MSM | MAASTRICHT SCHOOL OF MANAGEMENT

Rethinking Finance: FinTech for Development! How can FinTech Help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries?

Sahel Philip Annabi

the globally networked management school

Rethinking Finance: FinTech for Development!

How can FinTech Help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries?

Dissertation

To obtain the degree of

Doctor of Business Administration

at the Maastricht School of Management,

under the authority of the Chair of the Examination Board,
Prof. Dr. Aad van Mourik,

to be defended in public on 3rd March 2023.

by

Sahel Annabi, MSC, MPhil

Born in August (1969)

Published by:

Maastricht School of Management

P.O. Box 1203

6201 BE Maastricht

The Netherlands

S. Annabi, FinTech for Development! How can FinTech Help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries? DBA Dissertation, Maastricht School of Management, Maastricht 2023. – With references. – With summary in English.

Key Words: FinTech/Financial Technology/Development Finance/Post-Conflict Countries/Payments/Mobile Wallets/Cards/QR Code/Mobile Money/Financial Inclusion/Socioeconomic Development/Crowdfunding/Access to Finance/Financial Literacy/Technology Infrastructure/Ecosystem/Risk Management/COVID_19/Refugees/Displaced People

ISBN: 978-94-92970-64-0

Cover: Stoerebinken, The Netherlands

Printing: Boekenplan, The Netherlands

This dissertation is approved of by the Doctoral Supervisors:

Prof. Dr. Simon Gao.

Prof. Dr. Berna Kirkulak.

External Readers:

Prof. Dr. George Kouretas.

Prof. Dr. Eva Katiskea.

Composition of the Evaluation Committee:

Prof. Dr. George Kouretas.

Prof. Dr. Eva Katiskea.

Prof. Dr. Simon Gao.

Prof. Dr. Berna Kirkulak.

Candidates Declaration

I, the undersigned, hereby officially state that this dissertation was not a result of any type of plagiarism, or has it been used before or presented somewhere else for the purpose of a degree award.

Sahel Philip Annabi

31 December 2022

Maastricht, The Netherlands

Acknowledgements

Firstly, I thank God for all the blessings in my life.

I would like to express my deepest gratitude to my supervisors Dr. Simon Gao and Dr. Berna Kirkulak for their great support and guidance, as well as the MSM team for their continuous support throughout this effort.

This endeavour would not have been possible without the support, prayers and encouragement of my family especially my mother, wife, daughter, and father-in-law. A special thanks goes to my sister Hala Annabi for her support throughout this journey and everyone who expressed their interest in this effort.

Thank you all.

Abstract
War only brings destruction and hardship. Individuals and businesses face different challenges due to war and distress. Access to finance is one of the many challenges and it is becoming more difficult for individuals and businesses due to uncertainty and security. On the other hand, technology, in general, and Financial Technology (FinTech) in specific are playing a significant role in easing the challenges that individuals and businesses face in post-conflict countries.

This research investigated "How can FinTech Help the Socioeconomic Development and Financial Inclusion in Post-Conflict Countries?".

Different previous research has shown that there is a positive impact of FinTech on access to finance and socioeconomic impact on businesses and individuals. Meanwhile, some literature argued that such socioeconomic impacts and claims are not sustainable. Furthermore, there is no comprehensive socioeconomic model to assess the impact of FinTech on development, all efforts were limited to one or two socioeconomic areas. In addition, there is a limited literature review in this field and on the FinTech impact on development.

Therefore, this research and effort aims to develop a comprehensive socioeconomic framework to assess the role and impact of FinTech on development and on financial inclusion in post-conflict countries.

This paper is guided by two theories: The Ecosystem Theory based on STEPE approach, and the Development Theory. Furthermore, the paper discussed and argued existing efforts related to FinTech, financial inclusion, and socioeconomic development. Based on that, two knowledge gaps were identified: the first is the need to redefine the relationship between finance and development, and the second is the lack of a comprehensive socioeconomic model to measure the impact of FinTech on development. Furthermore, the literature review identified issues related to FinTech that will contribute and affect the impact of FinTech on financial inclusion and development.

The suggested conceptual model was based mainly on the Madon (2000) conceptual model taking into consideration models done by others related to ICT and development which were also based on the same Madon (2000) model.

The researcher collected different sets of data. For primary data, the researcher used semi-structured interviews based on an interview guide also developed throughout the effort. Fifteen interviews were conducted with different stakeholders including regulators, financial and FinTech professionals, individual & business clients and others. No focus groups were conducted due to the COVID-19 Pandemic limitations. The researcher used Zoom Communication Technology due to COVID-19 pandemic limitations. In addition, the researcher collected secondary data from available resources.

Qualitative Research Methods were used, using an Interpretive Approach to analyse data collected from interviews. Qualitative data analysis of narratives collected from the sample were conducted using inductive and deductive techniques. Moreover, the data collected through different statistical data including indicators such as World Bank Global Findex or other sources were analysed using Qualitative Comparative Analysis.

The researcher conducted five case studies and reach to findings related to each case study based on discussing the research main and sub questions. Following the case studies, a comparison is made to show the differences between cases, different practices and reasons behind such differences. The case studies are Jordan (for Syrian Refugees), Egypt, Iraq, Palestine and Afghanistan. The research tied all the findings with the suggested conceptual framework areas to show FinTech's impact on different socioeconomic areas.

The findings whether through interviews or literature reviews support the suggested framework in which FinTech plays a significant role in the socioeconomic development of any country especially the post-conflict countries. In addition, FinTech contributes significantly to financial inclusion by including more people and businesses, providing them with different financial products and services at the right time and location. FinTech allowed refugees and displaced people in Iraq and Syria to access financial sources and aid funds. FinTech helped governments and private sectors in Jordan and Egypt to pay salaries and get paid for goods and services. In addition, FinTech allowed people to enjoy a wide range of benefits due to the facilitation of mobile money and other FinTech products including access to international markets, payment of different products & services fees, access to government aid schemes and others.

Furthermore, the research showed several driving forces that FinTech influenced in socioeconomic development, including regulations, infrastructure, ecosystem, products, risk management and others. Moreover, the research concluded that the COVID-19 pandemic had a significant impact and role in the development and enforcement of FinTech in post-conflict countries and accelerated the use of FinTech to allow people and businesses to access financial services and meet their daily life requirements.

This research has made several theoretical contributions. The most important contribution is the presentation of the holistic framework that synthesizes and extends the literature relevant to socioeconomic factors around the development, use and impact of FinTech in post-conflict countries. Other contributions are related to different aspects of FinTech and socioeconomic development including, cost of transaction, risk management, the COVID-19 pandemic, political stability, literacy and level of people's trust in the government and financial system. Moreover, the research has many practical implications to be addressed by policy makers including the importance of investing in financial literacy and education, in rebuilding people's

trust, in strengthening the ubiquitous technologies, in expanding the ecosystem and capitalise on the impact of COVID-19 contribution.

Finally, it is worth mentioning that this research is considered to be unique due to the following facts:

- The research is considered the first empirical effort to investigate the role of FinTech in development. All other studies investigate ICT role in general in development.
- The research is the first to look into post-conflict countries.
- The research is one of the few empirical efforts to explore socioeconomic factors surrounding FinTech in post-conflict countries across several case studies.
- The data collection effort took place over three years before, during and after the global COVID-19 pandemic which provided revelatory multiple case studies of the impact of the pandemic on the role of FinTech in socioeconomic development and empowerment.

Table of Contents

1. Introduction

The post-war effects are many, one of which is the hardship of access to finance to individuals, businesses, and governments when it comes to rebuilding. Over the last 12 years, I worked in more than 15 countries including post-conflict countries, such as Iraq, Afghanistan, Egypt, Yemen, and others. This experience highlighted many challenges individuals and businesses of such post-conflict countries face when accessing finance, including low financial literacy, lack of legislation and regulation, and weak infrastructure. Such challenges are due to several factors including (a) limited governmental resources and liquidity, (b) lack of trust in governments and the banking systems (c) high credit and operations risks resulting in tight policies and procedures by financial institutions, (d) weak infrastructure including information technology (IT) and telecommunications, (e) fragile security, and (f) weak governance to safeguard wealth. Dos Santos and Kvangraven (2017) clearly listed challenges facing development in low-income economies including shortage of skilled labour, weak infrastructure, obsolete technologies, and absolute competitive advantage.

In the last decade, Financial Technology (FinTech) has been deployed in developing countries to improve access to finance (e.g., CGAP, 2015). While practitioners, regulators and development agencies believe that FinTech contributes positively to access to finance, financial inclusion, and socioeconomic development, early academic studies (Dos Santos and Kvangraven, 2017; Kabakova and Plasksenka, 2018) have showed that FinTech contributions are to be negative and unsustainable. These outcomes may be attributed to the fact that current research efforts are limited and lack a comprehensive socioeconomic model to conduct a comprehensive impact assessment of FinTech on development (Kabakova and Plasksenka, 2018). To actualise the promise of FinTech to improve access to finance in post-conflict countries, there is a need to investigate its impact holistically.

This paper aims to investigate and address the significant challenges of access to finance in post-conflict countries and the implication of FinTech in this regard. The remainder of this part outlines a detailed rational and approach for the work and current studies.

1.1 Rationale of the Study: Why FinTech for Development?

1.1.1: The current situation in post-conflict countries:

United Nations Development Program UNDP (2010) report stressed on the fact that countries emerging from conflict are vulnerable with nearly a quarter of all comprehensive peace agreements failing in the face of a relapse into conflict, and even a higher proportion defined by debilitating crises of governance and high levels of armed violence, including violence again women.

Individuals and businesses in post-conflict countries still find it hard to access finance due to several reasons as mentioned earlier. Furthermore, Financial Institutions (FIs) are very strict when it comes to credit, also weak regulatory and enforcement

environments, which increase the risk exposure of FIs and their clients. In addition, lack of assets registries (movable and immovable) and loan guarantee schemes both contribute to overall unattractive access to finance climates. In addition, financial institutions are still traditional in their distribution channels (traditional branches), traditional in their offering (traditional products & services), and weak financial inclusion efforts and policy.

Gender access to finance in such countries face major challenges due to social and economic barriers facing women. These socioeconomic barriers include the lack of acceptable collateral registered in the name of women, high cost of financing, weak management & financial literacy among businesses owned by women which reflects negatively on financial management, cost & profit estimation, and calculation.

The current situation in post-conflict countries when it comes to FinTech is mostly dominated by mobile operators as they offer electronic wallets to individuals, it helps SMEs to enhance their business in terms of sales and collections as well. The most common application (solution) used is Mobile Money (also known as Mobile Wallets) in these countries due to the easy and available infrastructure which is mobile telecommunications. As a matter of fact, post-conflict countries such as Iraq and Afghanistan are considered to have the highest penetration rates of mobile phones and internet usage but the lowest to use such technology for financial services. The Data Reportal website (DataReportal, 2019) reported that 96% of the Iraqi population has mobile registration and 49% use the internet. Nevertheless only 4.2% have mobile money accounts. The same report shows that 78% of the Afghanistan population has mobile registration and 26% uses the internet while less than 1% have mobile money accounts.

