad & Hornuf, 2017).

It is also crucial for the fintech industry to have access to the European Single Market. On the other hand, the Financial Stability Board (FSB) stresses the need for vigilantly keeping an eye on macro-financial risks because of the existence of operational and cyber dangers (Financial Stability Board, 2017). The study's goal is to learn more about what is driving FinTech and what it means for the financial services industry in Europe. These inquiries will be based on the prior conversation. More specifically, we focus on the financial services offered by companies in the FinTech sector that use innovative technological approaches (Jagtiani & Lemieux, 2018).

The European Union needs to be a comprehensive law governing the financial technology industry. Since the services offered by fintech companies (loan, financial advising, insurance, and payment processing) are identical to those offered by traditional financial institutions, these businesses must follow the same regulations. Thus, various regulations, such as the Electronic Commerce (EC) Directive 2000/31/EC (e-commerce), the Distance Marketing (Financial Services to Consumers) Directive 2002/65/EC (distance marketing), the Electronic Money (EC) Directive 2009/110/EC (electronic money), and the Payment Services Directive (EU) 2015/2366 (payment services), apply (Kazan et al., 2018). The United Kingdom is a financial technology pioneer, as stated by the House of Commons in 2015 (Yonghee et al., 2016).

Annual sales of twenty billion pounds are predicted, which accounts for the spending of the market leader in the sector (Chuang et al., 2016). Estimates supplied by Ernst & Young (2016) place the revenue earned by fintech companies at about $6 billion. According to their early adopter index, 14% of UK clients already use FinTech offerings. Approximately 25% of the population lives in the London metropolitan area (Lacasse et al., 2016). Using these criteria, the United Kingdom ranks fifth among the world's 140 nations in the CBI Index (2016).

The United Kingdom's Trade and Investment Strategy from 2014 identified four of them as possible obstacles to the implementation of Fintech. Encryption and cyber security are essential, but so are other developments like data monetization, the replacement of aging infrastructure, disintermediation, and removing intermediaries (Lai & Van Order, 2017). Our analysis incorporates these factors. The Boston Consulting Group (2016) estimated that retail banking

profits globally were about $1.6 trillion in 2015. This is why the market for financial technology is so enormous. The total global spending on IT by financial institutions in 2016 was $360 billion. The British government has declared this an area of focus.

Consequently, it has undertaken various initiatives to spur creativity and healthy competition in the financial services industry. The city of London is home to the lion's share of these. Investment in fintech enterprises in Europe reached US$26 billion in the first half of 2018, demonstrating the government's growing interest in this dynamic and rapidly emerging sector (Milne, 2018).

An increasing number of European Union (EU) people are curious about how financial technology may improve monetary operations, foster greater financial integration, and raise the EU's international profile. Meanwhile, there is a pressing need for specific worldwide rules. These regulations are necessary to protect consumers and promote innovation (Odinet, 2018). In truth, there are still some industries in the EU where individual member states may choose whether to impose more significant or less rigorous rules at the national level (e.g., peer-to-peer lending and virtual currencies). This may create a disjointed landscape, making it difficult for enterprises to develop worldwide. Alternatively, it can lead to a level playing field and arbitrage possibilities, prompting businesses to seek authorization to operate in areas with fewer regulations (Philippon, 2017).

It has been found by Carlson et al. (2000) that online banking has no discernible effect on a bank's bottom line. (Milne, 2018; Odinet, 2018; Philippon, 2017) draw the same conclusion about the effectiveness of multichannel banks in Europe. Those studies suggest that after a one-and-a-half-year lag, banks that have used this technology have seen an increase in profits thanks to the internet's usage as a delivery channel. Banks that provide Internet banking do better than those that do not, according to research of (Pieters & Vivanco, 2017).

According to Rauchs (2018) global research, online banking institutions gain significant economies of scale due to technological factors. In order to achieve these economies of scale, banks catering to those who utilize the internet are better able to keep their operating costs in check than conventional banks. Using data from a cross-section of European financial institutions, Schindler, (2017) suggest that mobile financial services are the key to a bank's competitiveness

and that technological innovation is the most crucial determinant in a bank's capacity to generate money.

2. HYPOTHESIS FORMULATION

2.1 Adaptability of Fintech in Europe

As a result of Polishchuk & Britchenko, (2018) offered some distinct criteria and processes that, when combined, may make it easier for diverse businesses to implement Fintech. The new era is the age of contactless payments and business prospects, and businesses will inevitably need to collaborate with the fintech sector to take advantage of these changes. Nevertheless, for a partnership to run well, a number of factors might be to the advantage of both sides and the consumers. The authors believe that enterprises involved in Fintech should provide better financial services in markets where there should be free competition and commitment without any government interference in Europe (Billah et al., 2021). The beneficial advances that assure the system's adaptability need to serve as a source of inspiration for the financial technology sector. The practical framework must be in place to guarantee that consumers will be satisfied and that the financial system will protect their best interests (Polishchuk & Britchenko, 2018). For the continuation of and monitoring of foreign transactions, the exchange of information on a global scale and collective surveillance is also essential. To increase the likelihood that consumers will embrace new financial systems, businesses must demonstrate that such systems are user-friendly and stress-free for their customers in Europe. It is essential to keep a close eye on the cybersecurity problem to guarantee all cooperation's safety (Machkovska-Rusinova & Malik, 2016).

Many factors influence Fintech's adaptability, including technological advancements, client demands, and shifts in the financial system (Rafey, 2019). Fintech's adaptability is increasingly appealing to consumers because of its increased use of mobile devices. Mobile banking and online payment solutions are being developed and improved due to the growing availability of smartphones. Financial technology firms have a chance to satisfy the expectations of clients and their requests by providing solutions that are easy to use and personalized (lei, 2014). Because of recent technological developments, people may now use a wide range of services without an intermediary, such as personal banking or the latest digital devices. This is the ideal way to go,

making it easier for individuals throughout the globe to swiftly embrace the Fintech technique (Berg et al., 2020).

Customers' long-term orientation to cooperation in European banks is a crucial consideration before using Fintech. In order to guarantee online transactions for clients, banks and Fintech companies have a more remarkable set of requirements. There is a shift in the financial landscape, and clients are particularly drawn to the convenience of online banking (Lachhwani, et al., 2020). Research suggests that students and salaried individuals are more comfortable with internet banking and appreciate Fintech firms for their partnerships. Nevertheless, many consumers still need to be more confident about internet purchases' safety and security (Saleem, 2021). Many individuals in the corporate world prefer cash over internet transactions (Romanova et al., 2018).

Fintech is making it easier for people to understand the aspects contributing to Europe's flourishing financial technology industry. The customer's experience with the system has been good, and they have given the associated system a thumbs up. Fintech services are often regarded as simple and beneficial by many individuals. That encourages individuals to change their attitudes regarding adaptation to Fintech (Polishchuk & Britchenko, 2018). As a result, they get advantages such as reducing time, making it easier to use, and making it handy and practical. Researchers in in European banking sector found that the ease of use of apps had a beneficial influence on customers' attitudes towards adopting Fintech services (Baiju, MS 2017).

H1: Fintech adaptability significantly impacts the financial inclusion of the Europe fintech sector.

2.2 Financial Risk and security in Fintech

Fintech, like every other kind of technology, is accompanied by several threats and risks, all of which need to be investigated before the system can be used entirely. The author of "Fintech-Risks, growth, and the regulatory environment" stresses the many different risk elements in that work (Polasik et al., 2020). The financial services industry has shown significant interest in Fintech. In the years to come, an increasing number of financial institutions want to work together with organizations that specialize in Fintech. This infers an increased dependence on technology, which raises the risk of cybercrime and compromises the confidentiality of sensitive data. In addition, the nascent business is drawing in an increasing number of players who are unaware of all the dangers and fraud involved (Butt et al., 2019). Because of the rising incorporation of technology, it is necessary to establish appropriate norms and laws addressing the effect of Fintech on baking. It is also necessary for us to educate the stakeholders about all of the dangers and possible losses (Romanova & Kudinska, 2016b).

