Financial Technology (FinTech): A Theoretical Approach

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Abstract:

This research paper aims to present the key theoretical aspects related to financial technology. In line with this objective, a descriptive approach was used to prepare this study, which is divided into two sections. The first section covers the historical development of financial technology and provides concepts related to fintech and its fundamental importance. The second section addresses the major challenges facing financial technology and its most important future trends.

Keywords: Regtech; Insurtech; Blockchain; Digital lending.

JEL Classification Codes: O30,G20

ملخص:

تهدف هذه الورقة البحثية إلى عرض أهم الجوانب النظرية المتعلقة بالتكنولوجيا المالية، و تماشيا مع هذا الهدف تم استخدام المنهج الوصفي في إعداد هذه الدراسة التي قسمت إلى شقين، الشق الأول ذكر فيه التطور التاريخي للتكنولوجيا المالية، كما قدمت فيه مفاهيم للتكنولوجيا المالية و خصائصها و أهم أساسيتها، بينما تطرق الشق الثاني إلى أهم التحديات التي تواجه التكنولوجيا المالية، و أهم الاتجاهات المستقبلية لها.

كلمات مفتاحية: التكنولوجيا التنظيمية، تكنولوجيا التأمين، البلوكتشين، القرض الرقمي

تصنيفات JEL : O3، G20

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1. INTRODUCTION

The financial crises that have struck major countries over time, starting with the Great Depression of 1929 and culminating in the mortgage crisis of 2008, necessitated the development of systems and laws in several sectors, most notably the financial sector, as a fundamental pillar. It is no longer just about safeguarding money from unethical manipulations, but another goal has emerged: keeping pace with modern technological changes to reduce costs and save time.

The development of the financial industry into what it is today is not a product of the present era alone, but has gone through several stages. It began with the appearance of checks in 1945 in the United States, followed by the issuance of credit cards and ATMs between 1958 and 1967. Subsequently, the advent of the internet played a significant role in the development of the financial industry, leading to the emergence of a field now known as financial technology (Fintech).

When fintech first arose in the twenty-first century, it referred to the technology used in the backend systems of well-known financial institutions, such banks. There was a movement toward consumer-oriented services between roughly 2018 and 2022. These days, fintech encompasses a wide range of fields and businesses, including investment management, retail banking, education, nonprofit fundraising, and fundraising.

Problematic of study

In the aforementioned context, the problem of this study can be formulated as follows:

What are the key foundations and theoretical frameworks upon which financial technology (FinTech) is built in the current era?

And from the main problem arise the following sub-questions:

- What are the key historical milestones of fintech ?
- What are the most important definitions provided for fintech ?
- What are the main segments of financial technology?
- What are the key opportunities available for financial technology and what are the major challenges it faces?

Significance of study

The significance of this study lies in its role as an additional reference for financial technology, by presenting its key milestones starting from its historical development. It will include important definitions of financial technology, discuss the main areas it covers, and address the opportunities and challenges facing financial technology where the descriptive method has been used to prepare this paper as it is the most suitable for such studies, especially since it describes a phenomenon, namely financial technology, and addresses it in detail and comprehensively.

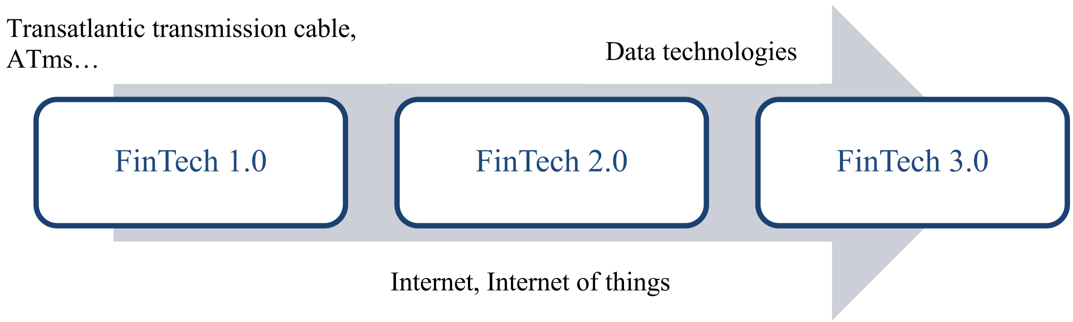
2. The Theoretical Framework of Financial Technology (FinTech)