There are many examples and facts in the literature review presented later in this paper about how mobile money and FinTech in general are contributing to the lives of people and the businesses, yet still represent a significant opportunity for post-conflict countries to overcome the challenges facing access to finance and financial inclusion efforts.

1.1.2: Why FinTech for Development?

FinTech is playing an increasingly key role in transforming and enabling financial and banking practices (Kochar, 2018). Governments, donors, development agencies and private sectors are using Information Technology (IT) to empower individuals and corporations with better conditions when it comes to access to finance (Munyegera and Matsumoto, 2016; Dos Santos and Kvangraven, 2017; Kochar, 2018). Moreover, people are increasingly more dependent on the convenience of electronic channels, products, and applications at an affordable transaction cost (Ernst & Young, 2014). Saksonova and Kuzmina-Merlino (2017) stated that in 2010 nearly 2.2 billion people are financially unbanked and represent a significant opportunity for FinTech companies in different financial areas including payments, lending, asset and wealth management, digital banks, personal finance, insurance, infrastructure and support.

Perhaps most notable is the significance of FinTech to the public sector. McKinsey Global Institute Research (2016) concluded that digital payments contributed to emerging economies at an average of 6% to GDP and saved at least $110 billion annually by reducing leakage in public expenditure, and collecting payments, fees, and tax revenue. According to the World Bank (2012) more than 110 mobile money systems were deployed and used by more than 40 million users in different sectors around the world. On the other hand, FinTech has advanced and changed societies (Nakakashima, 2018). The author argued that FinTech is shaping societies' financial needs and behaviour and is a key driver of society's development.

According to Center for Financial Inclusion at Accion (2017), FinTech represents a great opportunity to Microfinance Institutions (MFIs) by expanding their distribution channels as well their portfolio. Nevertheless, FinTech also represents significant challenges to MFIs including raising capital for expansion, regulations requirements including licensing and transformation from NGO status to MFI and governance structure.

1.2 Problem statement

Research is limited regarding FinTech's impact on development! Recent research efforts illustrated in the literature review section below make it clear that the existing literature is limited in how they study FinTech. The existing studies limited their investigation to one or two socioeconomic factors impacting development. Most studies are focussed on the household welfare level or are related to a financial product or access to finance. Furthermore, and perhaps most critical to this work is that the existing literature ignored the sustainability of any impact of FinTech on financial inclusion and on development comprehensively. Therefore, as the existing literature suggests (Dos Santos and Kvangraven, 2017; Kabakova and Plasksenka, 2018), there is a need for a more thorough consideration of the existing relationship between FinTech and development. Therefore, there is a need to develop a comprehensive social and economic framework to measure the impact of FinTech on development.

Based on the above, my motivation to study the role and impact of FinTech on development is based on the great promise FinTech holds as a solution to the access to finance challenges facing the development of post-conflict countries. FinTech provides opportunity for innovation with potential contributions to both practice and academic theories in the area of development finance.

This research will address the gap in literature by developing a holistic framework that includes social and economic indicators to investigate the impact of financial technology (FinTech) on both financial inclusion and on development. Moreover, the framework will ensure accurate and sustainable impact analysis of the role of FinTech on economic and social development in post-conflict countries.

1.3 Research aim, questions, and objectives

The aim of this research is to investigate the role of Fintech in assisting socioeconomic development and financial inclusion in post-conflict countries.

The primary research question is: How can FinTech Help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries? To address this question, the study will investigate the following specific questions:

- How does FinTech enable individuals and businesses in post-conflict countries to gain access to finance?
- What are the main factors that influence the development of FinTech in post-conflict countries?
- What are the types of FinTech that can be widely used in post-conflict countries and what are the potential impacts on the socioeconomic development and financial inclusion in those countries?

To address these questions, this paper and research effort will develop a comprehensive socioeconomic framework to assess the role and impact of FinTech on financial inclusion and on development in post-conflict countries.

1.4 Scope of the research

For the sake of this research, FinTech will refer to both; the service provider as well the service (digital finance). Furthermore, the research will focus on the following dimensions or elements of the FinTech ecosystem to be able to reach an understanding or evaluation of our comprehensive socioeconomic framework and measure the impact of FinTech on development. The main dimensions that will be investigated under this study are Mobile Money & Crowdfunding applications. In addition, this research will investigate the implication of FinTech on the ecosystem with focus on impact on regulations.

The reasons behind choosing the applications dimension for the purposes of this study are as follows:

- Most of the above selected applications are related to financial inclusion policies.
- The applications and their related infrastructure are available and highly used by individuals through internet and mobiles technologies.
- Availability of related data through various sources including the World Bank Global Findex and others.
- The chosen applications are related to relevant socioeconomic indicators which will be collected, evaluated, and tracked over a period of time.

As for the ecosystem, it is very difficult to make predictions at this stage. The ecosystem will be a very dynamic area and I believe we will witness significant changes in terms of its players as well as the regulations to govern the FinTech and financial inclusion practice as well as customer protection.

1.5 Theoretical foundations

This paper will be guided by the Ecosystem Theory (based on STEPE approach) and the Development Theory. These two theories provide a suitable foundation to further develop a comprehensive socioeconomic framework that can be used to measure the impact of FinTech on Financial Inclusion and on development. Kabakova and Plasksenka (2018) called for future empirical investigation to develop a comprehensive indicator to measure all financial inclusion components including technology (FinTech) based on the ecosystem approach. Lee and Shin (2018) identified five elements of the Fintech ecosystem:

(1) FinTech startups (payments, crowdfunding, insurance FinTech, lending, etc.)
(2) Technology developers (data analytics, cloud computing, cryptocurrency, …)
(3) Government (regulators and legislatures)
(4) Financial customers (individual and organisational)
(5) Traditional financial institutions (banks, insurance, stockbrokers, venture capitalists)

Moreover, Leong et al. (2017) identified variables of the FinTech ecosystem that will impact financial inclusion including availability and affordability of technology infrastructure (internet, mobile technology, others), the maturity of the applications and the business operations. Furthermore, John and Jagtiani (2018) defined FinTech as a change in the landscape and the financial ecosystem through the joint ventures and acquisitions between traditional financial institutions and non-traditional financial institutions such as lending platforms like peer-to-peer lending, crowdfunding and others which gave consumers (individuals and businesses) great access to financial sources. John and Jagtiani (2018) showed some examples of such mergers including Soft Bank investing in Kabbage, LendingClub and PayPal JPMorgan and PNC, HSBC with Avant personal lending platform and others.

Lee and Shin (2018) identified five elements of FinTech's ecosystem: FinTech startups (applications), technology developers, government, financial customers and traditional financial institutions. Furthermore, Gai, Qiu and Sun (2018) suggested examples of FinTech applications that can be studied in order to achieve the goals of this research, including mobile applications, e-commerce, risk management, wealth management, peer-to-peer and crowdfunding.

On the other hand, while the Development Theory may be broad and covers different aspects of change in the society, the focus will be on social and economic (better known as socioeconomic) development. The reason for using the Development Theory (focussing on socioeconomics) is because ICT has a significant impact on socioeconomic development and on development in general (Palvia, Baqir, & Nemati, 2018). Palvia et al. (2018) provided examples of the role of ICT and impact on economic development including GDP growth, capacity development, employment, poverty alleviation, and other issues in developing countries.

As discussed earlier, Nakakashima (2018) argued that the use of FinTech has advanced and developed societies and changed the role of societies into a new level as becoming more demanding and dynamic in terms of habits and needs. Furthermore, the authors added that FinTech is the driver for increasing and enhancing business as a result of society's development.

2. Literature Review

It is important at the beginning of the review to define the different areas of the research, including which is FinTech, Financial Inclusion and the socioeconomic development. Furthermore, the literature review followed a holistic review by exploring each of the relevant topic areas and synthesised the relationships between these areas to expand on our understanding of the topic and maximise the learning from this review.

The review presents the existing efforts as well as the gaps in the literature that the proposed research will attempt to fill and contribute to practice.

2.1 The story of Financial Inclusion and FinTech

Financial Inclusion is an effort and policy issued by policy makers around the world to give the poor and less fortunate people access to affordable, convenient and sustainable financial services, which will contribute to make their lives better. According to the World Bank's Financial Inclusion Strategies Reference Framework (2012), G20 leaders have committed to enhance access to finance to the poor at the Pittsburgh Summit in November 2009 and a Financial Inclusion Experts Group (FIEG) was created to expand access to finance for household consumers and micro, small, and medium-sized enterprises. Today, a major and key policy maker for financial inclusion is Alliance for Financial Inclusion (AFI) which is a group of more than 90 institutional members (regulators and policy makers) that work on developing the Financial Inclusion policies and practice.

Under the different Financial Inclusion strategy approaches and methods mentioned in the World Bank's Financial Inclusion Strategies Reference Framework (2012), different applications of FinTech or digital finance were used or presented which facilitate the inclusion and the achievements of financial inclusion goals and objectives. Such applications used are Government to People (G2P) payments in India, Mzansi Accounts in South Africa, Mobile Money Accounts, Peer-to-Peer financing and others.

Although the use of technology in financial services has been for a while through the use of systems like the core banking systems, or ATMs, or cards and payments. Financial Technology or FinTech is a recent topic and issue which started to come to the surface and evolve as a contemporary issue just after the 2008 financial crisis (Lee and Shin, 2018). Jagtiani & Lemieux (2018) stated that FinTech lending platforms started in 2005 and spread well in 2008 and helped access to finance in underserved areas. Today, FinTech covers various applications of technology in financial services.

According to Gai, Qiu and Sun (2018), FinTech is classified to five major technical areas including security & privacy, data techniques, hardware & infrastructure, applications & management and service models. Moreover, Ouma, Odongo and Were (2017) highlighted the use of one application (Mobile Money) in financial services for different usage including savings, payments and transactions such as transfers, loans and so on. Furthermore, Leong et al. (2017) identified four financial services

areas affected by FinTech: lending, payment & transactions, wealth management and insurance. Moreover, Lee and Shin (2018) also identified potential FinTech areas including payments, crowdfunding, wealth management and lending.

Additionally, Ozili (2018) defined Digital Finance as financial services delivered through mobile phones, personal computers, the internet or cards linked to reliable digital payment systems. In addition, Ozili (2018) defined companies or individuals providing Digital Finance services as FinTech providers. According to Ozili (2018): "there is some consensus that digital finance encompasses all products, services, technology and / or infrastructure that enable individuals and companies to have access to payments, savings and credit facilities via the internet (online) without the need to visit a bank branch or without dealing directly with the financial service provider". Nakashima (2018) defined FinTech as not the way we use technology in finance, it is the technology that can broaden the range of finance and bring revolutionary transformation of finance function to the world.

