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Novelties and Benefits of Fintech in the Financial Industry

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ABSTRACT

New technologies and innovations that are emerging and developing today through the financial industry can be called by one name and that is FinTech. The main feature of FinTech is digital proximity, where the relationship between customers and banks changes from physical proximity to digital proximity. Recognition of new digital technologies available to the financial industry and ultimately their implementation can lead to an increase of operational efficiency and business excellence. The objective of this work was (1) to study and explore the importance of digitalization and digital transformation and its impact on FinTech, (2) to analyze and explore Fintech's innovation and novelty areas in the financial sector, and (3) to ensure a review of the research literature in these field. However, there is still a lack of research that correlates FinTech and the financial industry, which is evident from the review of the presented researched literature.

KEYWORDS

Bitcoin, Blockchain Technology, Digital Transformation, Digitalization, Financial Innovations, Financial Market, Neobanks, Virtual Banking

INTRODUCTION

Digital transformation in the financial industry creates the new term FinTech, which is a component of the two words "finance" and "technology", that is, FinTech is a combination of digital technology and financial services. FinTech" provides and enables flexibility, security, greater capabilities, and greater efficiency than existing traditional services and products in the financial industry. FinTech today offers a wide range of products available to companies. Due to a large number of innovations in this area companies following their interests and needs should recognize and know in which areas of FinTech to invest (eg, digital wallets, peer-to-peer lending, e-insurances, bitcoin, artificial intelligence) but also in which geographical areas (Jiao et al, 2021). The research of Pizzi et al (2021) reveals that FinTech has a significant role in the transition of SMEs, which leads to sustainable business, ie the application of a sustainable business model that leads to better connection and integration of the circular economy. "FinTeh" today includes some of the significant areas such as bitcoin and blockchain technology and a novelty in the financial market that are so-called "neobanks", banks without physical locations. Research by Yao and Song (2021) and Wang Y. et al. (2021) proves that FinTech has an impact on the profitability of different types of commercial banks, which leads to increased profitability, financial innovation, and improved control of risk. The financial industry is

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a fast-growing industry where innovation is of utmost importance for the growth and development of this industry.

The financial industry and banks were among the first to embrace digital business to meet the needs of customers who do not want to function without digital interaction where today every bank has some form of digital products to ensure and achieve interactive communication and minimal physical contact. How banks will and whether banks will adopt and incorporate new innovative services within their operations largely depends on the behavior of bank consumers. Under the influence of bank consumers, banks assess the impact of expected performance and effort, risk, and how these aspects affect FinTech's adoption of innovations (Mangini et al., 2021). Given that digital and financial technologies are changing the basic concepts of banking, banks must recognize and make the right investments in financial technologies to achieve and maintain a competitive advantage (Nurbekovich et al., 2020). Through this research, some key areas of FinTech have been explored, such as blockchain technology, bitcoin, cryptocurrencies, neobanks, and their impact on the financial industry.

This paper aims to explore the process of digital transformation in the field of development and application of new technology and the development of innovations in the financial industry that are rapidly evolving daily and pose a great challenge in front of the financial industry. Systematic literature review was conducted to provide an overview of the relevant areas and products of FinTech, and their supporting technologies. To collect data following phrases were used and that is ("digitalization" OR "digital transformation") and ("FinTech", "Blockchain Technology", or "Neobank"). The collected papers were analyzed to review the representation of FinTech in the financial industry and its association with the digital transformation of business.

This paper is sectioned into three parts. The first part of the paper is dedicated to understanding basic terms related to digitalization and digital transformation of business. The second part is focused on FinTech, Blockchain Technology, Bitcoin, Neobanks, and Virtual banking via neobanks. In this second part, some of the products and novelties of FinTech are described; used methodology and a literature review are presented. Lastly, the third part is a discussion about the conducted research, conclusion, and recommendations. The goal of the paper is to present a systematic review of papers that present new digital technologies and key areas of FinTech with the application of FinTech and innovation in the financial sector. In our research, we focus on papers in the fields of banking and finance, business and management, and ICT technology.

THEORETICAL BACKGROUND

DIGITALIZATION AND DIGITAL TRANSFORMATION

Digitalization can be defined as the use of digital technologies and data (digitized and originally digital) to generate revenue, improve business, transform business processes, and create an environment for digital business in which digital information is crucial (Clerck, 2017). Thomas et al. (2016) describe and defines digital transformation as a new direction and way where digital technologies can make changes in companies business model its products and process but also make changes in the company organizational structure. The traditional approach of doing business today is replaced with the so-called concept of digital business transformation that includes and bases business on new business models that can affect the efficiency, effectiveness, and economy of the entire organization (Vial, 2019).

Digital transformation is a business phase in which digitalization enables new forms of creativity and innovation in a particular field. We can say that digital transformation is the name for the integration of digital technology in all areas of business that changes the way we do business and provide services to customers (Henriette et al., 2016). Digital business transformation is a change in the system and business processes of the organization where the application of digital technology changes the entire business system and moves to a "paperless" business. The digital transformation

of business affects almost all companies and industries that want to gain a competitive advantage in the market. The digital transformation of business reflects and creates changes at all levels of the organization, changes the resources and capabilities of the company (Yeow et al. 2018), creates changes in company leadership, and introduces and creates a new form of culture within the company so-called digital culture (Singh and Hess 2017; Llopis et al. 2004).

Digitalization and digital transformation of business greatly affect and change the way financial institutions work, so the digital revolution leads to the adoption of new, modern, and digital technologies to reduce business costs but also provides greater visibility and recognition in the market. For a company to be able to approach the adequate implementation of digital business transformation, it is necessary to create the preconditions for it, which include the creation of the necessary organizational knowledge (Mizintseva, Gerbina, 2018). Many authors give a review and explanation about the digital transformation of business claiming that the use of new digital technology such as social, mobile, analytical, cloud, and Internet of things are key factors by which companies can improve their business performance, create and increase the added value of a company, ie transform and change their business models and way of doing business from traditional to digital business (Li, 2018; Westerman et al. 2014; Sebastian et al. 2017).