It is necessary to recognize the government's role in regulating Fintech and evaluating the dangers posed by the technology. The banking industry, in particular, has seen profound transformations as a direct result of the service sector revolution (Abdulquadri et al., 2021). Another industry that has progressed significantly throughout the years is the stock market (Y. et al., 2018). The blessing of Fintech is quicker and better payment, making sending money overseas easier. However, financial education has yet to reach everyone similarly (Prasad, 2021) even though several nations have made it possible for persons who cannot read or write to use banking applications that are empowered with FinTech. Thus, controlling the whole industry and ensuring enough information is available. However, more inputs from the government are necessary (Abhishek et al., 2017).

Risk plays a vital part in the behavior of users, and the flexibility of Fintech is the fundamental component in determining risk (*Financial Inclusion and Financial Technology. In Household Finance*, n.d.). Regarding financial services, development often comes hand in hand with significant risk. The risk impacts the customer's attitude toward making a payment. The attitude of the user and how he or she views the flexibility of fintech services is the most critical factor in determining risk. (Dass.2019)

Consumers are less likely to adopt new financial products if they consider them to have a high degree of risk (Vives, 2017). It is believed that the fintech industry can overcome its shortcomings, but it must evolve to remain competitive in the modern world. Improvements in the quality of financial services are being made possible by European banking business developments (Berg et al., 2020). Customers can reap the benefits of such advances due to the broad launch of these items into the market for financial services. Because technical advancements (such as e-banking) have been implemented, there are now shorter lines inside banks, which have contributed to an increase in the convenience of banking (Polishchuk & Britchenko, 2018).

H2: Fintech risk significantly impacts the financial inclusion of the Europe fintech sector.

A network with such a high rate of cybercrime needs to be more reliable for the industry to depend on. Numerous law firms worldwide are now devoting their time and resources to investigating methods that will ensure the secure integration of Fintech into the financial industry (Abdulquadri et al., 2021; Abhishek et al., 2017; Y. et al., 2018). Managing one's digital identity is a problem faced by most organizations, despite the fact that mobile banking is a cutting-edge service that all financial institutions offer. The study presented in "The Cyber Threat Landscape: Challenges and Future Research Directions" focuses on cyber security (Romanova & Kudinska, 2016b). Implementing Fintech in the banking industry aims to provide consumers with wealth management, payment services that save time, and omnichannel authentication that is not subject to interruptions (Choo, 2011). For fintech organizations to provide seamless experiences for their customers, they need to build safe and secure data services (Polishchuk & Britchenko, 2018). As a result of all of these issues, cybersecurity specialists are now working on traditional security models to redesign them into safer versions. On the other hand, these shifts are not confined to the banking industry alone. The production of the systems, which are now being evaluated, will also benefit other businesses (Polasik et al., 2020; Polishchuk & Britchenko, 2018; Romanova et al., 2018).

Fintech companies all around the globe need help with data security. Data is kept in online apps, where it is susceptible to being mishandled, stolen, or lost. The financial technology industry is expanding at a breakneck pace, even though it must contend with various obstacles, including regulatory worries, data privacy, and security issues (Lee & Shin, 2018). For businesses to ensure

their customers' safety, they need to implement protocols to prevent unauthorized access to consumer data (Polishchuk & Britchenko, 2018).

H3: Fintech Financial security significantly impacts the financial inclusion of the Europe fintech sector.

2.3 Technological Innovation

Some industry professionals believe that financial innovation is iterative and incremental (Misati et al., 2019; McWaters, 2020; Lechman & Marszk; Lukonga, 2021). the research by Omarini (2017), the development of an innovative financial product is a "spiral process," in which the production of one product leads to the development of another. Rafay (2019) asserts that recombinant innovation is present in the financial sector; nevertheless, no empirical study has investigated the development of this process. According to statistics of Clemons & Thatcher, (2008), aspects of innovation (such as simplicity, compatibility, and the relative value provided by financial innovations) significantly impact how quickly consumers adopt such innovations.

Roshan (2020) proposes that there may be two possible reasons why there are not more evolutionary studies of inventions: To begin, many researchers are quick to assume that the development of new technologies is the consequence of "network externality," sometimes known as factors that are unconnected to the economy. To make things even more complicated, the creation of innovations depends on the dissection of already existing goods and services into their component pieces and configurations. This issue is particularly likely due to the complexities associated with many different financial innovations (Saal et al., 2017; Saleem, 2021).

Shakri (2020) illustrates, with the use of financial inclusion analysis, that structured financial products have a high degree of opacity and complexity, making it hard to deconstruct them into their parts. In addition, there is a significant amount of confidentiality around the data on financial advancements, which makes it difficult for researchers. As a result, evidence suggests that the financial industry continues to grow and adapt. According to Lechman and Marszk, and Lukonga's research (2021), financial advances have yet to reach the point when the advantages they provide begin to diminish. Economic development and technological change are often thought to be primarily attributable to one another, with technological innovation generally recognized as the driving force behind both phenomena. One thing can be said with absolute certainty about the

information technology sector: changes are occurring at a rate that has never been seen before, producing more incredible upheaval than ever. The "Second Machine Age" is what we find ourselves in at the moment.

According to Abdulquadri and Nguyen (2001), the beginning of this new age may be traced back to 1997, when IBM Deep Blue was defeated by the Russian grandmaster Gary Kasparov in an international competition. The terms "digital," "exponential," and "combinatory" describe how these and other new emerging technologies are combining to produce previously unknown and unimplemented capabilities in vital global sectors to illustrate the rapid pace of change. This is done in order to illustrate how quickly things are changing. According to Agarwal and Tan (2020), the most critical aspects of technical innovation in the financial technology sector are the disruption of existing processes and the improvement of existing services. In conclusion, Arjunwadkar (2018) demonstrates how new technologies may be linked together in a manner that leads to financial inclusion. He does this by describing how blockchain technology works. People must comprehend these components in a social as well as a technological context rather than seeing them as just technological. Everything from products and services to infrastructure is being developed specifically to the FinTech industry's requirements.

Process disruption of Fintech inclusion is caused by various circumstances, including technological advancements, client demand, and changes in the economic and financial situation (Rafey, 2019). People are becoming more reliant on the adaptability of financial technology due to their increased use of mobile devices. As smartphones become more widely accessible, companies are working to enhance mobile banking and internet payments. Consumers' desire for tailored and easy-to-use products is on the rise, and Fintech institutions have a chance to provide that demand (Romanova et al., 2018). The ideal answer, and the one that enables people worldwide to embrace Fintech swiftly, is provided by new technology, allowing consumers to access all services without needing a personal financial middleman (Polishchuk & Britchenko, 2018).

Polasik et al., (2020) state that most new technology is based on electrical, computer, or software engineering. Miniaturized cameras in mobile phones, ASIC bitcoin mining gear, or pattern recognition algorithms in image detection are all examples of ASIC technology. Many individuals utilize items and services tailored to their unique requirements. As a result of streaming and the internet, music and video acceptance and dissemination may be increased (like Spotify,

GooglePlay, Last. FM, and other services that have led to a drop in sales of music albums and movies on CD in favor of AAC, AIFF, MP3, MP4, AVI, and other formats). A digital brokerage is a stock trading platform that links to the market to facilitate transaction execution (Arslanian, & Fischer, 2019).

H_4 Technology innovation is significantly related to Financial Inclusion in the Europe fintech sector.