On the other hand, it is important also to define socioeconomic development in order to measure the impact of FinTech and Financial Inclusion on it. Roztocki & Weistroffer (2016, 542) defined socioeconomic development as "a process of changes or improvements in social and economic conditions as they are related to an individual, an organisation, or a whole country". Based on that, Roztocki & Weistroffer (2016) defined factors at different levels that influence socioeconomic activities (individual, organisation and country level).

2.2 The Review

Existing FinTech, Financial Inclusion and Development Studies: It is clear that the existing literature is limited in investigating one or two factors impacting development. Most studies focussed on the household welfare level or related to a financial product or access to finance. Furthermore, the existing literature ignored the sustainability of any impact of FinTech on financial inclusion and on development comprehensively.

As illustrated earlier, practitioners, regulators and development agencies believe that financial inclusion and electronic payments (type of FinTech) have a positive contribution to social and economic development (World Bank, 2012; Ernst & Young, 2014; CGAP, 2015; McKinsey Global Institute Research, 2016). In addition, Thompson (2017) agrees with Munyegera and Matsumoto (2016) that mobile money has a positive impact on household welfare through the increase of per capital consumption and the increase of household contribution in the local saving and credit associations. The literature review makes it clear that the existing literature is limited in how they study FinTech. The existing studies limit their investigation to one or two factors impacting development. Most studies were at the household welfare level or related to a financial product or access to finance. Furthermore, the existing literature ignored the sustainability of any impact of FinTech on financial inclusion and on

development comprehensively. Therefore, as the existing literature (Dos Santos and Kvangraven, 2017; Kabakova and Plasksenka, 2018) suggests there is a need for a thorough redefinition of the existing relationship between finance (including FinTech) and development. Despite the above benefits, some studies showed that the financial inclusion policy and efforts may have a negative impact worthy of exploration. For instance, Dos Santos and Kvangraven (2017) showed that extending credit to less worthy clients in the United States of America (USA) has contributed to the US Subprime Mortgage Lending Crises in 2008. In the same study, Dos Santos and Kvangraven (2017) explored the role of digital payments (remittances), microfinance institutions and loans on household welfare. They suggested that, while electronic payment may reduce cost, due to factors such as monopoly or cost of technology implementation in developing and low-income countries, the cost of such transactions has increased which negatively affected the welfare of households in these countries.

On the other hand, Ouma, Odongo and Were (2017) studied the use of mobile telephones and its effect on household savings. The study confirmed that the use of mobiles as a channel in financial services (known as Mobile Money) has enhanced not only saving habits but also the amount saved. Furthermore, the study confirmed that the usage of mobile money has contributed to the enhancement of financial inclusion rates and that financial inclusion allowed the poor to invest, save, be entrepreneurs, build their assets and invest in education.

Furthermore, Dos Santos and Kvangraven (2017) found that although savings using electronic payments can contribute positively to loans by increasing the available resources to lend, most of the loans were for consumption purposes rather than development/productive purposes. In addition, Dos Santos and Kvangraven (2017) found that there is no evidence that remittances and direct debit loan repayment contributes to poverty alleviation and economic development. Most importantly and according to this study, access to credit (loans) is not the only challenge facing economic development in developing countries, there are other challenges including skilled employment, limited and small market size, weak infrastructure, absolute technology and absolute competitive disadvantage. Finally, the paper clearly called for redefining the finance and development relationship in future research efforts to address the knowledge gap based on the variant results of financial inclusion initiatives including FinTech solutions.

The literature contains a few studies that explore the impact of FinTech on financial inclusion and development. Kabakova and Plasksenka (2018) agreed with Dos Santos and Kvangraven (2017) that there is a need to develop a comprehensive model which reflects all components or indicators that measures economic and social development. Kabakova and Plasksenka (2018) based their conclusion on the Ecosystem Theory to explain factors affecting financial inclusion using STEP (Socio-demographic, Technology, Economic and Political) and STEPE (STEP and Ecology) approaches. The study concluded that financial inclusion positively affects Gross

Domestic Product (GDP) Growth. Nevertheless, Kabakova and Plasksenka (2018) did not examine any other factors besides GDP to establish a comprehensive economic development model.

Furthermore, Thompson (2017) agrees with Munyegera and Matsumoto (2016) that mobile money usage reduces transaction cost through reducing the number of intermediaries, hence increased remittances. Nevertheless, this hypothesis was not tested and is still open for empirical investigation. Munyegera and Matsumoto (2016) concluded that mobile money has a positive impact on household welfare through the increase of per capital consumption and the increase of household contribution in the local saving and credit associations. No other variables were investigated in this study. Similarly, Beck et al. (2018) found that the usage of Mobile Money in Kenya for advance payments and repayments reduced cost, theft, and poverty. Beck et al. (2018) focussed on entrepreneurs' output (production) and trade credit as the only two factors affecting and measuring economic development. The model ignored the impact of FinTech on economic development through employment, GDP growth, exports, market value of FinTech, and other factors identified by Kabakova and Plasksenka (2018) based on the ecosystem theory as well the STEPE approach.

In addition, Ozili (2018) presented several benefits by FinTech and Financial Inclusion to the financial services sector including users, providers, governments and the economy in general. The benefits included increasing access to finance among poor societies, reduce the cost of financial intermediation and increase government expenditure. Furthermore, Ozili (2018) confirmed the benefit of FinTech (both the service and the service providers) including greater financial inclusion, affordable & convenient service to the poor users, enhanced the stability of the financial sector, increased government expenditure by building platforms & infrastructure, reduce forgery & corruption and increase control on financial payments. Moreover, FinTech provides better and quicker services than traditional financial services providers (Banks and MFIs), more flexible due to less regulated companies, reduced cost of transactions, enhanced access to finance and funding and convenience.

Furthermore, Ozili (2018) discussed the relation between FinTech and Financial Inclusion: Fintech positively impacted Financial Inclusion through enhancing access to basic services, greater inclusion in rural areas and poor communities, enhanced access to finance and loans. On the other hand, the negative relation can be presented in the limitation of FinTech to financial inclusion with regards to poor communities and affordability of transactions fees, FinTech needs significant infrastructure to allow benefits at affordable cost, and the need of certain literacy levels to be able to use the different applications and tools. Jagtiani & Lemieux (2018) showed that 75% of new loans in years 2014 to 2015 were originated in areas with bank branches originally declined the applications. Furthermore, the study analysed Lending Clubs performance and data and founded that FinTech lending activities penetrated areas that in much need of traditional credit and in areas with challenging environment like high unemployment and low income.

Moreover, Ozili (2018) argued that in practice greater use of FinTech does not lead to greater financial inclusion rather than it can lead to greater data financial inclusion. Based on that regulators and decision makers seek to get data including biometric information and tie it to individual accounts. Moreover, Ozili (2018) mentioned that there are many challenges facing financial inclusion and financial data inclusion including level of financial literacy, merchant willingness to use digital channels such as Point of Sales, availability & accessibility to internet at rural and poor regions, data & cyber security. Most important challenges are that even individuals register for digital financial services, the usage of such services is low and limited to withdraw their salaries or payments due to awareness, cultural, religious and financial literacy level as well.

Nakashima (2018) highlighted the fact that technology broadened the range of financial services, and the way finance works today. The paper added that the use of Bigdata (part of FinTech) has changed societies and offers something that will never happen without FinTech. The paper stressed that FinTech created society ability to access finance not like before through using Bigdata and other technology application like Global Mobility Services (GMS) to allow people to pass credit test and access loans.

Kochar (2018) discussed the use of Business Correspondents (BCs), also known as agents, by banks in India in implementing the government's financial inclusion policy based on the Nudging Theory. The agents used Point of Services (POS), a type of mobile technology, to facilitate financial transactions at home. Kochar (2018) reported that agents opened more than 200 million accounts, most of which remained dormant; therefore, the savings were far less significant than the number of accounts opened and the potential they contained.

Gabor and Brooks (2017) also used the Nudge Theory to explore the role of digital finance in financial inclusion and the development taking place due to FinTech. The paper focussed on how finance behaviours drive financial decision making using the Nudge Theory. Furthermore, the paper used Financial Literacy (one of the financial inclusion factors) to measure how informed people's financial decisions were based on the level of their financial literacy and income. Moreover, the paper highlighted several findings, including that poor people take automatic decisions, and Microfinance Institutions can deepen financial exclusion by increasing the cost of financing as well as causing social problems to borrowers. Furthermore, Leong et al., (2017) highlighted the importance to educate users of FinTech application about finance and financial literacy.

Ghosh and Vinod (2017) concluded that many social issues prohibiting development still exist and must be explored. They identified that discrimination exists in accessing finance based on gender. They suggest that social and political factors, rather than economic factors, lead to discrimination specially in developing countries. In this regard, Vital Voices Global Partnership, MENA Businesswomen's Network and International Finance Corporation (2013) in their report Ready for Growth stated that

only 2% to 10% of businesswomen have access to finance from commercial banks. The report highlighted that 31% to 38% of SMEs are women owned businesses with USD 300 billion of unmet financial needs.

A game changer for access to finance using FinTech is Peer-to-Peer (P2P) Funding and Crowdfunding, where individuals, entrepreneurs, start-ups, or businesses seek financing directly from other peers or seek community support in the case of Crowdfunding. Kickstarter is one of the well-known FinTech platforms (crowdfunds) which facilitated around USD 3.9 billion pledged finance. Kickstarter financed around 150,843 projects as of September 25th, 2018 (www.kickstarter.com). On the other hand, many question the sustainability of such results, the rate of repayment, and the success of live projects as a true reflection of access to finance and development. Currently, there are only 3,703 live projects with only USD of 33 million (www.kickstarter.com). Therefore, both P2P and crowdfunding platforms are more beneficial in providing information and feedback about the project idea than the possibility of financing (Allen, F., 2018; Da Cruz, 2018; Zhang and Chen, 2018).

On the other hand, a recent study by Niebel (2018) confirmed that ICT contribute significantly to economic growth through the investments in the ICT sector and hence reflected to its contribution to the country economy such as through contribution to GDP and other economic and social factors including employment & labour, productivity, capital, exports, and others of three types of countries, developed, developing and emerging countries.

Furthermore, John & Jagtiani (2018) highlighted the importance of having a well-balanced approach by regulators in order to achieve a balance between consumer protection, maintained financial stability and provided sufficient incentives to sustain FinTech development and innovation. This concern was due to the fact that FinTech has contributed to financial institutions and FinTech companies' exposure to risks. John & Jagtiani (2018) have identified new risk categories including Cyber Security Risks, Third-party vendor risk, and breach of consumer information secrecy. Furthermore, while Jagtiani & Lemieux (2018) investigated the impact of Fintech lending on underserved areas by banks, it did not investigate impacts on financial stability and consumer protection.

2.3 Lacuna of knowledge

2.3.1 The literature review revealed two types of knowledge gaps.

Firstly, ***there is a need to redefine the relationship between finance and development:*** Dos Santos & and Kvangraven (2017) and Kabakova & Plasksenka (2018) suggest that there is a need for a thorough redefinition of the existing relationship between finance (including FinTech) and development. Furthermore, previous work is fragmented and only measured limited aspects of the impact of technology on financial inclusion or development (Palvia et al., 2018; Kabakova and Plasksenka, 2018; Dos Santos and Kvangraven, 2017).