The implementation and later application of new technologies also require the adaptation and education of the employees of the organization to acquire the necessary knowledge and accordingly continue to be competent in carrying out business tasks and activities (Nyikes, 2018). The process of digital business transformation implies the creation and establishment of a relationship between corporate strategy and digital strategy, which is a key step in further managing and promoting the digital transformation of business (Porfírio et al. 2020). New modern and digital technologies affect companies in different ways or increase their efficiency if the technology is recognized and integrated within the company in the right way or it interferes if companies are not aware of their potential and if they do not understand digital technology itself and the effects of digital transformations processes (Saarikko et al. 2020).

FINTECH

FinTech is a combination of two words, finance and technology, and is beginning to emerge in the 21st century. It is a term to describe new technologies that seek to improve and automate the delivery and use of financial services. According to Arner et al. (2015) FinTech refers to the technological or digitalization process of financial solutions, and it is growing globally very fast. In comparison to traditional financial services, FinTech is a new practice in the financial industry that requires new innovative solutions, new business processes, new regulations, and protection. FinTech presents several applications and tools in the financial market, of which the most attractive today are Bitcoin, Blockchain, Cryptocurrency, Artificial intelligence.

Companies that are developing financial technology are developing globally and at a very high speed and especially in the area of the payments market (Dietz et al., 2016). Also, the development of FinTech capabilities and related technologies makes it easier for starting startup companies that also offer some of the alternative sources of financial services (Fenwick et al., 2017). FinTech is making full use of all the technological advancements available, so there are problems with traditional banks' operations that are not at the level of using new FinTech technologies. Some of FinTech's most popular applications in 2019 are Venmo, Western Union, WorldRemit, Azimo, PayPal.

FinTech facilitates access to new financial services, that is, through FinTech is facilitated faster and cheaper access to capital, especially through mobile financial applications. The adoption, acceptance, and ultimately use of this type of new technology and innovation is higher in the younger population, who are more inclined to accept and use the novelty than the older population. FinTech reflects on the users of the service, the service providers but also on the regulation and the need to capture and regulate the implementation of FinTech. The younger generations prefer FinTech

technologies and are more inclined to innovations and to do business through financial applications, while less preferring to contact and do business with traditional banks. Authors Abu Daqar et al. (2020) researched Millennials and Gen Z's perception toward FinTech services, their usage intention, and their financial behavior. Research shows that the population of Millennials and Gen Z rely on and considered reliability/trust and ease of use as the main factors in using a financial service (Abu Daqar et al., 2020). Research conducted by Jünger and Mietzner (2020) highlights the importance and factors that determine the adoption of new digital technologies, and according to their research, the adoption of new technologies depends on confidence in innovation, transparency, and financial level of education and expertise. Research conducted by Singh al. (2020) regarding the acceptance and use of new technology comes to the realization that perceived usefulness and social impact are key determinants of the use of FinTech services where the technology acceptance model (TAM), unified theory of acceptance and use of technology (UTAUT), ServPerf and WebQual 4.0 were used to prove the above.

Table 1. Overview of some of FinTech's new products in the banking sector

FinTech innovations	Description
• Hybrid cloud	• Provides banks with greater flexibility in data management, security, and compliance, and improves operational efficiency.
• API (Application Programming Interface) platform	• Ensures the construction and implementation of new digital channels and the improvement of the service offer.
• Automation of robotic processes	• This type of innovation reduces the manual workload of employees where the software robot performs strenuous tasks.
• Artificial Intelligence	• Ensures the detection of fraudulent transactions and thus improves compliance.
• Blockchain	• In the banking sector, the use of cryptocurrencies is increasing and blockchain technology has the effect of reducing processing costs.
• Quantum computing	• The application of quantum computing in the banking sector may affect the acceleration of solving complex banking budgets
• VR (virtual reality) and AR (augmented reality)	• In the banking sector, AR and VR enable stakeholders and service users to visualize data and services through projection.

Source: Authors' work.

The FinTech revolution has encompassed the global market, and it's most affecting the financial and banking sectors, which is a very big challenge for the survival of traditional banking (Wang X. et al., 2021). The rise and development of FinTech and its acceptance in business processes can improve business operation in traditional banks in areas such as lower operating cost, better customer service affecting its efficiency, but also build up risk control capacity (Wang Y. et al., 2021). Implementation of technological innovations can improve business through the possibility of applying advanced information and communication technologies as well as process automation, which as a consequence can increase the efficiency and effectiveness of organizational processes (Buntak et al., 2019). FinTech services and products cause numerous disturbances in the financial market but also bring many benefits and advantages, offer new financial solutions and new business models and affect the way customers pay, send money, invest and borrow (Anshari et al. 2020).

Ensuring sustainable development today is one of the key tasks and goals of any company and any industry where innovations like FinTech can ensure doing business with the application of sustainable business models which can lead to the practice of a circular economy (Pizzi et al., 2020). FinTech provides many advanced technologies and innovations that create new ways of doing business but also

carry with them potential risks where it is necessary to ensure regulation and consumer protection, which will ensure financial stability within the financial industry and create confidence in FinTech products (Jagtiani and John, 2018). Financial markets are highly regulated, where due to the growth and development of FinTech, regulators need to strengthen governance mechanisms to support FinTech innovations and to regulate changes caused by FinTech (Alaassar et al., 2020). Under the rapid and continuous development of FinTech, it is necessary to adjust regulations and monitor the development of digital products of FinTech where one of the initiatives is RegTech, software that uses big data and artificial intelligence to control and prevent illegal activities but also for compliance with regulations (Machkour and Abriane, 2020).

RESEARCH APPROACH

In our research, we have used the literature review, as a means to summarize past findings in a research field, in our case findings of FinTech and FinTech's innovation and novelty areas in the financial sector. Our selection process of the papers for the literature review is presented in figure 1. First, we identified relevant databases for our research, and we have decided to focus on the peer-review journals that are cited in Scopus and WoS (SSCI and SCI papers). Tables 2 and 3 present our search strategies in WoS (SSCI and SCI) and Scopus, with the period (2015 – 2021). We conducted a search using the scientific databases Web of Science (WoS) and Scopus in January 2021. Through the first part of the search, we checked WoS and Scopus using keywords: "FinTech" AND " Blockchain Technology", or "Neobank" AND "digital transformation". The search was focused on peer-reviewed papers in journals in English language. This approach resulted in 404 hits (349 in Scopus and 55 in WoS).