2.4 Digital Process Disruption

In the late nineteenth and early twentieth century, the notion of branch networks was a boon to the banking sector. To meet the need for uniformity and efficiency, this system arose in the 1800s. Consequently, standardizing record-keeping and accounting practices were required (Ancora, 2016). For example, the typewriter and telegraph improved communication between branches and headquarters due to advancements in technology like this. As the company's client base expanded, so did the need for more efficiency. Because of the early success of the industry-technology link, banks ultimately adopted technology because of the increased efficiency and, therefore, the increased profit. When consumers came up with ideas that improved customer happiness, the company also welcomed this connection (Arnold & Jeffery, 2016).

In retail and corporate banking, the 1960s saw the rise of consumer rights and tremendous technological improvements. When it came to industrial revolutions, consumers had the last say in the matter. In 2015 (Boland and Eastburn), The rise of the internet and mobile phones in the late 20th century accelerated this trend. Customers have become more demanding in their expectations for ease, accessibility, and satisfaction at a lesser cost due to extraordinary technology advancements (Downes, 2009). Mergers and acquisitions are also taking place in the financial services business, further accelerating the process of industry convergence. This has paved the way for new competitors, new methods of conducting business, and new income potential. Although many particular processes have changed, new fintech developments have significantly impacted the financial services sector as a whole. Assuming this is the case, we should work with financial institutions to help them "embrace disruption" and prepare to deploy cutting-edge fintech technologies that will lead to a more effective organizational strategy for financial services (Dapp, Slomka, & Hoffmann, 2014). According to predictions, the financial services industry is expected to experience a series of technology revolutions by the year 2020. Among the items identified as

potential causes of disruption are the following: The financial services industry's infrastructure will be more integrated with technological platforms, digital goods, and services in the not-too-distant future (Abdulquadri, & Nguyen, 2021).

(ii). There will be more localized financial services as robots and AI reach critical mass in the financial industry and as cybercrime and money laundering become more dangerous to financial services organizations. Beyond virtual money, the blockchain will be used in various ways (Dwivedi et al., 2021).

(iii). Customer intelligence is likely to be the driving force behind financial businesses' profitability, and regulators will be just as interested in fintech developments as the corporations they supervise (Gomber & Weber, 2018).

According to research by Dwivedi et al. (2021), process disruption has significantly impacted financial inclusion efforts. Fintech platforms may not be as trusted by future investors as conventional banks, according to Gontarek (2021). Why don't future generations already trust financial technology platforms? People who utilize financial services are responsible for safeguarding and maintaining their confidence when the sector asks for additional information about them. They can achieve this by using all of the available data mining, digital tracking, and technological retrieval methods.

H_5 Process disruption is significantly related to Fintech Inclusion in European Fintech Sector.

2.5 Transformation of Services

It is shown in this study by Tin & shill (2018) that financial inclusion influences service transformation. Ultimately, due to these changes, financial services will operate in a new and distinctive manner. To a significant extent, the way things work has been shaped by the massive financial firms that control clearing floats, electronic payments, the creation of bank and brokerage accounts, FX currency pair trading, and international financial transfers (He et al., 2017). According to Hasan & Khan (2020), many of us have seen that advances in financial technology prior to their designation as "fintech advancements" had less than optimal outcomes. Historical events have yet to have the potential to be transformational or long-term successes, especially in light of previous examples.

There was almost a violation of criteria governing investor solicitation and Internet usage, and Roshan (2020) raises the question: what can be done to increase new and supported fintech concepts' chances of succeeding in the transformation of service via financial innovation? It will be up to the Fintech Revolution and inclusiveness to show themselves if they are to overcome their predecessors. Financial inclusion services are generated and provided through businesses, organizational structures, human resources, talent, and wide-ranging decision behaviors subject to regulatory or legal constraints (He et al., 2017). ATMs, online brokers, and other financial products are constantly being improved by existing and new companies in the market. New data and the development of data infrastructures and integrated systems used to analyze it are the primary distinctions in today's financial services business (Guenther, 2021). Pattern recognition, data mining, and machine learning (ML) are some of the new digital sensing techniques developed due to this plethora of data (Misati et al., 2019).

Rather than mere competitors in the same business, fintech start-ups and financial institutions are increasingly considered potential collaborators. According to Shakri's (2020) argument, entrepreneurial start-ups may now achieve high performance in competitive markets due to a change in the flow of costs and benefits. Financial sector innovation will be molded for many years by experimenting, learning, and adapting. Financial inclusion has been shown to significantly impact the transformation of the service sector. Despite McWaters (2020)'s predictions of significant changes in the financial services business, they have yet to occur. It is well-known for its financial technology entrepreneurship in Europe. Financial Engines builds corporate subscribers' employee pension fund portfolios, looking at the favorable link between service transformation and financial inclusion (Misati et al., 2019).

H_6 Fintech Service Transformation is significantly related to the Financial Inclusion of the Europe Fintech Sector.

On the basis of previous literature following conceptual model has been formed.

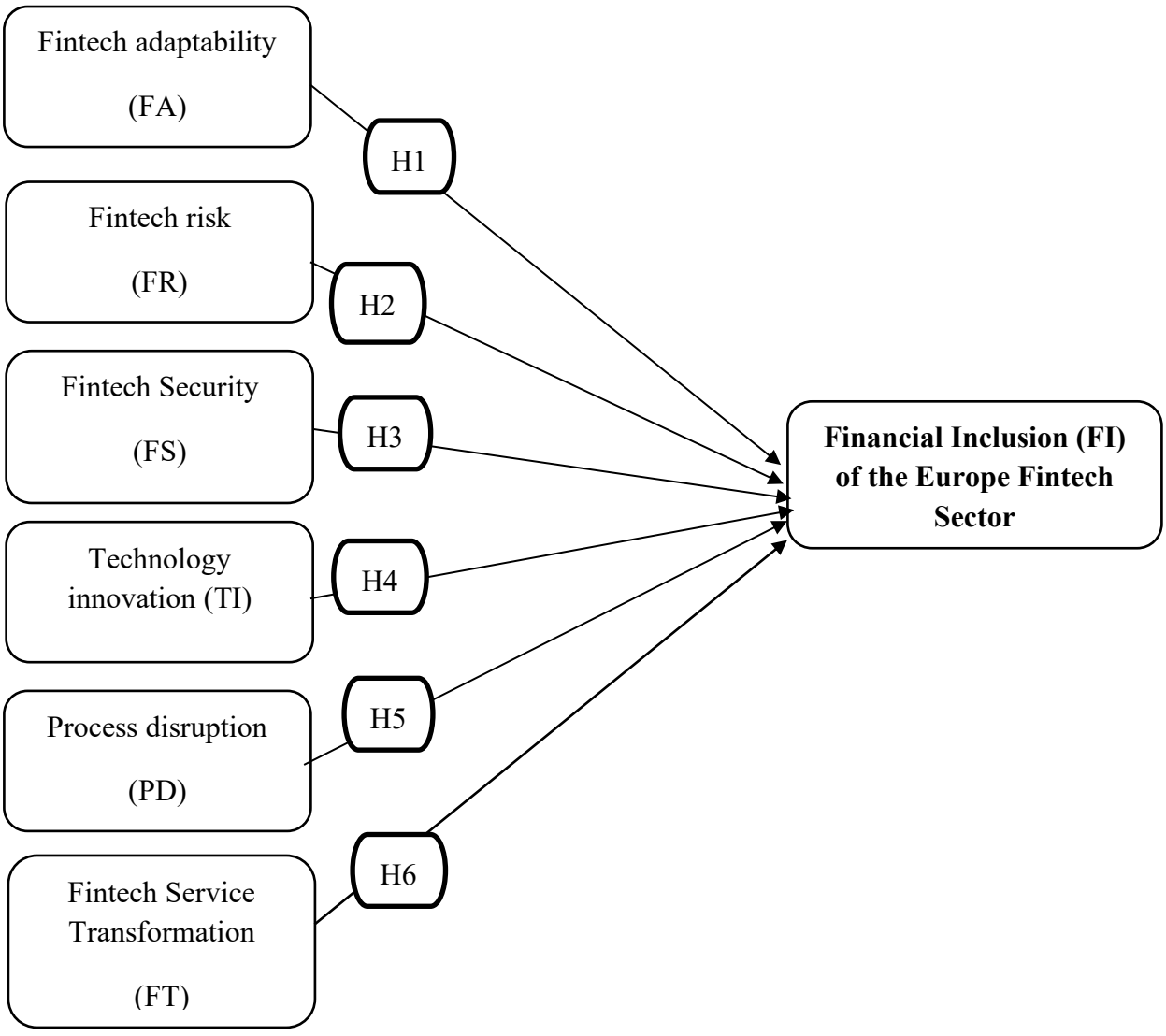

Figure 1: Conceptual Framework

Authors Estimation

3. METHODOLOGY

Fintech has and is continuing to become an impressive tool in the world's financial sector to raise competition, keep up with demand and reduce prices of financial goods and services. The rise of technology in recent years, along with the fast-paced nature of the business world, has led to the popularity of Fintech. Its ability to substitute paper money, along with reducing the time of transaction and ease over funds, has favored it by recent generations (Berg et al., 2020).