The second gap in the literature is ***the lack of a comprehensive socioeconomic model to measure and assess the impact of FinTech on development:*** Palvia, Baqirn and Nemati (2018) posed that there is a shortage of efforts to evaluate the overall impact of ICT on socioeconomic development. Moreover, Kabakova and Plasksenka (2018) acknowledged that financial inclusion (including FinTech as a component) is still a new phenomenon and lacks the related literature as well statistical data. Furthermore, the authors called to develop a comprehensive indicator to measure all components of financial inclusion including technology (FinTech) based on the ecosystem approach. Earlier, Leong et al. (2017) called for the importance of investigating how can FinTech improves financial inclusion. In addition, Dos Santos and Kvangraven (2017) identified the need to redefine the relation between finance and development. Finally, Ozili (2018) highlighted the need for future research and discussion on the relationship between FinTech and economic crisis and determined whether FinTech helps in promoting economic growth or spread financial contagion.

Furthermore, while practitioners, regulators and development agencies believe that FinTech contributes positively to access to finance, financial inclusion, and socioeconomic development. Several academic studies (Gabor and Brooks, 2016; Dos Santos and Kvangraven, 2017; Ghosh and Vinod, 2017; Beck et al., 2018; Kochar, 2018) investigations showed that contribution is to be negative or unsustainable.

2.3.2 The potential contribution of the proposed research to the existing and future practice and literature

The proposed research framework developed in this research will contribute to existing literature and practice in this field through the following: (a) identify the impact of FinTech in post-conflict countries by highlighting the financial needs of both individuals and businesses in such countries and the solutions. No previous efforts and studies covered the impact of FinTech in post-conflict countries. (b) the framework will assess the impact of FinTech on both financial inclusion and economic and social development in post conflict development, (c) the framework will evaluate the existing ecosystem practice of the different areas of the research (FinTech, financial inclusion and development) and contribute to the development and enhancement of existing environment, (d) the framework will evaluate the sustainability of FinTechs contribution to financial inclusion and socioeconomic development and not only short term results, (e) the research will contribute to policy at the regulatory level for the FinTech sector, financial inclusion practice, and the development environment, (f) the framework can guide development efforts to save resources, maximise benefits, added value and reduce efforts and wasted resources needed to be invested in development due to lack of information and cost of implementation.

2.4 Issues related to FinTech

Alliance for Financial Inclusion (2018) identified four pillars for Fintech for the Financial Inclusion Framework as part of their effort to build financial inclusion and FinTech practice. The pillars are:

Pillar I: Empower Access: Digital Identification, EKYC and Simplified Account Opening: there are many systems and success cases around the world, where the government or regulators introduced identification systems that empowered access and inclusion. For example, India used AADHAAR system; a 12-digit random numbering issued to all residents. This allowed residents to access government and biometric services. It acts as a proof of identifty. Other cases also IRISGUARD Technology introduced EyePay Platform which is used by the UN for its Worldfood program to deliver financial aid to their beneficiaries. In addition, many systems allowed users to open on-line accounts while manitaining the regulatory requirements including Know Your Customer KYC and Anti Money Laundry verification.

Pillar II: Enabling Use: Digital Payment, Infrastructure and Electronic Payment System: Technology introduced many payment solutions that are in use and facilitated the flow of money and transaction. Mobile Money, AliPay, WeChat Pay and many others have enabled the use of fintech and empowered inclusion. In addition, regulators introduced regulations to manage the relationship between the identification (ID) and the payment transactions. Further, regulators and stakeholders need infrastructure to support the combination between payment and ID identification.

Pillar III: Scaling Use: Digitising of Government Payments and Provision of Service: In most countries, governments are the larger employers and control most services including utilities. Scaling up the use of FinTech through government employees salaries using e-payments and digitising all payments and fee collection will contribute to inclusion. Another example of scaling up is the use of FinTech and e-payments by donors (UK in Jordan) paying refugees their benefits and support transfers to their bank account or virtual mobile account which were established through biometric digital identification. Lastly, many services are now digitised by governments which improved the collection rates.

Pillar IV: Expanding the Quality and Range of Services: Designing Financial Market Infrastructure and System. This involves the introduction and the development of infrastructure, regulations, and the financial ecosystem. On the other hand, technology brings many challenges (Alliance for Financial Inclusion, 2018) including the balance between inclusion and regulation. Regulators must find the right balance between benefits and restrictions. Another significant challenge to address is maintaining the cost of transaction to an affordable and competitive range while building the needed technology infrastructure and ecosystem.

Based on the above pillars and the previous literature review, we can identify many issues affecting the impact of FinTech on financial inclusion and socioeconomic development including:

a) Regulation and Compliance: FinTech is driving new areas of regulation and compliance that financial institutions and FinTech companies need to comply with including consumer protection, big data, financial inclusion, financial stability and incentivized innovation (John and Jagtiani, 2018).
b) Risk Management: John and Jagtiani (2018) identified several types of risks that were introduced by, are associated with, or introduced through the use of FinTech. The risks include cyber security risk, third-party vendor risk, credit risk, breach of consumer information secrecy and many others.
c) Financial Literacy plays a significant role in the use of FinTech applications: Leong et al. (2017) highlighted the importance of educating users of FinTech application about finance and financial literacy. Moreover, Ozili (2018) suggested that there are many challenges facing financial inclusion and financial data inclusion such as level of financial literacy and merchant willingness to use digital channels such as Point of Sales.
d) Access to Finance to certain users or groups including women, youth, less credit worthy people, SMEs and others. Financial Technology or FinTech is a contemporary issue which surfaced after the 2008 financial crisis and continues to evolve today (Lee and Shin, 2018). Jagtiani & Lemieux (2018) stated that FinTech lending platforms started in 2005 which spread in 2008 providing access to finance in underserved areas.
e) Access to different sources of funds through non-traditional sources of funding, such as crowdfunds and P2P (Allen, F., 2018; Da Cruz, 2018; Zhang and Chen, 2018). These sources emerged in addition to the traditional sources including banks and non-banking financial institutions like microfinance.
f) Cost of transaction: FinTech has reduced cost of transaction which encouraged users to use FinTech to access saving accounts and loans at a lower cost. Dos Santos and Kvangraven (2017) suggested that while electronic payment may reduce cost, the cost of such transactions has increased due to factors such as monopoly or cost of technology implementation in developing and low-income countries. As a result, increased costs negatively influenced the welfare of households in undeveloped countries.
g) Infrastructure: For countries to benefit from the reduced overall cost of FinTech, they must make large investments to build the infrastructure needed to facilitate FinTech. Most poor and developing countries cannot afford to make such investments or will have to make some expensive decisions or forget other investments and opportunities. Furthermore, FinTech infrastructure includes availability and accessibility to internet at rural and poor regions that ensures data and cyber security (Ozili, 2018). FinTech also requires significant infrastructure to allow benefits at affordable cost, and the need of certain literacy levels to be able to use the different applications and tools.

h) Applications: FinTech comes in different forms and applications. Each application has its impact on specific behaviour or aspects of finance. Ouma, Odongo and Were (2017) highlighted the use of one application (mobile money) in financial services for different usage including savings, payments and transactions such as transfers, loans and so on. Earlier, we showed how the use of biometric technology empowered access and enabled use of finance (Alliance for Financial Inclusion, 2018). Furthermore, Leong et al. (2017) identified four financial service areas affected by FinTech: lending, payment and transactions, wealth management and insurance. Moreover, Lee and Shin (2018) identified potential FinTech areas including payments, crowdfunding, wealth management and lending.

The issues reviewed above are affected directly and indirectly and positively or negatively by FinTech. These issues identify different variables important for the measurement of the impact of FinTech on financial inclusion and socioeconomic development. All the relevant variables are listed later in the conceptual model section.

In addition, the impact of FinTech on the above issues might differ in a typical developing country from a post-conflict country. Alderete (2017) clearly described that the education and literacy levels in developed countries were higher than non-developed countries (which includes post-conflict countries). Moreover, the ICT access and ICT use have reached a significant rate in developed countries compared to the non-developed countries. Therefore, the research will investigate the impact of FinTech on the above-mentioned issues in post-conflict countries.

2.5 The "FinTech for Development" Conceptual Model

2.5.1 Existing Frameworks

There are several conceptual models that theorise the impact of ICT on socioeconomic development. No research has been done so far to address the specific impact of FinTech on socioeconomic development. It is prudent to review and synthesise relevant frameworks in the literature in order to inform the development of a framework specific to FinTech for development.

Madon (2000) developed a conceptual framework to measure the impact and the relationship between the internet and socioeconomic development. The framework suggests that the internet has a positive impact on four main factors: economic growth, social well-being, political well-being and the physical environment. Towards critics it is worth mentioning that Madon did not empirically validate her model (Palvia et al., 2018). The model provides a theoretical understanding of these relationships and worth empirically testing.

Roztocki & Weistroffer (2016) proposed a conceptual framework of ICT impact on socioeconomic development and defined factors at the individual, organisational, and country level that influence socioeconomic activities. **Individual level** factors include education, health, income, quality of life, occupation, wealth and others.

Whereas **organisational level** factors, such as global competitiveness, business opportunities, organisational income, business name, brand and workforce. Lastly, the **country level** factors include National Production (GNP), policy freedom, national wealth, international esteem and labour market. Unfortunately this framework also remains conceptual and is not yet empericially tested. The framework specified ICT as computing resources, internet, mobiles, GPS and enabling business activities.

As discussed earlier, **Palvia et al. (2018)** developed a framework based on Madon (2000) which examined the role of the internet on socioeconomic development specifying five of impact dimensions including social contact, economic transformation, empowerment in life domains, cultural evolution and personal security and criminal use. It is worth mentioning that the limitation of the model that was not empirically validated as well used a limited sample from Pakistan population.

Roztocki, Soja and Weistroffer (2019) defined a multi-dimensional framework for the role of ICT in socioeconomic development based on four development dimensions including: society, technology, business and policy. In their work they drew on related frameworks concerned with ICT for socioeconomic development. They drew on, **Ashraf, Grunfeld, Hoque and Alam (2017)** who developed a framework to measure the impact of ICT at the community level. The framework addressed the poverty level of communities in Bangladesh and addressed social factors, including religious perception and mobility restriction for women and other factors. Roztocki et al. (2019) also drew on **Roztocki and Weistroffer's** (2016) framework which links enterprise systems to technology application impact on socioeconomic development in transition economies. The factors specified in their framework include government policy, business enviornment, and human capital.