Table 2.WoS (SSCI, SCI) search strategy (2015-2021)

Search strategy	Hits	Time span	Indexes
((FinTech) AND (Blockchain Technology or Neobank) AND (digital transformation))	55	2015-January, 2021	SCIEXPAND., SSCI, A&HCI, ESCI
Refined by: WoS CATEGORY (Business & Economics)	24	2015-January, 2021	SCIEXPAND., SSCI, A&HCI, ESCI

Source: Authors' work

Table 3. Scopus search strategy (2015 – 2021)

Search strategy	Hits	Time span	Indexes
TITLE-ABS-KEY (FinTech) AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))	349		Scopus
AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))	124		Scopus

Source: Authors' work

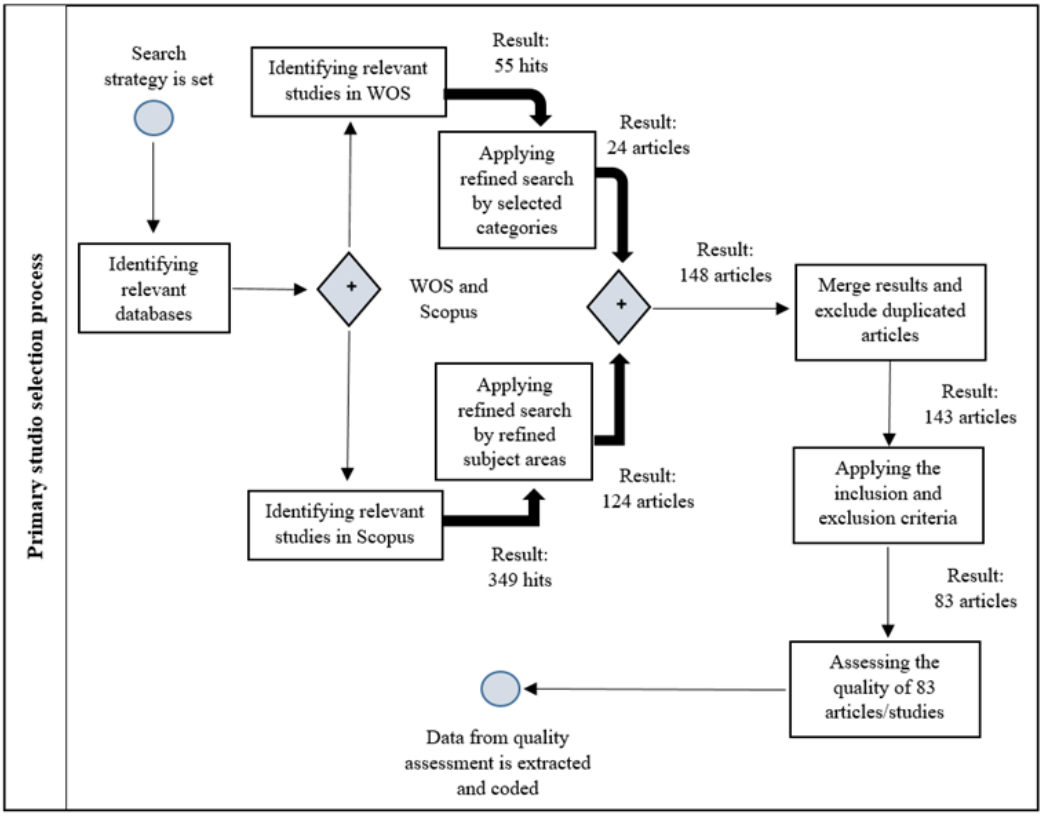
In the next step, the search strategy was refined. Since FinTech is applied in different avenues of scientific research, we decided to limit our research to papers in the fields of banking and finance,

business and management, and ICT technology. This criterion was related to Scopus subject areas and WoS categories (Table 2 and 3). The following WoS categories are used: Business Horizons, Technology In Society, Applied Economics Letters, Industrial Management And Data Systems, Journal Of Entrepreneurship And Public Policy, Studies In Economics And Finance, Ieee Access, European Journal Of Finance, International Journal Of Production Research, Or China Economic Journal. The following Scopus categories are used: Technological Forecasting and Social Change, International Journal of Business Intelligence Research, Research in International Business and Finance, Economics of Innovation and New Technology, Journal of Science and Technology Policy Management, International Journal of Finance and Economics. This approach resulted in 148 hits (124 hits in Scopus and 24 hits in WoS).

In our analysis, we have included 148 papers (24 from WOS and 124 from Scopus). However, after merging all papers, we excluded 5 papers that were found in both databases. Therefore, 143 papers remained for the analysis. After reviewing the abstracts and keywords of all 143 papers, we eliminated papers that did not report the description of FinTech and FinTech's innovation and novelty areas in the financial sector. We used the following criterion that the paper was considered relevant if it specifically covers the FinTech technologies and case study about FinTech technologies.

Finally, after applying this exclusion criterion 83 publications remained, and they represent the basis for our further analysis. Next, we extracted and coded relevant data of surveys (e.g. authors, title, and journal, year of publication, FinTech areas, FinTech products) for our analysis.

Figure 1. The selection process of the papers for the literature review



RESULTS

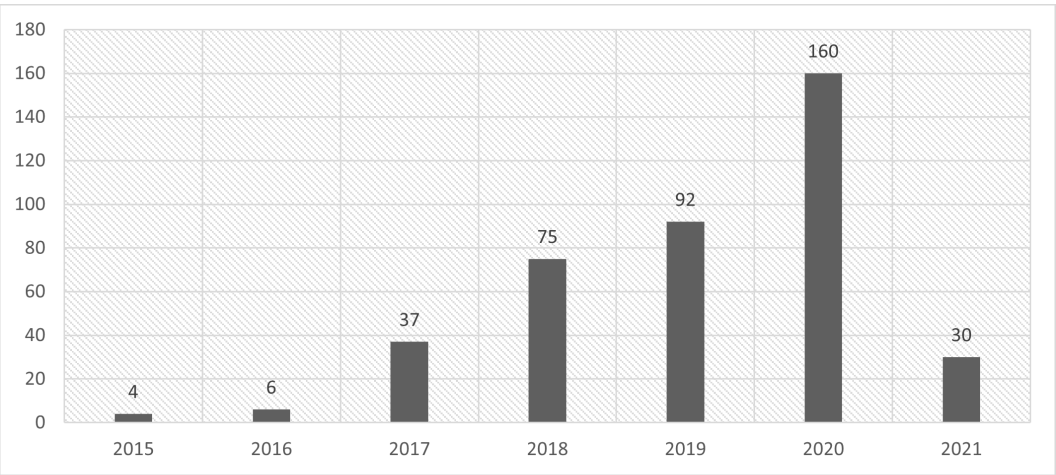
The objective of this work was (1) to study and explore the importance of digitalization and digital transformation and the impact on FinTech (2) to analyze and explore FinTech's innovation and novelty areas in the financial sector, (3) to ensure a systematic review of the research literature in these fields. To achieve the set goals, numerous world literature was analyzed, which explores the field of digital transformation and FinTech.