2.1 Brief History of FinTech Development

The history of technological innovation in the financial sector began with the emergence of checks as a means of payment (1945). Subsequently, the Bank of America produced the first credit card (1958), and ATMs appeared to help process financial transactions in 1967, followed by the issuance of a debit card as a transaction tool. In the 1990s, supported by the advancement of the Internet, Internet banking was launched. In the 2000s, fintech developments of mobile payments and crowdfunding were introduced. (Suryono,R.R, Budi,I, & Purwandari,B, 2020, p. 02)

In brief, there is a close relationship between the development of enabling technology and the growth of FinTech. Key enabling technologies for FinTech 1.0 were mainframe computers and transatlantic transmission cables, among others. These technologies give rise to associated financial technology products like ATMs and SWIFT. The Internet and the Internet of Things were among the linked technologies during FinTech 2.0, but as FinTech 3.0 progresses, an increasing number of data technologies will be created. Right now, FinTech 2.0 and FinTech 3.0 are transitioning from one another (Leong,K & Sung,A, 2018, p. 75)

Fig.1: The development of FinTech



Source: (Leong,K & Sung,A, 2018, p. 75)

2.2 The Concept of Financial Technology

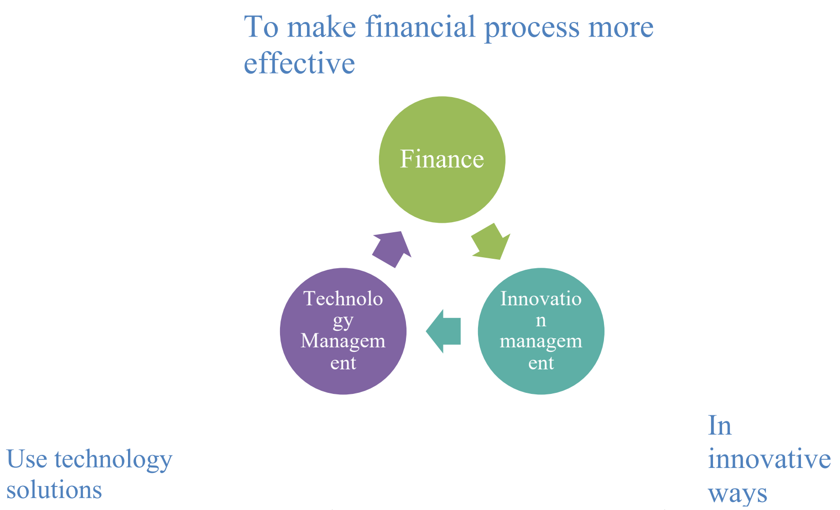
The definitions given for financial technology (fintech) are diverse, and here are the most important ones :

Financial technology is concerned with building systems that model, value, and process financial products such as bonds, stocks, contracts, and money. (Roy S, 2006, p. 01)

According to (Leong,K & Sung,A, 2018) FinTech can be defined as: "any innovative ideas that improve financial service processes by proposing technology solutions according to different business situations"

In general, the following figure presents a definition of financial technology:

Fig.2: The Definition of FinTech



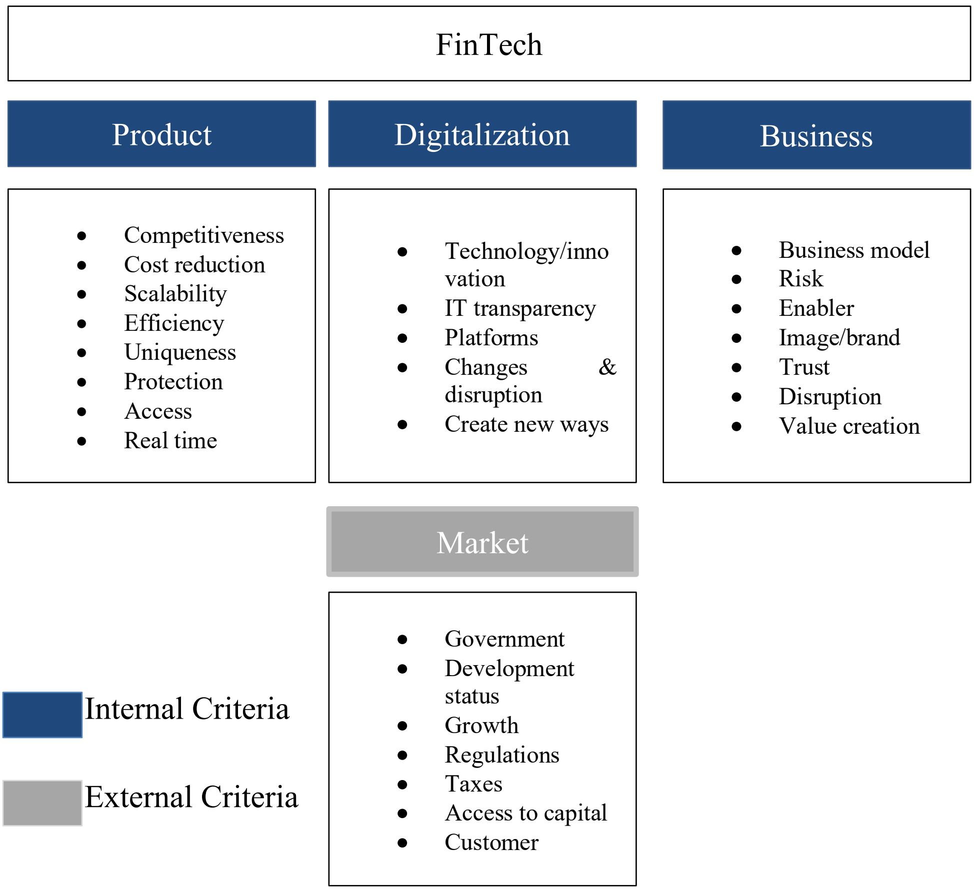
Source: (Leong,K & Sung,A, 2018)

Financial technology (fintech) can be defined as the intersection of finance, technology management, and innovation management. It involves the application of technology to improve and automate financial services, operations, and processes, thereby enhancing efficiency, accessibility, and innovation within the financial industry.

2.3 The main Characteristics of FinTech

The key characteristics of FinTech can be illustrated through the figure below:

Fig.3: Characteristics of FinTech



Source: (Hommel & M.Bican, 2020, p. 04)

2.4 The key Segments of FinTech and global Landscape

The fields of financial technology are diverse, and they are also referred to by several terms, including financial technology sectors or financial technology services.

2.4.1 Digital Lending

Technology-driven nonbank lending is referred to as "digital lending." By presenting enticing new services to potential borrowers, new organizations were able to compete with established banks thanks to their access to vast amounts of data, advanced algorithms, and significant processing capacity.

The type of customer-lender relationship or the technologies employed to screen and keep an eye on borrowers serve as the basis for an explanation of this word. In this instance: − The customer-lender interaction is entirely app-based or online; this type of lending process is quicker, more cost-effective, and more comfortable to use; borrowers who prioritize convenience over in-person guidance and interaction find it particularly appealing. It also makes the lender more resilient to demand shocks and minimizes errors that could arise from in-person interactions during the credit-granting process. (Adamek,J & Solarz,M, 2023, p. 174)