2.5.2: Critique of the existing frameworks

While the above frameworks represent significant contribution to the literature and ample guidance to this research, there is still a need for a comprehensive "Fintech for Development" framework and empirical work to validate such a framework. The above frameworks are limited in their applicability to measure the impact of FinTech on socioeconomic conditions in the post-conflict countries for the following reasons:

- The existing frameworks are general frameworks about ICT and do not reflect the specifics of FinTech's role or impact.
- The existing frameworks address ICT-specific issues such as the internet (Madon, 2000; Palvia et al., 2018) and business enabling activities (Roztocki and Weistroffer, 2016). There is no comprehensive model to generate or use as a comprehesive impact assessment covering all socioeconomic factors.
- The frameworks available includes limited socioeconomic factors or conditions and does not measure the impact of FinTech or ICT more comprehensively.
- None of the frameworks available in the literature were developed or investigated the socioeconomic impact in post-conflict countries which present unique challenges.

- Some of the frameworks remain conceptual voids of empirical validation and did not measure sustainable impacts on the society.
- Some of the existing frameworks focussed only on the role of governmental institutions and political actions including policy and regulations and did not consider the impact or role of private sector such as FinTech companies in job creation and contribution to GDP and the economy in general. (Madon, 2000; Palvia et al., 2018; Roztocki and Weistroffer, 2016).

In conclusion and in agreement with Roztocki, Soja and Weistroffer (2019, 174) stated that: "All frameworks seem to agree that the ICT impact on socioeconomic development is substantial but the frameworks differ in the level of aspects details as well the limited aspects of socioeconomic development." This review emphasises the need for a comprehensive framework that is specific to FinTech and inclusive of multi-level factors that enables the research to measure the sustainable impact of FinTech's on socioeconomic development in post-conflict countries.

2.5.3: The proposed "FinTech for Development" conceptual framework

Based on the literature review and guided by the critique of the existing ICT frameworks, this research proposes a preliminary framework "FinTech for Development." Our model is theoretically grounded in Madon's (2000) framework and adapted to be applicable to (a) the specifics of FinTech rather than general ICT framework designed for the specifics of the internet, and (b) post-conflict countries.

Madon's framework suggests that the internet has positive impacts on four main factors: Economic growth, social well-being, political well-being and physical environment. FinTech for Development Conceptual Model proposes the following key changes to Madon's in order to make our framework more comprehensive and relevant to FinTech in post-conflict countries:

- Ignored or removed the political well-being as this factor calls for democracy development which is not essential to FinTech
- Considered the physical environment in Madon's framework equivalent to infrastructure and ecosystem in the suggested FinTech Model. This is due to the fact that previous models focussed on the internet which was often constrained by the physical environment in relation to broadband reach.
- Introduced a policy and regulatory construct to measure the impact of FinTech on policy and regulation as per different frameworks including Madon (2000), Roztocki, Soja and Weistroffer (2019), Palvia et al. (2018).
- In the proposed "FinTech for Development" framework we add and organise the indicators of each construct (economic, social, and ecosystem) as a mix individual, organisational, and country level variables as per Roztocki & Weistroffer (2016). All these variables will measure the impact of FinTech on financial inclusion as well as socioeconomic development.
- Included many variables or indicators from the literature review as illustrated in the following list of variables.

Based on the above, Figure 2-1 below represent the proposed conceptual "FinTech for Development" model:

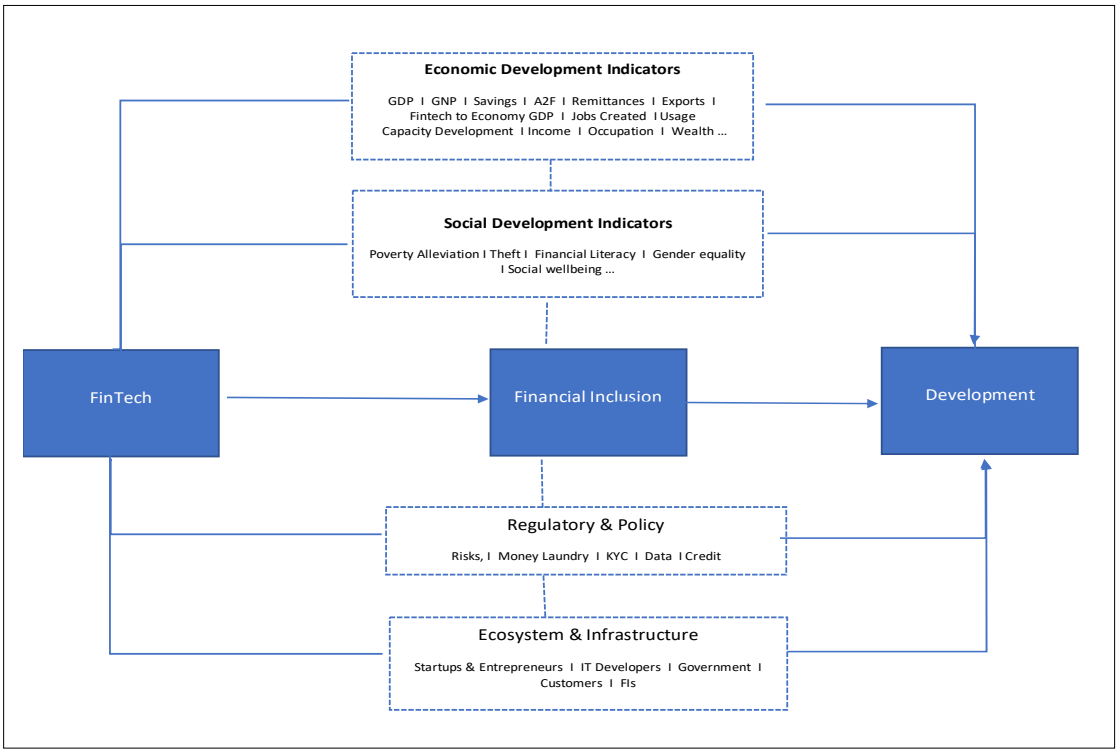


Figure 2-1"FinTech for Development" Conceptual Model

The suggested conceptual model illustrated in figure 2-1 argues the following statement:

"FinTech through its ecosystem, impacts development and financial inclusion by contributing to a set of socioeconomic indicators (factors). Hence, development depends on a number of factors including social and economic factors that are affected by FinTech. Moreover, the model posits that the dynamic and fast changing nature of FinTech impacts policies and regulations as well as infrastructure".

Based on the above statement, FinTech plays a role in socioeconomic development as well as contributes to the changes in regulations, policies and infrastructure.

For the purpose of this research, no hypothesis will be suggested and studied due to limitation of data and information of the post-conflict countries.

Furthermore, the variables specified below will be used to assess the impact of FinTech on development and provide the foundation for our comprehensive socioeconomic framework to assess the impact of FinTech on socioeconomic development.

A. Economic variables

1. GDP (McKinsey Global Institute Research, 2016)
2. Savings (Mattern & Tarazi, 2016; Thompson, 2017)
3. Access to finance (access to credit / Loans) and Remittances, (Dos Santos and Kvangraven, 2017)
4. Per capital consumption (Munyegera and Matsumoto, 2016)
5. Production, Exports, Market Value of FinTech and Trade Credit (Beck etl al., 2018)
6. Number of Account opened value of savings and usage frequency (Kochar, 2018)
7. Startups access to finance and information feedback (data) (Allen, F., 2018; Da Cruz, 2018; Zhang and Chen, 2018)
8. Economic Production (Madon, 2000)
9. Income (Gabor and Brooks, 2017)
10. Income, occupation, wealth, (Roztocki & Weistroffer, 2016)

Moreover, the economic variables can also include FinTech industry contribution to the economy based on (Palvia et al., 2018; Niebel, 2018; Roztocki & Weistroffer, 2016)

1. Contribution to country's GDP
2. Employment and jobs creation
3. Income of FinTech companies
4. Exports of the FinTech industry to international markets
5. Institutional and individual's capacity development through the creation and expansion of institutions producing and using fintech solutions as well individuals.

B. Social variables

1. Poverty Alleviation (Dos Santos and Kvangraven, 2017)
2. Poverty and theft (Beck et al. (2018)
3. Financial Literacy (Gabor & Brooks, 2017; Leong et al., 2017)
4. Gender equality (Ghosh and Vinod, 2017)
5. Social well-being including health, education and poverty alleviation and empowerment (Madon, 2000)

C. FinTech Ecosystem based on Lee and Shin (2018) and the Ecosystem Theory (Kabakova & Plasksenka, 2018; Thompson, 2018):

1. Startups and entrepreneurs including mobile money and payment agents.
2. Tech developers
3. Governments (regulators)
4. Customers
5. Financial institutions

3. Data & Methodology

This research aims to develop a comprehensive socioeconomic framework to assess the impact of FinTech on socioeconomic development in post-conflict countries The research will identify different constructs (indicators) and relationships between constructs in order to assess the impact of FinTech on development in post-conflict countries. One of the relationships to be investigated is the relationship between FinTech and Financial Inclusion.

This chapter covers the different methodology & data areas including the selected research methods, target population with focus on post-conflict countries covering Iraq, Jordan (for Syrian refugees), Afghanistan, Egypt and Palestine. In addition, this chapter discusses the selected sample approach which is based on Stratified Sampling that divides the population into different and non-overlapping groups including financial, development professionals and individual and business users. Furthermore, the research focusses on qualitative primary sets of data collected through interviews, as well as the review and analysis of secondary data.

3.1 An overview of research methodology

The research was designed to use different data collection methods to collect primary data and review and analyse secondary data. This includes the review of different development institution reports such as World Bank, IFC, UN, CGAP and others. In addition, the research originally identified different set of methods to collect primary data including interviews, focus groups and case studies.

During the collection, the research selected the **interview collection tool** for different reasons including (a) the COVID-19 pandemic which restricted working in groups and face to face, (b) the changing working hours and habits during COVID-19 pandemic effected the group calling as well direct communication with some stakeholders, (c) post-conflict countries weak infrastructure including internet which made communication harder than developed countries, and (d) level of literacy and communication equipment available to targeted stakeholders limited the interaction.

3.2 The Population (Case Selection)

Based on my research topic and question (i.e., How can FinTech help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries?), the research focusses on post-conflict countries based on the United Nation Development Program (UNDP) definition (UNDP, 2010). Moreover, Panic (2009, 1) defined the post-conflict countries as "the states that have either been through or are highly vulnerable to serious forms of internal violence, including civil wars." Based on that, the post-conflict countries can be countries that still suffer from war or are under a continuous threat of war or internal conflict including terrorism or civil war.

While the research originally was intended to investigate three post-conflict countries. Consequently, the research will use a Multiple Case Study Method which will afford a holistic approach and provide different views from different practices and environments (Blumberg et al., 2014). The countries selection criteria were based

on the above definition as well as adapting financial inclusion strategy, already use at least one FinTech solution and have available data and indicators. The selection criteria ensured having a comprehensive socioeconomic impact analysis as per the suggested conceptual model. Moreover, the post-conflict countries the research investigated are Iraq, Egypt, Palestine, Afghanistan and Jordan (to cover Syrian refugees).