Through this research, we hope to understand the impact of Fintech on the European financial sector when it comes to adaptability, financial security, and risk assessment, as well as the relationship between technology and the inclusion of Fintech in European markets and how to process disruption, is related to Fintech's (Romanova et al., 2018).

To be able to carry out this research, we will only be investigating the financial sectors within Europe. Currently, there are 44 countries within Europe (Machkovska-Rusinova & Malik, 2016), with the biggest economy being Germany. However, European economies are not homogenous and may react differently to Fintechs. The research to be carried out will be done by conducting a quantitative to evaluate the impact of Fintech inclusion within the economies of the continent.

The fundamental objective of this chapter is to discuss the study's methodology by explaining sampling, population, and research design. In general, the data collection structure is given by the study's research design. It also contains the analysis techniques to examine the *technology innovation, process disruption, and service transformation on financial inclusion* with the addition of research approach, sampling design and sample size, measurement of the variables, and data collection procedures. Moreover, the nature of the current study is quantitative. The researchers use the questionnaire survey method to collect the data for study in the Fintech sector of Europe.

3.1 Research Hypothesis

H1: Fintech adaptability significantly impacts the financial inclusion of the Europe fintech sector.

H2: Fintech risk significantly impacts the financial inclusion of the Europe fintech sector.

H3: Fintech Financial security significantly impacts the financial inclusion of the Europe fintech sector.

H_4 Technology innovation is significantly related to Financial Inclusion in the Europe fintech sector.

H_5 Process disruption is significantly related to Fintech Inclusion in European Fintech Sector.

H_6 Fintech Service Transformation is significantly related to the Financial Inclusion of the Europe Fintech Sector.

3.2 Research Approach and Design

A quantitative technique is used in the research to consider the influence of *fintech adaptability, fintech risk, financial security, technology innovation, process disruption, and fintech service transformation on financial inclusion in Europe through a survey questionnaire*. Stockemer, (2019) interprets that quantifiable exploration practices observation as the data collection method. Observation is the range and recording of the conduct of individuals in their surroundings. The cross-examiner ensures the gathering of data, and arithmetic tools are used to investigate reactions.

A study's research design refers to the methods used in the study's data collection, analysis, and presentation (Quick & Hall, 2015). A relevant and thorough set of empirical investigations that address the conceptual concerns of the study are linked in the plan. Jaana & Urs, (2018) included collecting and evaluating pertinent data; this phase provides a solution to the research analysis issue of "what will be done with the data?". Due to the nature of the questionnaire employed for data collection, this research might be classified as descriptive (Saunders et al., 2018).

3.3 Sampling Technique and Data collection

The convenience-sampling method of the non-probabilistic techniques is used for concluding this study due to a shortage of time, and data is collected through Google forms (J & A, 2020).

The sampling technique that will be used in our study is non-probability sampling. Convenience sampling will be used, which is a part of non-probability sampling (Wilson, 2014). Convenience sampling will be employed because the target population of this study will be the users of the Europe Fintech industry. Data will be collected through a survey, whereas all questionnaires will be self-administered. According to Dwivedi et al., (2021), Fintech has developed itself as a leading

sector in Europe; from 1996 to 2021, the number of customers has increased from 68000 to 96 million.

This research is conducted in Europe. The Target population of this study is the Europe Fintech industry users of Sindh. In the current study, the selection of Fintech (banking users) as the unit of analysis is most suitable even though Europe Authority reports that there are more than 100 million users of advanced fintech technology across Europe (Kauffman et al., 2018).

The targeted population of the proposed study is 220 individuals of European fintech users. The questionnaire is desired to be filled. The sample size is chosen with the help of the number of observations required to complete a particular study sample size is an essential aspect of empirical studies that have the aim to formulate a supposition concerning the population commencing a sample; usually, N = 100–150 is regarded as the minimum sample size to conduct analysis (Martínez et al., 2018) . researchers consider an even larger sample size for statistical analysis, N = 200 (Bhandari et al,2013; Taasoobshirazi, & Wang, 2016).

The required sample size for the study is 220, which is suitable for statistical analysis while having seven variables, including six independent variables and one dependent variable. This suitable sample size of the present study was generated by past research (Atalay et al., 2013; Okello Candiya Bongomin et al., 2018; Peters, 2017).

Procedure of Data Collection

Firstly, the users of the fintech industry of Europe are approached via social media like LinkedIn and Facebook through Google forms. Secondly, permission from them is taken to get the questionnaire filled out. The survey forms include research questions related to the influence of the *fintech adaptability, fintech risk, financial security, technology innovation, process disruption, fintech service transformation* of inclusion of the Fintech industry in Europe. The survey Questionnaire is added in Annex A.

Questionnaire and Measurement Instrument

All dependent and independent factors were rated on a Likert scale to generate research questions. Respondents may choose from "Strongly Disagree" (the most negative) to "Agree" (the most positive), "Neutral" (somewhat pleased) to "Very Satisfied" (very satisfied), or "Neither" (neither satisfied nor dissatisfied). The researchers in this study suggested using a self-administered questionnaire (Wilson, 2014).

Table: 3.5 *Instrumentation*

Variable	Scale Items	Adopted From
Financial Risk (FR)	05	(Ibrahim et al., 2014)
Financial Security (FS)	04	(Weaver et al., 2009)
Financial Adaptability (FA)	08	(Dwivedi et al., 2021)
Process disruption (PD)	06	(Peters, 2017)
Service transformation (ST)	07	(Chuang et al., 2016)
Technological Innovation (TI)	06	(Atalay et al., 2013)
Financial Inclusion (FI)	06	(Okello Candiya Bongomin et al., 2018)

3.5 Statistical Technique

multiple linear regression analysis is used as the statistical methodologies (Cramer & Bryman, 2005). SPSS program 21 is used to analyze the data from the survey using a variety of statistics.

Descriptive analysis:

Working & Ezekiel, (1931) recommended that Descriptive analysis is used to manage and describe the uniqueness of the data gathered. It is used to measure the central tendency and variability of data. Descriptive analysis analyzes the mean, median, mode, and Standard Deviation of the dependent and independent variables.

Multiple regressions Analysis:

Sandelowski, (2000) proposed that it is an arithmetical instrument used to investigate the relationship between variables. By regression, the researcher examines the effect of one variable on other. In order to examine the examiner approaches to gather data on the variables of concern and apply regression to calculate the quantitative cause of the variables. With the help of regression, the investigator can also assess the level of confidence in how much the correct association exists between variables (Fadilah Puteh & Mohd Hanafi Azman Ong, 2017).