Many international types of research have recently dealt with and studied FinTech's topic and area of digital transformation and the degree of development of this kind of innovation. Today, FinTech is the subject of numerous researches and topics of numerous authors through various fields. Numerous studies dealing with this topic have shown the impact of digital transformation on FinTech and the degree of development and importance of numerous novelties and innovations. However, there is still a lack of research that correlates FinTech and the financial industry, which is evident from the review of the researched literature.

Figure 2 depicts the annual number of publications from 2015 – 2021. A growing trend of published papers is revealed. A growing trend in this area is from 2018 until 2021 where 357 articles were published regarding the FinTech area and FinTech technologies, where most of the papers (160) were published in 2020.

GENERAL APPLICATION AND CASE STUDIES USING FINTECH

Figure 2. Number of papers published per year with described FinTech area and FinTech technologies



Relevance of financial technology (FinTech) and its application is the result of numerous studies in many areas but it is also the result of research studies that cover the case studies about its acceptance, application, and qualitative assessment in practice (Table 4).

GENERAL APPLICATION IN THE FINANCIAL INDUSTRY – ACCEPTANCE AND INNOVATIONS

Table 4. General application and case studies using FinTech

FinTech	Source	# of papers
General application in the financial industry – acceptance, and innovations	Rasiwala and Kohl (2021); Le et al. (2021); Mangini et al (2021); Anshari et al. (2021); Pan et al. (2020), Albayati et al. (2020); Corbet et al. (2020); Senyo and Osabutey (2020); Fung et al. (2020); Akyildirim et al. (2020); Kimani et al. (2020); Singh et al. (2020); Dozier and Montgomery (2020); Zhang (2020); Chang et al (2020); Ramdani et al. (2020); Shaikh et al. (2020); Zhang et al. (2020); Arli et al. (2020); Liu et al. (2020); Khiaonarong and Goh (2020); Farrow (2020);; Chen and Bellavitis (2020); Shoaib et al. (2020); Du et al. (2020); Vučinić (2020); Knewtson and Rosenbaum (2020); Zukowsky (2020); Sannino et al. (2020), Yoon and Lim (2020); Kumar et al. (2020); Yoon and Joung (2020), Fosso Wamba et al. (2020); Huynh et al. (2020), Mosteanu and Faccia et al. (2020); How et al. (2020) Waliszewski and Warchlewska (2020), Dhote et al., (2020), Salah et al. (2019); Boratyńska (2019); Hua et al. (2019); Caton (2019); Dolan et al. (2019); Zheng et al. (2018); Cheng et al.(2018), Chiu (2017); Gabor and Brooks (2017)	46
A case study in the financial industry	Teng and Khon (2021), Wang X. et al. (2021); Wang Y. et al. (2021); Razak et al. (2021); Chen et al. (2021); Garg et al. (2021); Yao and Song (2021); Pu et al. (2021); Utami and Ekaputra (2021), Bu et al. (2021); Boulianne and Fortin (2020); Nurbekovich et al. (2020); Kadam and Sethi (2020); Son et al. (2020); Rabbani and Khan (2020); Nguyen et al. (2020); Asmarani and Wijaya (2020); Kim Lien et al. (2020); Ozili (2020); Kolokas et al. (2020); Baber (2020); Cojoianu et al. (2020); Roszkowska (2020); Saraswati et al. (2020); Okoli (2020); Okoli and Tewari (2020); Ozili (2021), Belozyorov et al. (2020); Saiedi et al. (2020), Hornuf et al. (2020); Feldman (2020); Anshari et al. (2020); Zhang and Kim (2020), Suryanto et al. (2020); Muthukannan et al. (2020); Wingreen et al. (2020)	37

Source: Authors' work

FinTech, a combination of technology and finance, create new business models that differ from existing traditional models by combining innovation and advanced digital technologies. Acceptance, implementation, and ultimately the use of novelties provided by FinTech are the subject of research by several authors by presenting models of acceptance of new technologies and factors that affect their acceptance and use, both by the environment and by the organization itself. The acceptance and implementation of new modern and digital technologies require the study of the environment and consumer behavior from the aspect of the acceptance of new technologies. Authors Albayati et al. (2020) explore the acceptance and adoption of new technologies (blockchain and cryptocurrencies) using the technology acceptance model (TAM) adding to the new external variables related to blockchain adoption characteristics such as trust, regulatory support, social impact, design, and experience. They lead to a positive correlation between regulatory support and experience that foster customer confidence in blockchain-based applications. Similar findings are reached by the author's Shaikh et al. (2020) who also use the TAM model to examine which factors are key in the acceptance of FinTech services, where adoption depends on the ease of use, perceived utility, and costly innovation. Factors influencing the acceptance of new technologies by consumers are investigated by the authors Yoon and Lim (2020) where through factor analysis they developed a model that assumes

the factors influencing the application of new technologies. Using a framework for assessment based on the unified theory of acceptance and use of technology model acceptance, the authors Anshari et al. (2021) presented that the key factor in accepting the novelty of FinTech (digital wallet) attitude towards using technology and anxiety.