This is how digital lending often operates. An applicant for a loan downloads the digital lender's mobile app and uses their phone to complete a brief application. The lender processes the applicant's information using an automated system, evaluating the applicant's creditworthiness mostly on the basis of information from their phones. Within minutes of the application being filed, the applicant receives the loan amount if it is authorized and is deposited into their mobile wallet.14 Digital loans usually have small amounts (a few hundred to several hundred US dollars), are short-term (less than a month to several months), and carry an annual percentage rate (APR) of more than 100%. (Chen,A.J, Omri,E.T, Jung,K.K, & Regina,W.M, 2023, pp. 10-11)

2.4.2 Crowdfunding

Through crowdfunding, a FinTech concept or product—such as a design, program, content, or creative work—is made available to the general public. Those who are interested in the idea and would like to support it financially can do so.

Crowdfunding can be utilized to forecast market demand and lessen businesses' financing needs. (Risman,A, Janee,A.A, Soelton,M, & Siswanti,I, 2023, p. 94)

2.4.3 Payment

When fintech companies introduced a number of applications and online financial services with a variety of payment options in line with customer wants and ambitions, they genuinely pioneered a new breakthrough in the payment transaction industry. With the advent of Fintech products, consumers can now easily complete all of their payments using a variety of online financial services, anytime and wherever they choose, in a straightforward and quicker manner, eliminating the need to visit banks for these transactions. (Oanh,T, 2016, p. 17)

2.4.3.1 Peer-To-Peer (P2P)

One alternative that peer-to-peer finance, also known as P2P lending, offers as a substitute for banks in terms of loan availability is shoed potential. Since launching "Zopa" in 2005, peer-to-peer (P2P) platforms have grown significantly, becoming a dependable option for financing not just individuals but also businesses. "Platforms that facilitate financial services via direct, one-to-one contracts between a single recipient and one or multiple providers" is how P2P is defined in standard form. (Al Ajlouni & Al-hakim, 2018, p. 06)

2.4.3.2 Mobile Wallets

Customers can swiftly and securely make in-store payments with the use of the mobile wallet, a digital wallet that stores digital assets like debit and credit cards.The main goals of this payment method's invention were to totally replace the physical wallets that people always carry around in their pockets, improve user ease, speed, and security, and work toward the eventual goal of a cashless society. When two mobile devices are close to one other, the mobile wallets use Near Field Communication (NFC), a sort of radio frequency identification technology, to send the payment information from the mobile device to the payment terminal. (Oanh,T, 2016, p. 19)

2.4.4 Open Banking

In order to provide the market with improved capabilities, open banking is a collaborative concept wherein two or more unaffiliated parties share banking data using APIs. For many years, APIs have been used, especially in the US, to facilitate the use of personal finance management software, display billing information on bank websites, and link developers to payment networks such as Visa and Mastercard. But up until now, information sharing has been the main use of these connections rather than money transfers.

Open banking has a lot of potential advantages. enhanced client satisfaction, fresh sources of income, and a long-term service plan for formerly underserved areas. (Brodsky,L & Liz,O, 2017, p. 02)

2.4.5 Blockchain

Blockchain is a public ledger system that preserves the integrity of transaction data. It is most famously used as the technology behind the Bitcoin cryptocurrency. When the Bitcoin cryptocurrency was originally released, blockchain technology was put to use. The most widely used application of blockchain technology is still Bitcoin.

One benefit of blockchain technology is that once data has been approved by all nodes, it cannot be changed or removed from the public ledger. Blockchain is well known for its features related to data integrity and security because of this. Other kinds of applications can also be made with blockchain technology. For instance, in a cloud service, it can establish a setting for peer-to-peer data exchange and digital contracts. Data integrity, the strength of the Blockchain technique, is the reason why its application also. (Yli-Huumo, Ko,D, Choi,S, Park,S, & Smolander,K, 2016, pp. 2-3)