3.6 Ethical Consideration

The consideration of ethical principles in research, as well as in business in general, is becoming more critical. It is essential that you have a fundamental understanding of ethical research practices and how this may have an impact on the research project you are doing. When researchers are forced to deal with contradicting concerns and select between alternative methodological procedures in the face of conflict, it might create difficult circumstances from an ethical standpoint. In such circumstances, it may be unavoidable for several components, including participants, researchers, the field in which the researchers work, the funding organization, and society, to disagree with one another (Truscott, 2004). Every answer will be held in the strictest confidence and will in no way, shape, or form be shared with any outside parties or individuals.

4 RESULTS

4.1 Demographics of respondents

The demographics of the sample are displayed in the table below, which includes gender, age of respondents, employment of respondents, work experience, and level of education. The data was collected from 220 users of FINTECH, and the results indicate that 107 males constituted 53.5% of the 220 respondents, while 93 females constituted the remaining 46.5%. Moreover, the youngest users were 25 years old, accounting for 37 percent, while the oldest age category of fintech users was over 50 years old, accounting for 2.7 percent. The average age of our respondents was between 25 and 40 years old, accounting for 50 percent. 143 of the 220 respondents had less than 5 years of work experience, 14.0 percent had 5 to 10 years of experience, 7.5% worked 11 to 16 hours a day, and 7.0% had 17 years or more of experience. 9 employees held a Ph.D., accounting for 4.5 percent of all respondents; 64 users held a master's degree, accounting for 32.0 percent; 118 users held a bachelor's degree, accounting for 58.0 percent; and the remaining 9 users held a diploma or certificate, accounting for 4.5 percent of all respondents.

Table 1: Respondents' Profile

Gender of respondent	**Frequency**	**Percent**
A. Male	100	45.5
B. Female	118	53.6
Total	220	100.0
Age of respondent		
A. Below 25	83	37.7
B. 25-30	76	34.5
C. 31- 40	39	17.7
D. 41-50	14	6.4
E.Above 50	6	2.7
Total	220	100.0
Work experience of the respondent		
A. 2 yrs	109	49.5
B. 5 yrs	66	30.0
C. 10 yrs	34	15.5
D. 15 yrs	11	5.0
Total	220	100.0
Education of respondent		
A. Diploma	34	15.5
B.Bachelors	76	34.5

C.Masters	83	37.7
D. PhD	27	12.3
Total	220	100.0

4.2 Reliability Test (Cronbach's Alpha) and Factor Analysis:

EFA reduces the variables from a more significant number to a minor total. Secondly, it establishes the fundamental dimension between the measured variables and estimates the construct validity.

Table 4

KMO and Bartlett's Test

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.870
Bartlett's Test of Sphericity, approx. Chi-Square	3361.603
Df	253
Sig.	.000

KMO is the degree of sampling adequacy. The established index is over 0.6 (Chicco et al., 2021). Our outcomes of KMO for the measured variables are 0.870 showing a variance of 87%, which is greater than 60%.

Table: 4.1 Factor Analysis

		Cronbach's Alpha	FI	PD	ST	TI	FA	FS	FR
Financial Inclusion (FI)	FI1	.873	.630						
	F12		.789						
	FI3		.701						
	FI4		.678						
	FI5		.789						
	FI6		.710						
Process disruption (PD)	PD1	.		.563					
	PD2	.706		.750					
	PD3			.666					
	PD4			.675					
	PD5			.665					
	PD6			.763					
Service transformation (ST)	ST1				.578				
	ST2	.824			.763				
	ST3				.810				
	ST4				.512				
	ST5				.711				
	ST6				.643				
Technological Innovation (TI)	TI1	.778				.543			
	TI2					.651			
	TI3					.622			
	TI4					.711			
	TI5					.590			
	TI6					.698			
	TI7					.750			
							.543		
Fintech Adaptability (FA)	FA1	0.674					.651		
	FA2						.764		
	FA3						.587		
	FA4						.704		
	FA5						.890		
	FA6						.555		
	FA7						.789		
	FA8						.875		
							.622		

Financial Risk (FR)	FR1	0.803			
	FR2			.878	
	FR3			.754	
	FR4			.879	
	FR5			.675	
				.744	
					.786
Financial Security (FS)	FS1	0.600			.986
	FS3				.897
	FS4				.821
	FS5				.731

EFA table reveals the results of Factor Analysis for the Dependent Variable (Financial Inclusion) and Independent Variables (fintech adaptability, fintech risk, financial security, technology innovation, process disruption, and fintech service transformation) to measure the reliability of the scales operated, Cronbach's alpha is used. According to Sekaran (2005), if Cronbach's alpha < 0.6, this indicates that the questionnaire occupied has short reliability (chances of errors). If the alpha value ranges up to 0.7, the instrument is satisfactory.

Cronbach alpha is fundamental to check the reliability. According to Fadilah Puteh & Mohd Hanafi Azman Ong, (2017), If Cronbach alpha is 0.6, which is below and unacceptable, between 0.6 and 0.65 which means undesirable, between 0.65 and 0.70 means minimally acceptable, between 0.70 and 0.80 means reputable, in between 0.80 and 0.90 shows very good, above 0.90which means researchers should deduct the no of items. The value of Cronbach's alpha must be greater than 0.55 suggested by (Hair & Brunsveld, 2019). In this study, all items (shown in table 1) load more than 0.55. This shows that the model was reliable and valid.

If Cronbach's Alpha is more significant than 0.70, the instrument is said to be reliable and consistent (Hair et al., 2019). Since the reliability values for all of the survey's indicators are higher than this limit. According to the outcome, the instrument that was designed is highly reliable.

4.3 Regression Analysis

Table 5: Hypothesis testing through Multiple Regression Analysis

	Independent variable	B	T-Stats	Significance Value
	(C)	0.726		
	FA→ FI	0.471	2.952	.001
	FS→ FI	0.345	4.684	.002
	FR → FI	0.311	6.465	.000
	TI → FI	0.205	2.625	.000
	ST → FI	0.570	5.068	.000
	PD → FI	0.470	4.464	.003
R-square	0.735	**Adjusted R-square**	0.735	

Note: **Significance level at 0.05

The goal of this regression analysis is to demonstrate how independent variables affect variables that are dependent on them. The value of the beta and the p-value are listed in table 5. Furthermore, the R square in the table below shows the relationship between the estimated value of the dependent variable and the explored factors. When expressed in percentage terms, the value of R square reflects not just the overall fitness of the model but also the degree to which the independent variables accurately represent the dependent variable. Based on this analysis, the R Square value for all variables that are thought to be independent is 73.5%.

Typically, the beta value is used to determine the nature of the relationship between the dependent and independent variables. In contrast, the p-value is used to represent the level of statistical significance.

H_1: Fintech adaptability significantly impacts the financial inclusion of the Europe fintech sector.

Furthermore, **H1** indicated a relation between Financial Adaptability inclusion that is found to be significant 0.00>0.05 and a significant positive impact on financial inclusion in Europe.

H_2: Fintech risk significantly impacts the financial inclusion of the Europe fintech sector.

This study shows a significant relationship between Financial Risk (FR) and financial inclusion (FI), with a t-value= 4.625, indicating that FR directly influences FI. So, this hypothesis is accepted. These results are aligned with the finding of (Alt et al., 2018; Li et al., 2017; Romanova & Kudinska, 2016a; Vives, 2017) study.

H_3: Fintech Financial security significantly impacts the financial inclusion of the Europe fintech sector.

This study shows a significant relationship between Financial security (FS) and financial inclusion (FI), with t-value= 3.625, indicating that FS has a direct positive influence on the FI. So, this hypothesis is accepted. These results are aligned with the finding of (Rafay,2019; Ibrahim, et al. 2014; Arslanian, & Fischer, 2019) study.

H_4 Technology innovation is significantly related to Financial Inclusion in the Europe fintech sector.

This study shows a significant relationship between technology innovation (TI) and financial inclusion (FI), with t-value= 2.625, indicating that TI directly influences FI. So, this hypothesis is accepted. These results align with the findings of (Dwivedi et al., 2021; Ibrahim et al., 2014; Weaver et al., 2009) study.