Innovations such as blockchain technology, cryptocurrencies, virtual/digital banks, neobanks, digital wallets are just some of the FinTech products and are the most remarkable technological innovations of the 21st century. Several authors studied the mentioned area and present the results of studies claiming that FinTech products (blockchain technology, bitcoin, cryptocurrencies, virtual/digital banks, digital wallets) improve business operations, increases efficiency, reduces operating costs (Kimani et al., 2020) create new business models (Dozier and Montgomery, 2020), change consumer expectations and preferences while increasing the number of users (Vučinić, 2020), improve the analysis and processing of data by creating new financial models thus promoting the efficiency and quality of financial operations with the integration of human resources (Zhang et.al, 2020). To better understand new technologies, companies need to be constantly researched in the direction of their use and the benefits they provide to be able to make the best use of new technologies in the direction of optimizing business processes and business strategy (Fosso Wamba et al., 2020). Arli et al. (2020) deal with trust in cryptocurrencies proving that consumers trust cryptocurrencies if they take place via a central issuer and are regulated by their respective governments. Research Vučinić (2020) indicates that although there is space for further expansion of financial services in the area of FinTech they also pose risks to the financial system in terms of microfinance and macro-financial risks. All conducted research taken into account through the literature review in this paper deals with, explores the financial industry and related innovations revealing several benefits, and advantages that digital technology ie FinTech provides.

CASE STUDIES IN THE FINANCIAL INDUSTRY

FinTech is a generator of new financial products and services based on technology and finance that are evolving very fast and changing the foundations of the financial industry. The role of FinTech in the financial industry as well as the importance of its related products and services can be observed through several authors who observe FinTech through a case study. Research can be divided into those that deal with the importance and benefits of FinTech within the financial sector (banking industry) and those who explore FinTech within the financial sector (banking industry) of a particular country. Authors Garg et al. (2021) based on 291 respondents and using factor analysis examine the benefits of using blockchain technology in the banking sector and define the factors for their measurement. According to the conducted research, they developed a model that can measure the usefulness of blockchain technology before its integration into the existing system. The authors Belozyorov et al. (2020) explore the opportunities, potential risks, and challenges associated with the development of digital financial technologies (FinTech). To determine the above, they define developmental scenarios of innovative financial technologies and their impact on global financial markets.

Chen et al. (2021) and Yao and Song (2021) investigate the impact of FinTech and FinTech products on the performance of commercial banks in China. Chen et al. from the perspective of customers and employees perception of FinTech products, Yao, and Song (2021) from the impact FinTech on different sizes of banks through the application of FinTech perspective in China during the period 2011 – 2019. Chen et al. (2021) conclude that the perceived usefulness of FinTech products has a positive impact on customer satisfaction but also low employee expectations for FinTech products. Zhang et al. (2020) also explore FinTech in Chinese commercial banks observing credit risk and the impact of FinTech in mitigating these risks leading to a positive correlation. Authors Nurbekovich et al. (2020) explores the development of FinTech's market in Kazakhstan, stating that Kazakhstan's banking industry does not invest properly in FinTech while the government is doing so. Still, FinTech's penetration in the Kazakhstani market is significantly below the level of

developed economies. Resistance to FinTech is shown by the Rabbani and Khan (2020) study where Islamic banks considered FinTech as competition to their business but it was proven that FinTech has an impact on Islamic banking and that banks need to accept FinTech to be agile, competitive, and aggressive. While Baber (2020) explores how to how to retain customers by using FinTech in Islamic banks of Malaysia. Nguyen et al. (2020) and Kim Lien et al. (2020) explore FinTech in Vietnam. Nguyen et al. (2020) through their work present and identify the key challenges faced by FinTech companies in Vietnam, namely, legal regulations, infrastructure, FinTech companies, customers, and human resources. Kim Lien et al. (2020) explore and define the factors that influence the intention of customers to use FinTech services and products and state that these are perceptions of utility, social impact, customer trust, and ease of use.

BUILDING BLOCKS OF FINTECH PRODUCTS

Based on the results of the analysis of FinTech novelties and FinTech technologies its elements are mapped to four categories that seemed likely to explain most of the important parts of the FinTech area (table 5).

As it can be seen most of the paper research is in the field of blockchain technology and cryptocurrencies (most regarding bitcoin). Areas such as artificial intelligence, virtual and digital banks are explored at a lower rate. Virtual banks for example neobanks as one of the newer FinTech products are insufficiently researched through the scientific literature, which is a recommendation for further research in this area.

Table 5. Building blocks of FinTech products

Bulding blocks	Sources	# of papers
Blockchain	Garg et al. (2021); Pan et al. (2020); Albayati et al. (2020); Corbet et al. (2020); Caton (2019); Salah et al. (2019); Dolan et al.(2019); Zhang et al. (2020) Akyildirim et al. (2020); Kimani et al. (2020), Du et al. (2020); Dozier and Montgomery (2020); Shoaib et al. (2020); Zhang (2020); Chang et al (2020), Chen and Bellavitis (2020); Fosso Wamba et al. (2020); Mosteanu and Faccia et al. (2020); Huynh et al. (2020); Zheng et al. (2018);	21
Cryptocurrencies	Le at al. (2021); Corbet et al. (2020); Huynh et al. (2020), Wingreen et al. (2020); Arli et al. (2020); Mosteanu and Faccia et al. (2020);	6
Technology support (Big data, cloud, artifical intelligence)	Wang Y. et al. (2021); Farrow (2020); Rasiwala and Kohl (2021); Waliszewski and Warchlewska (2020); How et al. (2020), Cheng et al. (2018); Zukowsky (2020); Ramdani et al. (2020), Mosteanu and Faccia et al. (2020), Huynh et al. (2020)	10
Banking support (Virtual banking, neobanking, open banking, digital wallet)	Mangini et al. (2021); Son et al. (2020); Farrow (2020); Feldman (2020), Dhote, et al., (2020), Suryanto et al. (2020); Teng and Khon (2021), Anshari et al. (2021);	9