This research focusses on post-conflict countries due to the fact that such countries can benefit significantly from FinTech that can be used as a tool to facilitate financial inclusion and enable people access to finance and financial services.

3.3 The sample of Participants with each Case Study

In order to follow the right sampling approach, a set of data required for the study was determined. The data is specified in the suggested conceptual model (FinTech for Development) presented later in this research. Furthermore, the research activities strived to apply the multiple case study method which requires different types of data from different sources to triangulate our data and develop holistic understanding of each case in order to draw within-case insights and across-case comparison. The research collects and analyses two sets of data: primary and secondary as illustrated in table 3-1:

"FinTech for Development" Conceptual Model Constructs (variables)	**Type & Source of Data**
Economic variables GDP / Savings / Access to finance (access to credit / Loans) and Remittances / Per capital consumption / Production, Exports, Market Value of FinTech and Trade Credit / Number of Account opened, value of savings and usage frequency / Startups access to finance and Information feedback (data) / Economic Production / Income Moreover, the economic variables can also include FinTech industry contribution to economy: Contribution to country's GDP / Employment and jobs creation / Exports of the FinTech industry to international markets / Institutional and individual's capacity development through	Secondary Data To be collected from different sources including World Bank Global Findex World Bank Reports Others

the creation and expansion of institutions producing and using fintech solutions as well individuals.	
Social variables Poverty Alleviation / Poverty and theft / Financial Literacy / Gender equality / Social well-being including health, education and poverty alleviation and empowerment.	
FinTech Ecosystem players and stakeholders Startups and entrepreneurs Tech developers Governments (regulators) Customers (beneficiaries & users) Financial institutions The discussed data depends on the target participant: Professional participants discussed the following: Infrastructure available and challenges / Ecosystem mapping / Innovation in FinTech practice in the country / Contribution of FinTech in the economy and GDP / Regulatory issues with FinTech / Impact of FinTech. Individual & Business Client (participants) talked about their story and participants story about Fintech role in development and the experiences and learned lessons the research can learn from.	Primary Data To be collected through different qualitative data collection methods targeting different stakeholders (groups): Financial Regulators & Policy Makers Group Financial Professionals Group Development Professionals Group FinTech Professionals Individual Clients Business Client

Table 3-1 Required set of data.

Based on Table 3-1, the sampling approach for each of the case studies was based on Stratified Sampling as the population will be divided into different and non-overlapping groups (as mentioned above in table 1). Once groups are defined the final sample for each group will be on convenience sample due to the challenging post-conflict countries challenges. The following groups formed the sample including Financial Regulators & Policy Makers Group, Financial Professionals Group,

Development Professionals Group, FinTech Professionals, Individual Clients and Business Clients (beneficiaries and users).

It is worth mentioning that the sample within each case study (country) differs from case to case due to (a) the lack of certain activity or stakeholders in some countries, and (b) some targeted stakeholders were difficult to reach due to COVID 19 working circumstances and limitation.

3.4 Data Collection Methods

Based on the different types of required data and the different groups in the sample, Table 3-2 illustrates the collection methods for each set of data:

Type of Data	Conceptual Model Constructs	Source of Data	Collection Methods
Primary Data	FinTech ecosystem players and stakeholders	Sample groups: • Financial Regulators & Policy Makers Group • Financial Professionals Group • Development Professionals Group • FinTech Professionals	• Semi-structured Interviews
	Clients	Sample Groups: • Individual Clients • Business Client	• Semi-structured Interviews
Secondary Data	Socio Economic Constructs	• World Bank Global Findex • World Bank Reports • Others	The data are available to the public and have been used previously in different studies. (Kabakova & Plasksenka, 2018; Niebel, 2018); (Palvia et al., 2018; Leong, 2017)

Table 3-2 Data collection methods

Based on tables 3-1 and 3-2, a total of 15 interviews covering all targeted stakeholders were conducted during the research. Table 3-3 below list all interviews that took place:

Stakeholder Name	Stakeholder Type	Contact Person Capacity	Country	Date of Interview	Interview Language	Interview Recorded
Central Bank of Iraq	Financial Regulator & Policy Maker	Payment Department Assistant General Manager	Iraq	November 1st, 2020	Arabic	Yes
International Organisation for Migration	Development Institution / Donor	National Livelihoods Officer	Iraq	November 16th, 2020	Arabic	Yes
Zain Cash	FinTech / Mobile Wallet	Authorised Manager	Iraq	November 11th, 2020	Arabic	Yes
Qi Card	FinTech / Payment Company	Project Manager	Iraq	June 5th, 2021	Arabic	Yes
SWEDO – The Swedish Development Aid Organisation	Development Institution / Donor	Youth Initiatives Team Leader	Iraq	June 3rd, 2021	Arabic	Yes
Financial Regulatory Authority	Financial Regulator & Policy Maker	Head of MSMEs Finance Activity	Egypt	November 12th, 2020	Arabic	Yes
Da Afghanistan Bank (Central Bank of Afghanistan)	Financial Regulator & Policy Maker	Deputy Governor	Afghanistan	February 12th, 2021	English	Yes
Afghanistan Payment System	FinTech / Payment Company	Member of Board of Directors	Afghanistan	February 28th, 2021	English	Yes
UWallet	FinTech / Mobile Wallet	Head of Operations	Jordan (Syrian Refugees)	November 13th, 2020	Arabic	Yes
Maalchat	FinTech / Mobile Wallet	Co-founder & Member of Board of Directors	Palestine	April 14th, 2021	Arabic	Yes
Individual Client for Zain Cash			Iraq	June 2nd, 2021	Arabic	No
Individual Client for Zain Cash			Iraq	June 1st, 2021	Arabic	No
Individual Client for Zain Cash			Iraq	June 1st, 2021	Arabic	No
SME Client for Maalchat			Palestine	June 1st, 2021	Arabic	No
SME Client for Maalchat			Palestine	May 30th, 2021	Arabic	No

Table 3-3 List of interviews

It is important to highlight that the following issues related to the interviews to ensure accuracy, professionalism, and reliability:

Interviews design and guide development: In order to ensure professional and effective interviews and proper collection of data according to the research needs and in compliance with research ethics. An interview guide was developed based on research questions using interviews as a data collection tool.

The interview guide development was processed through several phases including (a) drafting the structure of the guide to reflect the interview structure as well content to be presented and discussed during the interview, (b) identifying possible questions to reflect the required information and data, (c) grouping the questions to reflect sample presentation based on the variety of the interviewed stakeholders, (d) sharing the guide draft with research supervisors, a researcher, possible stakeholders for feedback and recommendations, and finally (e) conducting needed changes and finalising the guide.

Interviews recording: Interviews with individuals and business clients were not recorded due to different reasons including (a) technical issues related to sound and image clarity in some countries, such as Iraq due to internet and communication infrastructure, (b) some individual stakeholders are IDPs with limited ability to log into a device to support video recording, and (c) client preference to talk over the phone as easier and more convenient for them.

Transcription & Translation: A professional company was used to transcript the interviews in the original interview language and then translated them to English or Arabic as per the need. More important, being a bilingual researcher with both excellent Arabic and English linguistic skills, I reviewed all interviews transcripts and translations while listening to the interviews and conducted the right corrections when needed. This ensured the reflection of not only professional act but even expert and participants contribution to the produced work. Please refer **Appendix 1 (Interview Guide)** for more information about the interviews.

3.5 Data Analysis Methods

Based on the approaches followed by the previously highlighted studies, this research used Qualitative Research Methods using an Interpretive Approach to analyse data collected from interviews, as per Palvia, Baqirn and Nemati (2018). Moreover, qualitative data analysis of narrative collected from the sample was conducted using inductive and deductive techniques based on Ritchie et al. (2014) and Leong et al. (2017). Furthermore, the data collected through different statistical data including indicators such as World Bank Global Findex or other sources were analysed using Qualitative Comparative Analysis. Kabakova and Plasksenka (2018) followed this approach in a very similar case of limited number of cases and sampling. Moreover, a descriptive analysis was followed based on Dos Santos and Kvangraven (2017) to describe data and what is happening behind the data.

3.6 Research Ethics

The effort throughout the research ensured ethical and research principles based on Ritchie et al. (2014) including 1) maintain high level of confidentiality of participants' information and views, 2) ensure participation in interviews and focus groups is voluntary, 3) use a language known to participants, 4) provide a relaxed atmosphere during the interview or focus group, and 5) establish trust with participants. Furthermore, room and freedom will be given to participants to share all related issues and express serious interest in their views by asking questions like "what else should I have asked you about?" or "what else would you like to share?" Also, respect and maintain intellectual property rights of participants. Finally, the data collection and analysis methods ensured validity and reliability of data through following systematic practice in collecting, storage, and analysis of the intercoder reliability methods of qualitative data.

4. Findings & Results

4.1 Introduction

This chapter discusses the findings of the different case studies under review and research as well as the results of interviews conducted with the different stakeholders. The discussion is based on answering the research main and sub questions determined earlier in the research. Furthermore, this research uses an interpretive approach to analyse data collected from interviews. In addition, following the case studies (countries subject to research), a comparison is made to show the difference between case studies, different practices and reasons behind such differences between cases.

More importantly, the review and analysis are tied to enhance the "FinTech for Development" Conceptual Framework originally developed for the purpose of this research (see figure 2-1).

4.2 Overview of the case studies

4.2.1: Jordan

4.2.1.1: Background

According to IFC recent market study to map MSMEs Digital Financial Services in Jordan (IFC, 2022). Jordan is considered to have an advanced ICT infrastructure which contributed to the development of a diversified FinTech environment including an advanced regulatory and diversified stakeholders' map. The study identified key digital financial services stakeholders, key FinTech players and factors affecting the sector including the regulatory progress and milestones that affected the introduction and advancement of FinTech in Jordan. In addition, the Central Bank of Jordan (CBJ) is hosting and providing incentives to entrepreneurs and startups to launch their products under its regulatory sandbox. The Central Bank of Jordan was one of the pioneers in developing a clear financial inclusion policy that guided more inclusion and introduction of FinTech products (Central Bank of Jordan, 2021).

According to Jordan's Department of Statistics (Department of Statistics, 2021), Jordan's population reached 11 million people in Oct 2021. The country's GDP is around 44 billion in 2020 with a 3.2% growth rate in the second quarter of 2021 (World Bank, 2021). Jordan's economy suffered significantly from the refugee's crisis throughout the years due to the Iraqi and Syrian wars. Today, non-Jordanians with registered refugees' status are 756,729 (UNHCR, 2021) from different nationalities, of which 83% live outside camps and located in four cities (Amman, Mafraq, Zarqa and Irbid) and 46.2 % are below 17 years old. In addition to the registered refugees, there are many non-refugees who live and work in Jordan which are estimated to be around 3 million people, mostly Egyptian labour, Iraqis, Syrian, Sudanese, Libyan, Yemenis and others. This is a significant number of people which places a huge burden on the economy, education, medical and other sectors in a country with limited resources and support from the international community.