H_5 Process disruption is significantly related to Fintech Inclusion in European Fintech Sector.

This study shows a significant relationship between Process disruption (PD) and financial inclusion (FI), with t-value= 5.068, indicating that PD directly influences FI. So, **H_5** is accepted. Hence this relationship results are aligned with the finding of (Lukonga, 2018; Rauchs, 2018; Zuboff, 2020).

H_6 Fintech Service Transformation is significantly related to the Financial Inclusion of the Europe Fintech Sector.

This study shows a significant relationship between Service Transformation (ST) and financial inclusion (FI), with t-value= 4.464, indicating that ST directly influences FI. So, $\mathbf{H_6}$ is accepted and aligned with previous research findings (Lukonga, 2018; Castro, et al., 2020).

The regression equation to forecast the coefficient of the dependent variable through one or more independent variables.

$$\mathbf{FI = 0.726 + 0.470(FA)+0.352(FR)+0.311(FS)+0.0.205\,(TI) + 0.570\,(ST) + 0.470\,(PD) + e}$$

The finding is that fintech adaptability (FA), fintech risk (FR), financial security (FS), technology innovation (TI), process disruption (PD), and service transformation (ST) all have a significant influence on FI. Compared to the other independent factors, the service transformation-(ST) has a considerably more noticeable impact on the financial inclusion of the fintech sector in Europe.

5. CONCLUSION

Throughout this study, we have defined the process of evolution of fintech's within Europe and the impact that they have on the economy. The purpose of the study was to conclude whether fintech sector is a viable tender for the European financial market and the factors that may hinder or bolster their growth. Data has been collected through self administrative Likert scale questionnaire from the sample of 220 fintech users within Europe.

The hypothesis validation results are generated by SPPS software through regression analysis, which confirms the results that fintech adaptability significantly positively impacts financial inclusion; fintech risk significantly positively impacts financial inclusion; fintech financial security significantly positively impacts financial inclusion; technology innovation is significantly positively related to financial inclusion; process disruption is significantly positively related to financial inclusion; and fintech service transformation is significantly positively related to the financial inclusion of the fintech sector in Europe.Study's six hypotheses study several factors to measure the ability of success for fintech to thrive and be included within the European market by studying them and we plan to understand the growth they are following in the Fintech inclusion sector of UK.

The first hypothesis we tested was to understand the impact of the adaptability of fintech in their inclusion in the European market. Given the fast-changing needs of consumers worldwide and ever-evolving technology, fintech must evolve and adapt simultaneously (Ioannis Anagnostopoulos, 2017). If they are unable to evolve with the market and the consumer's needs, they will be unable to hold strong retention metrics and also may see a downfall within their acquisition metrics (FSB, 2017). The reasoning behind such is that competition is fierce and growing in today's age and if consumers are not satisfied with the services they receive, there are not many barriers for them to shift towards an alternative. Many fintech understands the need to appease customers and have introduced features such as no-contact payment and adapting in a way where they can provide access to unbanked customers (Shin & Choi, 2019). This not only provides popularity among the fintech but instead of only attracting customers who are already using some kind of financial service, they are creating their organic demand (Ryu, 2018a).

With the rise of the internet, the safekeeping of information has become more pertinent than ever. With ever-evolving methods to steal people's information such as hacking, phishing, and malware attacks, people have become more conscious and aware of how their data is secured (Ryu, 2018b). When it comes to financial services, the risk becomes even greater as people trust such companies with their life savings many times. For fintech to be included in the financial sector and gain traction within the industry it is important customers know their data is safe (Treleaven, 2015). This can be done by acquiring information security certifications and organizing a special department for the protection of customers' information (Al-Mamary et al., 2016). Not only does this improve confidence within the customer base but also aids the company itself from being a victim of a hacking attack and facing losses (Hu et al., 2019).

Within the scope of this study, we isolated the primary forces propelling the growth of fintech and analyzed Europe's efforts to capitalize on those forces. We provided a few suggestions, and based on the degree to which they were implemented, we developed a best-case scenario for the event that Europe adopts a digital financial future. A portion of the retailer-customer banking industry and some aspects of the payment industry have already been affected by the disruptive effects of fintech (Treleaven, 2015). If the most favorable scenario is implemented, our forecast calls for more job creation as a direct consequence of governmental actions, pricing opportunities, and the recruitment of skilled workers in the financial technology sector. In this regard, the financial technology industry offers a multitude of opportunities to both newly established businesses and startup companies (I. Lee & Shin, 2018; Romanova & Kudinska, 2016b).

The consumer of financial services will emerge as the primary victor in this competition (Tsai & Peng, 2017). Having said that, we want to draw attention to both the massive opportunity and the potential dangers facing Europe. We suggest that the promotion of a cryptocurrency that is native to Europe should take precedence over other efforts to establish Europe as a center of digital activity. We believe that this is something that should be considered since it has the potential to make a difference for Europe, but no major government has supported a digital currency as of now. We make it quite obvious that how a fintech company executes its strategy will decide whether or not it is included among the winners or losers.

Fintech will support new procedures and architecture that will make digital settlement cheaper while also simplifying back-end operations. These are all crucial sectors for the European

Financial System, and fintech will promote their development. As a result, we strongly recommend that the European Parliament put in place the appropriate policies and infrastructure. Fintech is already being used in the operations of Scottish banks and money management companies. On the other hand, something was created in-house to a significant extent and is not innovative because of this fact. Traditional banks have slowly moved away from their old systems that were made in-house and toward alternatives that can be bought off the shelf.

Moreover, stringing efforts and measures practiced by organizations allow for a lower risk of financial loss by the customers. Greater confidence in the fintech will allow for a greater demand for the service which in turn will allow for fintech to be included in the European economy (Kavuri & Milne, 2019). To be able to adapt and appease customers with new updates, fintech must constantly go through technological advancements (Muñoz, 2019). Not only do they aid in creating a more risk-free environment for their customers, but by using technology to deliver what the customer demands and bringing forth updates they attract new customers and aid in retaining current customers. Innovation is an important aspect of society in general present times no matter which industry one belongs to, to be able to remain relevant and successful (Nicoletti, 2017). The same is the case with financial sectors and in turn fintech. The more fintech will invest in innovation, the greater chances they have to be included in the economy (Kuzmina-Merlino & Saksonova, 2018).

As mentioned by the theory of Evolution, times are evolving. As a result, traditional methods are left behind and people opt for more modern takes on providing services. In the financial sector, this is done so by shifting from traditional banks to online services such as what fintech has to offer. Digital process disruption is caused by people transferring from utilizing financial services from online platforms rather than banks. With fewer people making use of banks, the demand will shift to other mediums which provide similar services but with greater adaptability and innovation. The reduction in the demand for traditional banking will lead to a gap in the industry for fintech to converge and fill, resulting in greater inclusion within the economy.

We have mentioned earlier how fintech is taking advantage of gaps in the market as customers move away from traditional methods of financial services. However, that is not always the case. The finance sector has for many decades controlled how economies across the globe operate. In many cases, instead of revitalizing current ways of financial processes, traditional financial firms

choose to corroborate with up-and-coming technologically advanced fintech in order to grow and retain business. By doing so not only are they able to pass on decades of information that they have accumulated previously which aid in better productivity of newly formed fintech, but they also allow themselves to still exist in the financial sector and play a role. Moreover, fintech's with greater retention rate project that their customers are satisfied with their services and that they feel secure in entrusting fintech with their money.

Fintech's a growing industry throughout the world. Not only are they competing against other financial service providers but in some cases also collaborating with them. To be a viable tender in the European market, Fintech has to ensure that they are successfully meeting metrics such as adaptability, technological advancement, and financial security.