Source: Authors' work

BLOCKCHAIN

Blockchain is a new technological innovation, a new technology that works through a platform that enables multiple applications in economic transactions. The most common definition is that it is an accessible decentralized database in which transactions are performed anonymously. To put it simply,

blockchain means an automated system of shared data. Blockchain technology covers the role of the ledger in which each transaction is recorded. Every system that uses blockchain technology is built according to a peer-to-peer system (Cunjak Mataković and Mataković, 2018). There are many authors and definitions of Blockchain technology. Chen et al. (2019) deðned blockchain as "distributed ledger technology, including cryptocurrency technology (e.g. Bitcoin), as well as other blockchain technology with a primary application to ðnancial services." Chuen (2017) believed blockchain to be "the main game-changer" in the fourth industrial revolution. Bitcoin is the most widespread type of cryptocurrency and after 2013. it is gaining popularity after the fall of some banks and problems with trust in financial institutions. Companies understand the importance of new technologies, including the importance of Bitcoin as one of the key factors to gain a competitive advantage, while organizations continue to explore how to use new technologies and how to use bitcoin to optimize business strategies and quality management (Fosso Wamba et al., 2020). According to the author's Du et al. (2020) bitcoin has the following characteristics: "decentralization, stability, security, anonymity, and non tampering". Research conducted by Garg et al. (2021) by applying factor analysis investigates and measures perceived business benefits of blockchain technology implementation in the banking sector and establishes factors to measure these benefits thus proving a positive correlation. Research on the application of blockchain technology in various areas such as banking and capital markets, corporate governance, international trade, and taxation shows how blockchain technology in all researched areas improves business operations, increases efficiency, and reduces operating costs (Kimani et al., 2020).

Cryptocurrency is a trusted digital currency (the equivalent of digital money). Trust is important here because of the distrust of traditional financial institutions after the great crisis in 2008. Cryptocurrency trust is gained by solving a particular cryptographic problem. The main problems are that trust is value, and value brings money (Sajter, 2018). Cryptocurrencies are cryptographic mechanisms that generate and mark transactions using private and public keys. Each transaction contains security in the form of a digital signature that generates from a combination of message and private key transactions, which means that signatures are different, and breaking the code is impossible without the original private key. What sets this money transfer method apart is its simplicity because everything is done online. Also, the simplicity is that transactions are not executed through third parties such as banks and other institutions (Cunjak Mataković and Mataković, 2018). Cryptocurrencies have become more widespread in recent years and are one of the most significant financial innovations in the first half of the 21st century while the first cryptocurrency is Bitcoin. Among the existing cryptocurrencies, bitcoin is the most prominent and recognizable currency. Authors Albayati et al. (2020) explore the field of blockchain technology and bitcoin from the aspect of its acceptance among users. Through research, they prove that trust in the application of this technology among users depends on regulatory support and experience, ie users trust more FinTech applications based on Blockchain if they are regulated and insured by the local government (Albayati et al., 2020). The authors Arli et al. (2020) argue that banks need to use their resources to be able to invest in the promotion of factors such as knowledge of new technologies, trust in government, and the speed of transactions that encourage the intention to invest in cryptocurrencies. Blockchain technology affects the financial market and the financial industry in terms of identifying customer lending conditions, restructuring the credit system, but also improving the monitoring of cross-border payments (Zhang et al., 2020).

In today's competitive environment of commercial banks, blockchain technology enables the optimization of business processes regarding financial services, which is why banks are increasingly investing in the adoption and application of blockchain technology (Chang et al., 2020). Blockchain technology and with it cryptocurrencies change the financial system and influence the business and thinking of investors, as one of the key stakeholders in the financial market. The digital revolution is influencing new ways of thinking about business portfolio management, which leads to the creation of new strategic directions and strategies that determine new investments in FinTech (Ma et al., 2020). Blockchain technology and cryptocurrencies are changing the way of doing business, while there is still a certain level of uncertainty in their use, ie the adoption of blockchain technology in business

and the execution of transactions involving cryptocurrencies. Since most research highlights the benefits of blockchain technology in terms of improving production processes and reducing costs, the empirical research conducted on a sample of 50 companies by Pan et al. (2020) demonstrates how the application of blockchain technology in a company affects the reduction of sales costs and results in an increase in assets return rates. Blockchain technology is becoming the foundation for new decentralized business models leading to the growth of decentralized financial services that are becoming more innovative, transparent, and open. Financial services empowered by blockchain technology create new opportunities for innovators and financial markets (Chen and Bellavitis, 2020).

TECHNOLOGY SUPPORT (BIG DATA, OPEN BANKING, CLOUD, ARTIFICIAL INTELLIGENCE)

Digital transformation implies the implementation and use of big data, clouds, artificial intelligence. Big data is a technology used to collect, process, and analyze large amounts of data. Today, organizations collect large amounts of data that they store in a database. To be able to manage the collected data in the function of making business decisions, there is a need for their analysis using mining techniques. Research by Cheng et al. (2018) confirms that big data and mining techniques through identified and analyzed data lead to improved production and business processes and quality growth. Authors Wang Y. et al. (2021) assess the impact of financial technologies on the banking industry by emphasizing big data. They realize that FinTech greatly improves the efficiency of banking services, creates business models that improve customer orientation, and ultimately improves competitiveness. Of course, outcome levels depend on the level of use of financial innovation.

Big data we can connect with open banking. Open banking is also known as "open bank data." Open banking is a banking practice that provides third-party financial service providers open access to consumer banking, transaction and other financial data from banks and non-bank financial institutions with application programming interfaces (APIs). Open banking gives consumers' higher control over their financial data and thus allows traditional banks to work with FinTech companies and have greater access to innovative financial tools. Nevertheless, this area requires high consumer data protection and requires some regulatory guidelines and the development of open banking models and technologies (Zukowsky, 2020). Open banking is one of the measures to encourage innovation and competition in the retail-banking sector in the digital environment. Through open banking, numerous new business models are being developed that offer consumers and companies access to personalized financial services (Ramdani et al., 2020). Farrow (2020) describes the specific types of platforms that enable open banking as well as the propensity to use them by outlining the benefits of providing payment services to accounts and third parties when adopting such open banking platforms.

The "cloud" refers to servers that are accessed over the Internet and the software and databases that run on those servers. Artificial intelligence (AI) is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The process of digital transformation leads to the creation of expert systems as well as automated systems based on artificial intelligence. Related to artificial intelligence, the need for robo-advisory services (RAs) has been growing in the financial industry recently, posing a threat to traditional industry (Rasiwala and Kohl, 2021). The use of robotics and artificial intelligence is becoming increasingly important in the financial industry. Artificial intelligence becomes a response to market demands and a significant factor in achieving recognition and competitiveness. The Waliszewski and Warchlewska (2020) study examines consumer satisfaction with personal finance planning using modern technologies. They realize that there is a positive correlation between satisfaction with robo-advisory financial services and consumption analysis, as well as artificial intelligence suggesting improvements.