4.2.1.2: Ecosystem

The FinTech **Ecosystem** in Jordan has developed significantly and today includes a wide range of digital financial services and stakeholders. According to Central Bank of Jordan (2021), there were 8 payment service providers, 842 agents and 1537 access points by the end of 2020. There were 1.2 million mobile wallet users in 2020, while the wallets were 360,000 in 2018. The increase was due to the financial inclusion strategy and the central bank and government promotions to use digital finance during COVID-19 (Central Bank of Jordan, 2021). In addition, there were 4.3 million different card types (credit and debt) in Jordan in 2020 while it was 3.6 million in 2018. Also, The Basic Mobile Accounts which were introduced by the Central Bank in 2019 to encourage inclusion were 29,188 by the end of 2020 of which 12,548 accounts were owned by women.

In addition, IFC MSME Market Study (IFC, 2022) identified key stakeholders including enablers institutions, payments, access to finance and regulators. Figure 4-1 shows the

different stakeholders and the landscape of the FinTech Ecosystem in Jordan:

Stakeholder	Description	Services	Leading institutions in Jordan
Enablers, development and facilitation services	Institutions providing services that enable others to offer and access finance digitally.	Regulating the sector	Central Bank of Jordan
		Credit bureau, credit information	CRIF
		Payment infrastructure, Switch, and solutions	JOPACC
		Loan guarantee services	JLGC
		Development agencies; both private & public sectors offering mainly non financial services including capacity building, facilitation, incubation, acceleration, networking and finance readiness	JEDCO, VC, USAID, GIZ , Venturex (hassad, siyaha), I Park, Orange, Zain, The Tank,
Payment Services	Private companies with the support and approval by CBJ and the government of Jordan.	PSPs, bill payment solutions	MadfooatCom
		PSPs, provide POS, QR code solutions	MEPS, Madfooatcom, U wallet, Zain cash, Orange Money
Access to Finance	Institutions that directly or indirectly offer access to finance services including credit through online platform. Commercial banks, NBFIs such as MFIs, VCs, E-Wallets, leasing companies, and FinTech companies and Crowdfunds.	Commercial Banks, VCs; provide loans & equity investments	Arab Bank, Bank Al Etihad, Capital Bank, Venturex
		NBFIs; provide microfinance	MFW, SandaCom, Ahlia MicroFinance, LIWWA
		MSME lending	LIWWA
		Mobile wallets for cash transfers	U Wallet, Zain Cash, Orange Money, Dinark
		Crowdfunding, peer to peer lending	Beezcrowd
		E-commerce; provide payment facilitation and offers and data	Opensooq
		Ride hailing; Payment facilitation and offers and data	Jenny, Careem, Uber

Figure 4-1: FinTech Landscape and Ecosystem stakeholders in Jordan
Source: IFC MSME Financing Market Study (2022)

In addition to the stakeholders, IFC mapped FinTech in Jordan which was a result of the financial inclusion strategy and efforts by the Central Bank of Jordan to develop an attractive FinTech landscape. The mapping is shown in figure 4-2 below:

Figure 4-2: FinTech Mapping in Jordan

Enablers: Payment Infrastructure: JOPACC. Credit Information & Scoring: CRIF. Regulator: CBJ SandBox.	**Payment Service Providers:** PSPs: MadfooatCom I MEPS. Mobile Money: Zain Cash I UWallet I Orange Money I Dinarak I AYA Pay I GateToPay I National Wallet MM Agents: Foreign Exchange Companies I Mobile Shops Cards Issuing & Merchants Services: Arab Bank I MEPS I EMP. Ecommerce support & Logistics: Ship cash Transfers: Foreign Exchange Companies		
MSMEs Lending: SMEs: LIWWA I Arab Bank. MFI: MICRO Fund for Women.	**Personal Finance:** Lenders: Money For Finance I Solfeh I Waslah I Sanad Cash. Finance Facilitation: AmwalCom I Tamweelna. Cash Advance: Go Cash		**Saving:** Personal Savings: Tanda I ChangeCom.
Software Providers & Core Banking System: Core Banking Systems: Specialized Technical Services (STS). Financing Systems (MFIs): Delta. Electronic Clearing & Payment Systems: Progress Soft. Learning & Training: Salalem. AI – Conversational Banking: Labiba ai. Transformation & Analysis: : Beye I Digital Analytica		**Crowdfunding:** Beeezcrowd.	**Incubators & Accelerators (focusing on FinTech):** Arab Bank AB Accelerator I Ahli FinTech I Endeavor I IPark I Venturex I Orange I Zain I The Tank I ISSF Jordan.
MSMEs Aggregators: Ride Hailing: Jenny I Uber I Careem. Telecoms: Orange I Umniah I Zain. E Commerce: OpenSooq I Talabat I Drizzleup I Aramex	**Data:** OpenSooq I MadfooatCom I CRIF	**Tax:** DareebTech	**Insurance:** QuickClaim

Source: IFC MSME Financing Market Study (2022)

The diversified FinTech landscape in Jordan as per figure 4-1 is a result of CBJ's financial inclusion strategy as well a response to the development of the legal and regulatory environment. The landscape includes infrastructure companies and entities that support payment solutions and provide credit information. The ecosystem also includes different payment services whether through mobile wallets, card issuance & acquiring business, payment service providers, transfers, and others. In addition, the landscape includes financial service providers including credit and equity investment for both MSMEs and consumers as well saving services. Other players include software development institutions, tax, insurance, and other data mining institutions.

Such a rich and diversified FinTech landscape has helped Jordan to achieve its financial inclusion goals and increased the financial inclusion rate from 33.1% in 2017 to 50% and reduced the gender gap from 53% to 29% by the end of 2020 (Central Bank of Jordan, 2021). This is also due to the comprehensive financial inclusion strategy the CBJ follows and implements with a great focus on Digital Financial Services including FinTech, financial literacy and other pillars. Jordan's Financial Inclusion Strategy targets the whole population in Jordan with a focus on youth, women and refugees and aims to increase the financial inclusion of those vulnerable groups and reduce the gender gap (Central Bank of Jordan, 2021).

4.2.1.3: Regulations

FinTech in Jordan has a great impact on Regulations (Central Bank of Jordan, 2021). Firstly, the CBJ introduced the FinTech Regulatory Sandbox in Jan 2019 as a key enabler of FinTech initiatives in Jordan, and to encourage entrepreneurs to test and introduce digital financial services in the market. The sandbox acts as an incubator, accelerator and advisory support for entrepreneurs to develop their products and services and test it in a live marketplace. So far, CB Sandbox has supported around 18 applications of which 8 businesses were accepted (Central Bank of Jordan, 2021). Furthermore, various related regulations have been issued including Mobile Payments Working Instructions, Electronic Payments & Transfers Regulation 2018, AML, Financial Consumer Protection Regulations, Electronic Transaction Law 2015, and recently in 2022 a new regulation to govern the work of Non-Banking Financial Institutions under Finance Companies Bylaws 2022. In addition, FinTech in Jordan has affected the policymaking of government through introducing the following policy-level initiatives including National Financial Inclusion Strategy 2017, FinTech Regulatory Sandbox 2019, Financial Literacy Initiatives and others.

Bill & Melinda Gates Foundation
Founded in year 2001 as a not-for-profit foundation fighting poverty, diseases, and inequity around the world. The beginnings were focused on children health issues as millions of children died from diseases. Since then, the program expanded to cover different issues in addition to health including education, access to finance and others. The foundation through its" financial services to the poor" program, it is helping the poor access to affordable and reliable finance through developing digital payment infrastructure, regulations, gender equality initiatives. The foundation works with different partners around the globe in more than 130 countries including World Bank, USAID, Alliance for Financial Inclusion, and Better than Cash alliance and many others. The foundation operates in all continents and starts the work in Jordan in 2017 in collaboration with Central Bank of Jordan and contributed to the promotion and usage of Mobile Wallets (Gates Foundation website).

The Syrian Conflict has had a significant negative impact on Jordan with more than 1.3 million Syrians escaped the war to Jordan, of which more than 750,000 were registered as refugees (UNHCR, 2021). This research focusses only on FinTech impact on the Syrian Refugees' socioeconomics which only shows a limited side of Jordan's FinTech capabilities, practice and achievements. Nevertheless, it represents a significant tool to integrate the refugees within host countries and facilitate support and financial aid to refugees as well help them merge with communities, meet their financial needs and live their lives outside their home country.

Many international development and aid agencies support refugees in Jordan with a great focus on Syrian refugees and provide them with technical and financial support. The financial support is done through the FinTech infrastructure and ecosystem in Jordan. Aid agencies use Jordanian's Mobile Payment Companies licensed by the CBJ to deliver the financial aid to beneficiaries which gave them access to a wide range of benefits and services including access to aid funds, the ability to transfer funds, the ability to benefit from different utilities and services, and – most importantly – it allowed refugees without identity to access the development and aid agencies benefits using biometric technologies like IRIS and others. Furthermore, and according to the UWallet interview, one of the licensed PSPs in Jordan, mobile wallets allowed refugees to transact over the mobile wallet and buy services, get paid for services and pay utilities. In addition, in general FinTech in Jordan provides a range of services and benefits to businesses including salary payment, collection of payments, paying suppliers, and developing their trade and e-commerce sales (IFC, 2022; Central Bank of Jordan, 2021).

By the end of 2020, refugees in Jordan held 46,000 mobile wallets which represent 4% of total wallets in Jordan (Central Bank of Jordan, 2021). Many of the CBJ initiatives were deployed for the benefit of unfortunate people and refugees including "The Mobile Money for Resilience MM4R" in collaboration with the Bill & Melinda Gates Foundation which aims to increase financial inclusion rates and improve the efficiency and effectiveness of humanitarian response programs. In this context, Mobile Wallets as part of FinTech were used to provide and support social protection initiatives in Jordan including payment of financial aid to poor and limited income people through mobile wallets as well financial aid to refugees. The Gates Foundation made an initial grant of USD 3 million and committed to a total of USD 11 million to scale up and promote Mobile Money Services by the government of Jordan and humanitarian agencies cash transfers programs. The support covered regulations and infrastructure to enable the wallet operations. Most importantly, the support helped the National Aid Fund in implementing Mobile Money payments to its normal and monthly aid beneficiaries as well under the **COVID 19 emergency cash** support where more than USD 664 million were paid to more than 250,000 households by June 2021 under different initiatives and programs (National Aid Fund, 2021).

Another important initiative by CBJ which also targets refugees is called "Improving Access to Remittances and Other Financial Services Through Digital Solutions in Jordan (Digi#ances)". The initiative aims to increase the financial inclusion of the underbanked population including low-income people and refugees. This allows refugees to pay, transfer locally and internationally and conduct other financial transactions.

4.2.1.4: Financial Literacy

CBJ started its effort to promote Financial Literacy before even developing Jordan's Financial Inclusion Strategy. CBJ established the Financial Literacy unit as the main endeavour in Jordan's financial inclusion strategy and covers all school levels curricula. CBJ conducted various financial literacy activities including educating youth, women, entrepreneurs, refugees under several initiatives including Sonbola, the Arab Financial Inclusion Day (Central Bank of Jordan, 2021).