5.1 Limitations & Recommendations

The study conducted is based primarily on quantitative analysis and previously conducted studies on the matter. As the study pursues to investigate the accessibility of fintech to tender in the European economy, this results in a large landscape that is to be covered by the researchers. Although a large population allows for greater generalizability for the study, it is important to note that Europe encapsulates a variety of sizes of economies, various cultures which can impact financial habits, and various levels of technological advancements depending upon the chosen country.

Our study tries to negate these differences by utilizing countries from different economic sizes to be able to better represent the population. Moreover, by choosing fintech with varying retention rates, we allow for investigation if the demand and customer base play a large role in the success of the fintech or if a fintech can still be successful without a large audience. The limitation we may see here is that even though we choose different countries based on their economic size, Europe is made up of 41 other countries which may not be able to relate to our results. Moreover, given differences in technological advancements, the fintech companies may not be of the same caliber in each country, and in some cases, the issue may also exist that ten defined and presently operational fintech may not exist. In this regard, it is recommended that by accessing greater resources, more countries are included in the studies which represent at least half the economies in Europe. Moreover, greater research should be conducted into fintech to identify those which have the greatest span within Europe to improve generalizability.

Following this, it is pertinent to add the limitations finance services face when working within different countries. Although the majority of the countries are a part of the European Union, with similar financial regulations, there are approximately 15 countries within Europe that are not a part of the union. This means that these countries may have different financial regulations, hence, fintech's not being able to operate uniformly to be included within the economy and have to go through separate hurdles to become successful. This means different metrics may not entail the same effects as they do in another country. In this case, it is recommended that countries are sorted into groups that have similar financial regulations and their metrics analyzed similarly to countries with different regulations.

Another limitation that may exist within the study is the lack of quantitative data that is utilized in the study. Currently, the study incorporates specific metrics and a framework to identify relationships between different factors and their impact on the economy. To provide greater reliability to the study, more metrics should be utilized including scrutiny of the finances of the fintech and the application of t-distribution within the analysis of the study to identify well-founded correlations. Qualitative methods such as literary analysis of the fintech customers can be used for factors such as adaptability for the customers and financial risk to provide support in identifying the consumer's take on these factors rather than solely relying on metrics to ascertain customer behavior.

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Summary In English

60 pages excluding references,

Number of References: 120

This research aims to explore the impact of fintech adaptability, fintech security, fintech risk, technological innovation, fintech service transformation, and fintech process disruption on the financial inclusion of the fintech sector in Europe. Previously, no research determined the impact of fintech adaptability, fintech security, fintech risk, technological innovation, fintech service transformation, or fintech process disruption on Europe's fintech sector's financial inclusion. Chapter one determines the theoretical aspects of FINTECH, history and applications of FINTECH in Europe. This research is backed by the theories of diffusion and evaluation. Further chapter 2 present the literature related to the impact of fintech adaptability, fintech security, fintech risk, technological innovation, fintech service transformation, and fintech process disruption on the financial inclusion. The quantitative Likert scale survey method is employed for this research. A convenience-sampling method of the non-probabilistic techniques is used for concluding this study due to a shortage of time, and data is collected through Google Forms. The Google Form URL has been sent to the 220 Fintech service users in Europe to fill out the survey, therefore the response rate is 100%. SPSS analyses the demographics of respondents, and it also performs reliability analysis and factor analysis to ensure the analysis's reliability. The hypothesis validation results are generated by SPPS software through regression analysis, which confirms the results that fintech adaptability significantly positively impacts financial inclusion; fintech risk significantly positively impacts financial inclusion; fintech financial security significantly positively impacts financial inclusion; technology innovation is significantly positively related to financial inclusion; process disruption is significantly positively related to financial inclusion; and fintech service transformation is significantly positively related to the financial inclusion of the fintech sector in Europe.

Keyword: *Technology Innovation (TI), Process Disruption (PD), Service Transformation (ST), Fintech Adaptability (FA), Fintech Risk (FR), Financial Security (FS), Financial Inclusion (FI), Quantitative.*

Summary in Lithuanian

60 puslapių be nuorodų,

Literatūros sąrašas: 120

Šiuo tyrimu siekiama ištirti „fintech“ prisitaikymo, „fintech“ saugumo, „fintech“ rizikos, technologinių naujovių, „fintech“ paslaugų transformacijos ir „fintech“ proceso sutrikimo poveikį finansinei „fintech“ sektoriaus įtraukčiai Europoje. Anksčiau jokie tyrimai nenustatė „fintech“ prisitaikymo, „fintech“ saugumo, „fintech“ rizikos, technologinių naujovių, „fintech“ paslaugų transformacijos ar „fintech“ proceso sutrikimo poveikio Europos „fintech“ sektoriaus finansinei įtraukčiai. Pirmame skyriuje aprašomi teoriniai FINTECH aspektai, FINTECH istorija ir pritaikymas Europoje. Šis tyrimas paremtas sklaidos ir vertinimo teorijomis. Kitame 2 skyriuje pateikiama literatūra, susijusi su fintech prisitaikymo, fintech saugumo, fintech rizikos, technologinių naujovių, fintech paslaugų transformacijos ir fintech procesų sutrikimo įtaka finansinei įtraukčiai. Šiam tyrimui taikomas kiekybinis Likerto skalės tyrimo metodas. Šiam tyrimui užbaigti dėl laiko trūkumo naudojamas patogus netikimybinių metodų atrankos metodas, o duomenys renkami per Google formas. „Google“ formos URL buvo išsiųstas 220 „Fintech“ paslaugų vartotojų Europoje užpildyti apklausą, todėl atsakymų rodiklis yra 100%. SPSS analizuoja respondentų demografinius rodiklius, taip pat atlieka patikimumo analizę ir faktorių analizę, kad užtikrintų analizės patikimumą. Hipotezių patvirtinimo rezultatus generuoja SPPS programinė įranga, taikant regresinę analizę, kuri patvirtina rezultatus, kad fintech pritaikomumas reikšmingai teigiamai veikia finansinę įtrauktį; fintech rizika labai teigiamai veikia finansinę įtrauktį; fintech finansinis saugumas labai teigiamai veikia finansinę įtrauktį; technologijų naujovės yra labai teigiamai susijusios su finansine įtrauktimi; proceso sutrikimas reikšmingai teigiamai susijęs su finansine įtrauktimi; o fintech paslaugų transformacija yra reikšmingai teigiamai susijusi su finansine fintech sektoriaus įtraukimu Europoje.

Raktažodis: technologijų naujovės (TI), procesų sutrikimas (PD), paslaugų transformacija (ST), finansinių technologijų prisitaikymas (FA), finansinių technologijų rizika (FR), finansinis saugumas (FS), finansinė įtrauktis (FI), kiekybinė.

ANNEX A: QUESTIONNAIRE SURVEY

SECTION A:

Demographic information

FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION

VILNIUS UNIVERSITY, LITHUANIA

Dear respondent,

The purpose of this research is to evaluate the impact of fintech adaptability, fintech risk, financial security, technology innovation, process disruption, fintech service transformation on financial inclusion in Europe through this survey questionnaire. The following information is strictly confidential and will only be used for research purpose. I will be grateful if you could kindly fill the required information.