BANKING SUPPORT (NEOBANKS, VIRTUAL BANKS, DIGITAL WALLETS)

Neobanks

Virtual/digital banks (so-called neobanks) have emerged in the financial industry thanks to the rapid development of FinTech, which combines information and communication technologies and finance (Yoon and Lim, 2020). Neobanks become popular and gain growth in 2017. as new financial technology on the financial market operating only digital and virtual. An interesting study conducted by the author Mangini et al. (2021) shows the relationship of consumers to digital banking in which they presented the behavior of consumers towards digital services where consumers tend to buy digital financial products from competing banks instead of their primary bank. Neobanks are completely digital, they open up a wide window of advantages to a customer they are customer-centric, they provide personalized services to their customers that are fired up via technology. Examples of Neobanks in America are Chime and Simple, while the largest neobanks in Europe are N26 and Revolute. Throughout the text, the Chime and N26 are explained.

Neobank Chime was founded in 2013, with headquarters in San Francisco (California, USA). The founders are Ryan King and Chris Britt. The vision of this Neobank is that each individual has their kind of financial peace, that is, to manage the money, as they want, simply and quickly, without any difficulties. Chime operates with Visa debit cards. With each use of a Visa card, Neobank generates a certain income by paying from the merchant, without being charged from the user. Joining a bank is easy. The first step is filling in the form, then a video call with the operator regarding information that is more detailed and filling in other information. This is followed by the delivery of the bank card. In this case, a Visa debit card arrives at the home address, with which transactions can be made in all places. The biggest advantage of this Neobank (and most of the Neobanks in the world) is that it does not pay monthly maintenance fees or fees for international transactions. Besides, no transaction fees are charged between the two diversified banks, which greatly facilitates a customer without paying unnecessary fees. Their top priority is the security of information and money in the system. For security, the 128-bit AES (Advanced Encryption Standard) encryption, access control, and secure processes are used. The growing proliferation of technology companies offering financial products and services such as FinTech and among them Neobanks, is putting increasing pressure on traditional banks to improve and modernize their business activities and processes and to offer customers novelties in the financial market (Hornuf et al., 2020). The characteristics of financial services, including neobanks, are practicality, security, and flexibility, which greatly affect customer satisfaction, which leads to an increase in the intention to use FinTech products (Zhang and Kim, 2020).

The Neobank N26 was also founded in 2013. The founders are Valentin Stalf and Maximilian Tayenthal. The idea with which Neobank N26 is created was the idea of creating pre-paid cards (called Papaya) for teenagers who purchased various applications on the Apple store (the so-called store that comes with an Apple computer company and their products). Prepaid cards have made it much easier for parents to keep track of costs through an online database. The vision of the Neobank N26 is to transform the way users manage their money with the latest technology and with the help of the best individuals in the profession, working to improve the operations of Neobank. The first product launch was in 2015 when they first opened free bank accounts and cooperated with Mastercard in Germany and Austria. In 2016, they secured a full European-banking license from the European Central Bank. In 2020, they reach 5 million users in 25 markets around the world, placing them among the leading Neobank in the world. With their market positioning, they have spread all over the world. The Neobank N26 is a mobile-operated that manages a moving bank account where money is spent in real-time. The account is opened via a mobile device on the website of Neobank N26. When opening an account, one of the three offered options is selected. The first option is free, while the other two charge monthly fees for maintaining the account. After selecting one of the options, each user receives a Mastercard debit card, accepted worldwide, at their home address. Transactions are easily made through the same mobile application, and all transactions (despite different banks) are

immediately visible. For Card security, Mastercard SecureCode's 3D Secure is used to help prevent online payment fraud. Additional protection for an application on a mobile device is by setting a fingerprint where only the actual user of that account can log in to the Neobank mobile application. Neobank is under the supervision of financial market regulators and meets all European regulatory requirements. Each user is guaranteed protection up to 100,000 € by the Deposit Protection Fund. One of the key problems in the FinTech industry is the issue of regulation, so the authors of Bu et al. (2021) deal with the field of FinTech regulation and provide constructive policy proposals to promote effective FinTech innovation regulation and how to achieve a balance between regulation and innovation.

Virtual Banking Via Neobanks

Precisely through the virtual mode of operation and performance of banking services, neobanks enable the performance of most things that even a conventional bank can, but without physical branches. Authors Mangini et al. (2021) explore the adoption and use of new technologies and a new type of banking services in the field of virtual banks. The mentioned research proves that market communication between banks and consumers creates new opportunities and expectations in terms of acceptance of novelties, but also affects performance and reduces risk (Mangini et al., 2021). Digital channels and digital banking create greater and better interaction between the client and the bank and provide opportunity benefits for both parties (Son et al., 2020). The neobank business model is usually aimed at a technologically smart customer who usually wants a simpler and more affordable way to manage money. Virtual banking can use Apple Pay and Google Pay applications. This allows the customer to pay by mobile phone instead of paying by card or cash. Mobile payment, which is an advantage of virtual banking and neobanks, is an objective and fastest payment and is no less secure than card payment. The mobile phone contains virtual and copies of physical cards in the payment applications, and transfers this information or transactions to the POS device.

To be able to use virtual banking, neobanks assign users one virtual (Visa or Mastercard) card, while at the request of the user a physical card can be obtained, but it must be paid, unlike a virtual card that is assigned free of charge. The emphasis is that in both cases these are debit or prepaid cards, and not credit cards (cards that are specific to virtual banking through, for example, Revolut Bank). The advantage of a virtual card over a physical one is that it also offers a higher degree of security (biometric protection). One of the specifics of virtual banking is the purchase and sale of cryptocurrencies, but also the possibility of various forms of savings. Proof of the need to transform the business in the direction of digital solutions and virtual banking is also confirmed by the coronavirus pandemic, where neobanks have confirmed the need of users for more flexible banking. Global encouragement to 'FinTech is putting pressure on traditional banks and traditionally doing business. Market pressure and new technologies require banks to face new challenges and intense technological competition. The banking industry is expected to apply new digital technologies and advanced analytics, but also the ability to provide systematic and strategic insight into customer needs (Dhote et al., 2020). Customer needs, ie research on the factors that influence the intention of customers to use FinTech services, are the basis for banks to be able to influence the possible non-existence of FinTech services or to improve the quality of existing FinTech services. Kim Lien's (2020) research proves that the perception of the utility, social impact, customer confidence, and ease of use are factors that influence the use of FinTech products, which is also related to virtual banking.