2.4.6 InsurTech

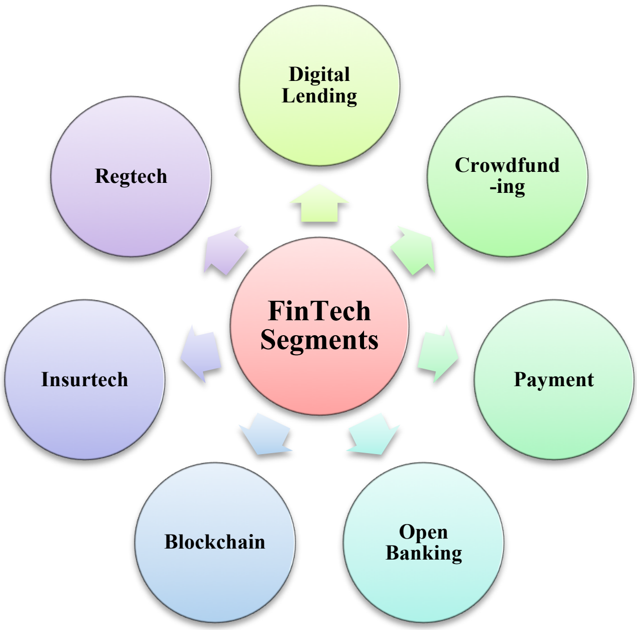
The term "insurtech" describes how technological advancements are being applied in the insurance industry to create new products, streamline operations, enhance client satisfaction, and spur competition. Start-up businesses who enter the insurance market by utilizing new technological advancements and changing the entire insurance value chain are the ones that are experiencing this phenomena. (Koprivica, 2018, p. 619)

2.4.7 RegTech

A subset of the fintech industry known as "RegTech" is dedicated to developing technology that could make it easier and more efficient to fulfill

regulatory obligations than what is now possible. Agile financial technology developers can support regulators in better enforcing prudential regulation and overseeing financial institutions, in addition to helping financial corporations comply with regulations. (Anagnostopoulos, I, 2018, p. 13)
Generally, the key Segments and global landscape of financial technology can be presented through the following Figure:

Fig.4: Segments of FinTech



Source: Author

3.Challenges of FinTech and Future Trends

3.1 Challenges facing FinTech

3.1.1Customer Management: Customer service is essential since there is fierce competition for new and existing customers. Many clients use several fintech companies' services for various purposes. Fintech companies must be aware of the area they are in and work hard to offer the greatest services available. In this fast-paced world, word-of-mouth referrals can be quite important to the success of a Fintech firm, thus it is imperative that you respond to consumer issues promptly and with care. Robo advisers are made to offer lower-cost, more individualized, round-the-clock service to a larger number of clients. In investing services, the personal element is still crucial, though. Although it can be difficult, offering a personalized experience without significantly raising costs is essential for attracting and keeping customers.. (Baporikar,N, 2021, p. 143)

3.1.2 Competition on market share (Strategic risk): The possibility of quickly unbundling bank services to fintech or BigTech companies that are not banks raises the stakes for individual banks' profitability. If new entrants are able to exploit innovation more effectively and provide less priced services that better satisfy customer expectations, established financial institutions risk losing a significant portion of their market share or profit margin.

3.1.3 Risk of collapse, fraud or malpractice by the platform or some of its users: certain cases of platform fraud have materialized3. Fraud can occur with parties offering (and buying) securities on the platform. (Al Ajlouni & Al-hakim, 2018, p. 10)

3.1.4 Regulatory compliance : The fact that government rules are so prevalent in the high-risk fintech industry is one of its issues. Many laws, like the Money Laundering Control Act, the Wiretap Act, the GLBA, and the GDPR, must be followed by businesses.. (Efimova,D, 2024)

3.2 The Most Important Future Trends in FinTech

It is expected that fintech statistics will improve in the future, covering various areas, with the most important ones being discussed in the current study.

3.2.1 A2A payments growth

Account-to-account (A2A) payments are expected to soar due to open banking, rapid payments, and merchant support; this is especially true in countries like China, India, and Brazil. Benefits of A2A payments include speed, cost-effectiveness, and a decreased chance of fraud.