1. **Gender**
   - a. Male ☐ b. Female ☐

2. **Age group**
   - a. Below 25 ☐ b. 25-30 ☐
   - c. 31- 40 ☐ d. 41-50 ☐
   - e. Above 50 ☐

3. **Highest level of education**
   - a. Diploma ☐ b. Bachelors ☐
   - c. Masters ☐ d. PhD ☐

SECTION B:

The Following statements relate to the way in which you perceive the Fintech impact on each variable scale. For each statement, you are asked to mark an **X** in the box that best describes your response

1. **Technology Innovation (Independent Variable)**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

	1	2	3	4	5
1. Fintech companies often launches new products					
2. Fintech companies extends numbers of product lines 3. With NPD (new product development), and enlarges new markets					
4. Fintech companies launches customized products according to market demands					
5. Fintech companies adopts advanced real-time process control technology					
6. Fintech companies imports advanced automatic quality restriction equipment/software					

Service Transformation (Independent Variable)

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

	1	2	3	4	5
1. I have confidence in Fintech Service provided by enterprises					
2. I think using Fintech Service can make reading more efficient					

3. I think using Fintech Service will not be limited by time and location restriction, which is helpful for me					
4. I think using Fintech Service can make life more convenient					
5. I think I can rapidly obtain information using e Fintech Service					
6. I think it is easy to learning Fintech Service without spend too much time					

Fintech process disruption (Independent Variable)

1	2	3	4	5				
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree				
				1	2	3	4	5
1. Customers find Fintech process disruption services such as ATMS easy to use								
2. The Fintech organizations offers a comprehensive benefits financial service package to its customers								
3. The Fintech organizations has a readily available mobile application for its customers								
4. The Fintech organizations have trained its employees to educate customers on new digitized ways of transacting.								
5. More customers prefer to use digital mobile platforms								
6. The Fintech organizations are pro-active in implementing changes to address challenges and opportunities.								

Financial risk- FR (Independent variable)

1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree

	1	2	3	4	5
1. I am concerned that financial records of Fintech in Europe might not be adequately protected if I shop online					
2. It is not safe to give my credit card number when I order online.					
3. I am concerned about the ultimate price of the on-line product because there might be hidden costs.					
4. Traditional stores offer more discount than online store.					
5. Online stores offer discount price but the total cost is not lower.					

Financial Security-FS (Independent variable)

1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree

	1	2	3	4	5
1. I am confident that Fintech in Europe can meet goals for becoming financially secure					
2. Becoming financially secure would be helpful for Fintech in Europe in increasing current and future safety					
3. A positive credit rating of Fintech in Europe would be helpful in increasing current and future safety					
4. Fintech in Europe would adequate employment would be helpful in increasing current and future safety.					

Fintech Adaptability FA-(Independent variable)

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

	1	2	3	4	5
1. FinTech created a new opportunity in Europe.					
2. FinTech in Europe is inevitable					
3. FinTech helps to innovate products and services in Europe					
4. FinTech adoption is favorable in Europe regulations					
5. FinTech adoption process is smooth to adopt					
6. FinTech adoption required a strategic approach of technology management					
7. FinTech adoption is supported by everyone in Europe					
8. FinTech adoption creates new channels					

Financial inclusion (Dependent Variable)

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

	1	2	3	4	5
1. The minimum balance on savings account required by the financial institution is affordable					
2. The numbers of documents required by the financial institution to open an account are few					
3. The number of days taken by the financial institution to process loan applications is favorable					
4. The savings product provided by the financial institution suits the needs					
5. The loan product provided by the financial institution suits the needs					
6. The payment services provided by the financial institution suits the needs					
7. The savings and loan product provided by the financial institution is safe					

End of Survey

Thank you very much for your participation

ANNEX B: SPSS OUTPUT

Frequencies

Notes

Output Created		23-SEPT-2022 19:35:13
Comments		
Input	Data	C:\Users\ok\Desktop\FINTECH\Fintech.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	196
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=Gender Age Education /BARCHART FREQ /ORDER=ANALYSIS.
Resources	Processor Time	00:00:01.39
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[DataSet1] C:\Users\ok\Desktop\FINTECH\Fintech.sav

Statistics

		Gender	Age	Education
N	Valid	196	196	196
	Missing	0	0	0

Frequency Table

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	84	42.9	42.9	42.9
	male	7	3.6	3.6	46.4
	Male	105	53.6	53.6	100.0
	Total	196	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-30	98	50.0	50.0	50.0
	31- 40	49	25.0	25.0	75.0
	41-50	7	3.6	3.6	78.6
	Below 25	42	21.4	21.4	100.0
	Total	196	100.0	100.0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelors	91	46.4	46.4	46.4
	Diploma/Matric	7	3.6	3.6	50.0
	Masters	91	46.4	46.4	96.4
	PhD	7	3.6	3.6	100.0
	Total	196	100.0	100.0	

Correlations

Notes

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	Split File	<none>
	N of Rows in Working Data File	196
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=TI ST PD FI /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet1] C:\Users\ok\Desktop\FINTECH\Fintech.sav

Correlations

		TI	ST	PD	FI
TI	Pearson Correlation	1	.538**	.563**	.429**
	Sig. (2-tailed)		.000	.000	.000
	N	196	196	196	196
ST	Pearson Correlation	.538**	1	.786**	.557**
	Sig. (2-tailed)	.000		.000	.000
	N	196	196	196	196

	Pearson Correlation	.563**	.786**	1	.447**
PD	Sig. (2-tailed)	.000	.000		.000
	N	196	196	196	196
	Pearson Correlation	.429**	.557**	.447**	1
FI	Sig. (2-tailed)	.000	.000	.000	
	N	196	196	196	196

**. Correlation is significant at the 0.01 level (2-tailed).

Reliability

Notes

Output Created		23-SEPT-2022 19:36:17
Comments		
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	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	196
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=TI1 TI2 TI3 TI4 TI5 TI6 /SCALE('TI') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

[DataSet1] C:\Users\ok\Desktop\FINTECH\Fintech.sav

Scale: TI

Case Processing Summary

		N	%
Cases	Valid	196	100.0
	Excluded[a]	0	.0
	Total	196	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.778	6

Reliability

Notes

Output Created		23-SEPT-2022 19:36:43
Comments		
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	196
	Matrix Input	

Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=ST1 ST2 ST3 ST4 ST5 ST6 /SCALE('ST') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet1] C:\Users\ok\Desktop\FINTECH\Fintech.sav

Scale: ST

Case Processing Summary

		N	%
Cases	Valid	196	100.0
	Excluded[a]	0	.0
	Total	196	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.824	6

Reliability

Notes

Output Created		23-SEPT-2022 19:37:45
Comments		
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	Active Dataset	DataSet1
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	196
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=PD1 PD2 PD3 PD4 PD5 PD6 /SCALE('PD') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

[DataSet1] C:\Users\ok\Desktop\FINTECH\Fintech.sav

Scale: PD

Case Processing Summary

		N	%
Cases	Valid	196	100.0
	Excluded[a]	0	.0
	Total	196	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.835	6

Reliability

Notes

Output Created		23-SEPT-2022 19:38:09
Comments		
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	Active Dataset	DataSet1
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	196
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=FI1 FI2 FI3 FI4 FI5 FI6 FI7 /SCALE('FI') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

[DataSet1] C:\Users\ok\Desktop\FINTECH\Fintech.sav

Scale: FI

Case Processing Summary

		N	%
Cases	Valid	196	100.0
	Excluded[a]	0	.0
	Total	196	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.873	7

Notes

Output Created		23-SEPT-2022 19:38:28
Comments		
Input	Data	C:\Users\ok\Desktop\FINTECH\Fintech.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	196
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT FI /METHOD=ENTER TI ST PD.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00
	Memory Required	2532 bytes
	Additional Memory Required for Residual Plots	0 bytes

Regression

[DataSet1] C:\Users\ok\Desktop\FINTECH\Fintech.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method

1	PD, TI, ST[b]	.	Enter

a. Dependent Variable: FI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.879[a]	.735	.724	.54484

a. Predictors: (Constant), PD, TI, ST

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.698	3	9.566	32.225	.000[b]
	Residual	56.996	192	.297		
	Total	85.694	195			

a. Dependent Variable: FI

b. Predictors: (Constant), PD, TI, ST

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.726	.282		2.572	.011
	TI	.205	.078	.190	2.625	.000
	ST	.570	.113	.491	5.068	.000
	PD	.470	.102	.460	4.464	.003

a. Dependent Variable: FI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.726	.282		2.572	.011
	FA	.345	.078	.190	2.625	.001
	FS	.310	.113	.491	5.068	.000
	FR	.270	.102	.460	4.464	.002

a. Dependent Variable: FI