As during the coronavirus pandemic, cash is discouraged in favor of contactless card payments to limit the spread of the virus, the concept of cashless and contactless payment is paramount to success through COVID-19 as well as employee support, which support the operation of neobank products without physical space. From 2017 until today, neobanks have experienced significant hyper-growth in the financial industry, while in the coming period they are expected to secure and prepare a business model that will ensure long-term sustainable and profitable growth. Technology is a part of everyday life, both privately and in business, making much of everyday business smarter

and more efficient. For neobanks to be able to define business models and strategic directions for their further business and development of virtual banking, they must understand the intention of users regarding the adoption and use of virtual banking. Banks need to transform their operations to respond to the challenges posed by the financial market. New advanced information communication technologies and digital technologies provide a better insight into customer preferences, which is why it is necessary to integrate digital and physical environments (Dhote et al., 2020). Through the conducted factor analysis, a positive correlation was proven that FinTech services such as payments, consulting and compliance services affect customer retention, while in traditional banking financing services have no significance on customer retention (Baber, 2020).

Banking is linked to the concept of risk which is associated with the credit activities of banks, therefore the results of research conducted by Zhang et al. (2020) shows that FinTech can mitigate pre-loan risk associated with lending activities but has no significant impact on reducing risk after lending related to lending activities. Research conducted by the author Ozili (2021) links and compares the use of traditional and new financial products with the degree of risk. Research shows that increased use of debit cards, credit cards, and digital financial products reduces risk in the financial sector of advanced and developed countries, but not for transition economies and developing countries (Ozili, 2021). The conducted research deals with the importance of FinTech but also proves that from the aspect of the use of new technologies, there is still a gap between developed and less developed countries.

However, overall the organizations have been able to maximize operational efficiency and greatly reduce costs, while new technologies in the financial industry have affected their profitability (Kumar et al., 2020), which has in the final long-term positive effect on banking performance where the benefits of digital finance and FinTech are visible only if the costs of services are minimal or non-existent (Ozili, 2018)

Virtual Wallets

Virtual wallets are forms of money transfer mechanisms based on software technology that stores user payment data with high security. The advent of digital wallets reduces the need for physical wallets. To own a digital wallet it is not necessary to have a bank account in a traditional bank, which allows for wider financial involvement while all cryptocurrency transactions rely exclusively on digital wallets. Information and communication technologies and, above all, new digital technologies enable fast dissemination and transfer of data and individual and personalized access to each user. FinTech, which today disrupts the financial market in a positive but also a negative segment with its products such as blockchain and digital/virtual wallets, is creating a revolution in the transfer of value around the world (Feldman, 2020). Precisely because of its innovation and many advantages, digital wallets could overtake the need for traditional banking. Research conducted by the author Feldman (2020) suggests that digital wallets could create a large reduction in the market value of commercial banks in the future. Research by Teng and Khon (2021) provides some interesting insights into the use of digital wallets (e-wallet) where we can point out that users are attracted to the use of e-wallets through which they accumulate points for prizes and collect refunds while some of the business models of e-wallets include user interface and customer service with real-time problem-solving. Authors Anshari et al. (2021) investigate and examine the adoption of a digital wallet by an individual, ie measure the level of acceptance and adoption of a digital wallet in the mass application of the digital economy. They conclude that the adoption of digital wallets improves the efficiency of financial institutions and the provision of new services for the convenience of customers.

CONCLUSION

In this paper, the novelties of FinTech have been presented as well as a systematic literature review on the topic of FinTech. Through this paper, the importance of digitalization, digital transformation, and its relation to FinTech is highlighted. This paper provides an overview of FinTech innovations such as bitcoin, blockchain technology that have been researched through the literature, but also provides an overview of innovations and novelties such as neobanks.

Digital business transformation is a change in the way of doing business in which employees and the environment (users) of individual organizations interact with each other, while the process of digitalization differs from organization to organization. The process of digital business transformation includes the implementation and integration of digital technology into the business processes of the organization, which changes the way of doing business and providing services to consumers. FinTech as a result of digitalization and digital business transformation presents numerous tools and innovations that create mechanisms that are designed to create added value and ensure sustainable competitive advantage. FinTech's main goal is to facilitate access to financial services making the financial system more efficient. FinTech implies the help of modern and digital technology that offers to individual a replacement for standard banking services, while on the other hand it solves potential problems and builds a new financial service and innovation in the financial sector. FinTech represents and enables many benefits but carries with it some potential risks that can have an impact on the existing financial industry as well as the business management models in the financial sector.

The results of the presented literature review indicate that new modern and digital technologies are imperative for doing business on the global market especially in the financial industry. FinTech and its products such as blockchain technology, bitcoin, and neobanks affect the business process of a company by increasing operational efficiency and excellence. The idea of the paper was to provide a brief and clear overview of the most important parts of FinTech to make managers and business owners aware of the need to adopt and implement new digital technology that creates radical change and benefits from its application. Although the concept of FinTech is not a new phenomenon, its growth, and development change how companies operate. As benefits of this research, we can point out also some recommendations for further research. This research deals with and explores areas of digital transformation, FinTech, and its products such as blockchain technology, bitcoin, and neobanks while other areas of FinTech are not covered which is a step for further research and its comparison. Besides, this research gives a brief overview of neobanks as one of the newer FinTech products, which has been insufficiently explored through the scientific literature, which is a recommendation for further research in this area.

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APPENDIX A

List of selected papers

Paper ID	Paper reference
1	Razak, M.I.A., Dali, N.A.M., Dhillon, G. & Manaf, A.W.A. (2021). FinTech in Malaysia: An appraisal to the need of shariah-compliant regulation, *Pertanika Journal of Social Sciences and Humanities*, 28 (4), 3223-3233.
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Ivana Martinčević, PhD, is assistant professor at the University North, Department of Logistics and sustainable mobility. She gained her PhD at the University of Applied Sciences Burgenland. She is the author and co-author of numerous domestic and international professional and scientific articles, and has participated in several international conferences.

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