3.2.2 Central Bank Digital Currencies (CBDCs)

2024 is expected to see significant market growth for CBDCs after a crucial 2023, particularly in cross-border and B2B payments. According to Juniper, as governments embrace digital currencies, the value of CBDC transactions globally is expected to soar by 213,000% by 2030.

3.2.3 Generative AI impact on spending insights

Global financial organizations' spending insights are about to undergo a transformation thanks to generative AI. It is anticipated that banks and credit unions would concentrate on offering individualized, user-friendly experiences catered to client needs in light of the increased availability of customer data and the intensified competition. (Maria,Z, 2024)

3.2.4 AI in Anti-Money Laundering (AML) tools

It is projected that global regtech spending will increase by 150% between 2023 and 2028. Artificial Intelligence-powered AML tools are anticipated to be crucial in accelerating, decreasing costs, and improving the efficiency of complicated regulatory requirements compliance.

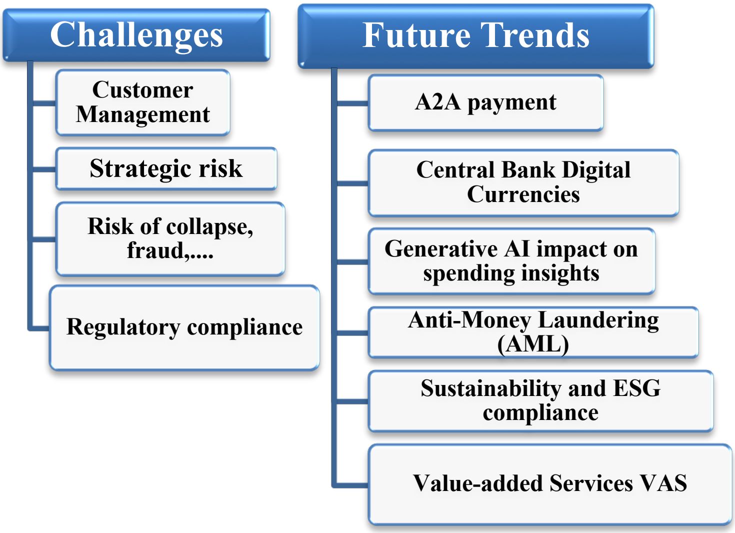
3.2.5 Sustainability and ESG compliance

Related ideas that center on businesses' moral and ethical behavior are sustainability and ESG (Environmental, Social, and Governance) compliance. Expected increase in digital projects tackling ESG issues, such as cards made of recycled plastic, assistive technology for the visually impaired, and financial management for the less fortunate.

3.2.6 Value-added services for instant payments

Value-added services (VAS) provide additional benefits over core products in order to improve customer experiences and set businesses apart. Caller ID and voicemail are two instances of telecom functionality; assembly and shipment tracking are examples of logistics. 2024 will see banks investigating FedNow-based VAS with an emphasis on B2B payments, wallet top-ups, embedded finance, and A2A use cases. (Maria,Z, 2024)

Fig.5: Challenges and Future Trends of FinTech



Source: Author

4. CONCLUSION

This research paper aimed to examine the key theoretical frameworks related to financial technology (FinTech), starting with its historical development and presenting the most important concepts associated with it. It covered the main essential segments of FinTech, highlighted the major challenges facing it, and discussed future trends. Overall, the following results were reached:

- The evolution of financial technology has gone through several stages. The first stage was the emergence of checks, followed by the advent of automated teller machine (ATM) products, known as FinTech 1.0. The second stage, FinTech 2.0, was represented by the Internet of Things, which has now progressed to data technologies, known as FinTech 3.0.
- The concept of financial technology (fintech) includes three main areas: finance, technology management, and innovation management.
- There are several important segments of fintech, including digital lending, crowdfunding, payments, blockchain, and insurtech.
- financial technology (fintech) is facing numerous challenges, the most important of which are customer management, Strategic risk.
- There are future trends in financial technology (fintech), including A2A payment, central bank digital currencies, anti-money laundring

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