4.2.1.5: Access to Finance

Based on the above-mentioned financial inclusion initiatives and encouraging regulations, refugees in Jordan benefit from such regulatory and infrastructural setups that allowed them to access to different financial services including receiving payments & grants, conducting financial transactions that meet their needs without any obstacles such as ID verification issues. Moreover, Mobile Money gave refugees in Jordan the freedom & ability to conduct different transactions to meet their commercial and socioeconomic needs including paying for goods & services, supplying businesses, buying raw materials, paying salaries, collecting payments, selling products & services and other benefits to both individuals and businesses owned by refugees or the hosting communities.

On the other hand, FinTech in Jordan faces same challenges similar to startups and entrepreneurs. Such challenges are access to loans and funds in general, high taxation environments, high doing business cost including salaries and overheads which all make it challenging to operate. Therefore, many FinTech immigrate to regional hubs like Dubai or Egypt for more attractive business environment.

4.2.2 Egypt

4.2.2.1: Background

Despite the turbulent political environment during the Arab Springtime in 2011 throughout 2014. Egypt has moved forward and steadily towards economic reforms that made it one of the emerging economies in the region with almost a 4% GDP growth rate from 2013 to 2020 (World Bank, 2022). In addition, the foreign direct investment increased significantly with an average of 2.31% of GDP during the same period according to the same source. Such growth and economic stability since 2014 have reflected positively on the development of the FinTech landscape, regulatory environment and services in Egypt. Today, Egypt stands as a leading FinTech scene in Africa and the MENA region and ranked the 4th African Country in FinTech Investments and 2nd in FinTech Deals and FinTech Funding in the MENA Region according to the (Central Bank of Egypt, 2021).

According to the Central Bank of Egypt (2021), Egypt is the largest populated country in the MENA region with around 105 million people and forms 23% of MENA population. Nevertheless, the country faces significant problems with 27.8% of the population living under the poverty line and 11.8% unemployment (AFI, 2018). In addition, 95.95% of the population have a mobile subscription, 57% are mobile internet users with a 24.7 median age and 56.2% is the adult financial inclusion rate with an annual inclusion growth rate of 115% since 2016 (Central Bank of Egypt, 2021).

4.2.2.2: Ecosystem

The FinTech ecosystem in Egypt has changed dramatically in the last years and included a variety of service providers as well as consumers as it covers B2C, B2B and B2B2C. The landscape included enablers, regulators, infrastructure & ICT development companies, VCs, incubators & accelerators, personal finance, wealth management, payments, remittance, Insurtech and others. The following figure 4-3 maps the FinTech landscape and different stakeholders in Egypt.

Figure 4-3: FinTech Landscape and Ecosystem stakeholders in Egypt

Source: Egypt FinTech Landscape Report 2021 by Central Bank of Egypt

4.2.2.3: Regulation

According to the Consultative Group to Assist the Poorest (CGAP, 2020), there are different driving forces and factors that contributed to the advance and diverse FinTech landscape in Egypt. Such factors include: the Mandatory Cashless Transaction Law requesting cashless transactions at different entities including MFIs and Egyptian Customs Department transactions. Another reason is the country's literacy and availability of skilful talents especially in ICT sector. In addition, there were different regulatory revisions and different governmental initiatives that promote FinTech including the National Council of Payment to reduce the use of banknotes, reduce fees, bankruptcy law, the launch of Egypt's Regulatory Sandbox. Moreover, other factors that supported the promotion and development of FinTech in Egypt is the attractive Egyptian investment climate which encouraged the movement of investment and capital to Egypt as well as different government incentives to encourage funding of startups such as FinTech startups. In addition, Egypt has a high mobile penetration and internet access rates (AFI, 2018).

The COVID 19 Pandemic has delayed Egypt's National Financial Inclusion Strategy issuance, which covers many existing strategies and initiatives. Nevertheless, there were significant and steady steps taken to promote financial inclusions led by the Central Bank of Egypt including Egypt's Sustainable Development Strategy 2030, National Strategy for non-Banking Activities 2018 – 2022, launch of mobile applications service interoperability, implement Egypt Degree 18 / 2019 for e-

payments in which require all public and private institutions to make payments electronically (USAID, 2020).

The above efforts have clearly contributed to Egypt progress in its financial inclusion endeavours. As per the Central Bank of Egypt Financial Inclusion Report (2021), the financial inclusion rate is 56.2% with more than 36 million adults owning a transactional account of which 16 million women own transactional accounts. There are 26.1 million prepaid cards representing almost 40% of adults are prepaid cards holders, also 25.2 million mobile wallets which represent 38.5% of adults are mobile wallets owners. In addition to that, there are 1,073 access points (branches, ATMs, POSs, and Service providers) to serve each 100,000 adults. Furthermore, according to the National Telecommunication Regulatory Authority (NTRA) website, there was 227 million mobile wallet transaction in 2021 with a total volume of EGP 233 billion. This is clearly due to the digitising of some government benefits and services including government to person payments of social aid such as supporting the poor under KARAMAH and TAKAFUL programs, also paying pensions through wallets and other inclusion initiatives which contributed to the overall growth.

Women in Egypt can play a significant role in economic growth and development. According to Alliance for Financial Inclusion (AFI, 2019), women represent only 22.5% of the total labour force and have an estimated credit demand of USD 283 million among female-owned SMEs. In addition, the number of households headed by women was recorded at 3.3 million out of 23.5 million in 2017 census. The Central Bank of Egypt identified such potential opportunities and focussed on women and gender activities under different initiatives to empower women and other underserved groups such as people with special needs and youth.

The government and the Central Bank of Egypt are keen to force a transition towards electronic payment of salaries and government transactions. According to AFI (2018) 4.5 million cards were issued by 2,800 governmental institutions for salary payments and 7 million cards for pensions. In addition, the Central Bank of Egypt developed (MEEZA) which is the Egyptian National Payment Scheme to serve financial institutions issuance and processing electronic and non-cash transactions (USAID, 2020). MEEZA issues cards and mobile wallets to serve clients in their access to funds and services. Table 4-1 below shows MEEZA status:

22 million mobile wallets empowered by MEEZA network	**24 mobile wallets service providers**	**14,000 ATMs across Egypt**
17 million MEEZA cards	**28 banks issue MEEZA cards**	**98,000 POS across Egypt**

Table 4-1 Egypt's MEEZA Status
Source: MEEZA website (www.meeza-eg.com)

The Central Bank of Egypt introduced different initiatives to promote financial inclusion and the usage of digital financial services including the establishment of the

National Payment Council and Egypt Less Cash Framework. In addition, the Central Bank of Egypt's FinTech & Innovation Strategy played an important role in developing the FinTech industry in Egypt which was based on five pillars (Demand, Talent, Funding, Regulation & Governance) and includes 32 initiatives to overcome challenges facing demand, talent, funding, regulations, infrastructure, and other issues and provide solutions (Central Bank of Egypt, 2021). Under such a proactive and enforcing approach, important initiatives were introduced which had significant impact on financial inclusion, the development of FinTech solutions and the lives of people and businesses. Some of these initiatives are:

- Accelerate'ha' Initiative to encourage gender equality in the FinTech sector.
- Strategy for Digital Financial Literacy
- FinYology – FinTech for Youth Initiative
- FinTech Fund
- FinTech & Innovation Committee
- FinTech & Innovation Hub (GRID)
- FinTech Egypt Portal

In addition, the regulatory reforms the Central Bank of Egypt conducted enabled financial inclusion and FinTech development. The reforms included laws & regulations as well other initiatives. Some of the reforms are:

- Less – Cash Payment Law as an important step towards digitisation and financial inclusion. It covers payment of government services in non-cash methods.
- Digital Signature Law
- Personal Data Law
- Banking Sector Law which promoted the use of technology, electronic documents and cheques.
- Alternative Finance Law that regulates Non-Banking Financial Institution or what so called Alternative Finance Activities including P2P Lending, Crowdfunding, Rotating Savings and Credit Associations (ROSCA) and others.
- Instant Payment Network.
- Agent Banking that allows banks to contract agents to offer banking services on their behalf.
- Interoperability cash in & out services for agents.
- Customer Due Diligence Procedures CDD for Mobile Payments which require fewer documents for local mobile transactions and mobile account opening.
- Digital Lending based on behavioural scoring and digital saving on mobile money wallets.
- Payment aggregators and facilitators.
- Standards for issuance and acceptance of contactless payments.
- QR Code Standards
- Internet Banking Services Regulations

The Central Bank of Egypt and the government used FinTech and electronic payments to deal with **COVID 19 pandemic consequences** through multiple circulars. The circulars focussed on precautionary actions to limit the spread of the virus and allow FIs to continue serving their customers. As per the Central Bank of Egypt (2021), circulars ease the process and transactions of opening mobile wallets, issuing of prepaid cards, and promote digital acceptance of different payment solutions including QR codes using POS. In addition, CBE increased the transaction limits to allow greater transactions that meets customers' needs and overcome the pandemic challenges (Central Bank of Egypt, 2021).

Another important initiative by CBE (Central Bank of Egypt, 2021) is the introduction of the Regulatory Sandbox in May 2019 to test innovation while still under control risks. The objectives of the regulatory sandbox are to encourage innovation, managing regulatory uncertainty, reduce time and cost and encourage investment.

4.2.2.4: Financial Literacy

While trust in digital financial services is still a challenge, the CBE focusses on promoting financial literacy among different audiences including entrepreneurs, individual and business clients (USAID, 2020). Egypt still needs more financial literacy promotions and initiatives to build knowledge and skills, as well as to overcome the cash dominant fact. In addition, The Union of Arab Banks issued a study (The Union of Arab Banks, 2021) showing low financial literacy levels in the Arab World and Egypt had a 27% financial literacy level which is considered low.

4.2.2.5: Access to Finance

Based on the above, Egypt is considered a key driver in the MENA region in FinTech and the usage of digital financial services which allowed individuals and businesses to access finance. In addition, it is clear that Cards and Mobile Money (wallets) gave people in Egypt accessibility to conduct different transactions to meet their commercial and socioeconomic needs including paying for goods & services, suppling businesses, buying raw material, paying salaries, collecting payments, selling products & services and other benefits to both individuals and businesses. Nevertheless, Egypt still has a long way to meet the Central Bank's objectives and goals in their pursuit of greater financial inclusion and digitising financial services. One of the main obstacles is the low financial literacy levels in Egypt due to the poor education system, and low income of people as GNI Per Capital in Egypt is USD 3000 (World Bank, 2022). In addition, 57.5% of the population in Egypt lives in rural areas with less infrastructure, weak communication & internet services (AFI, 2018). Most importantly and based on the research interview with Egypt's Financial Regulatory Authority: Egypt is still a cash society, especially in rural areas as well trust in the political and economic system is still not as expected due to corruption and Arab Spring political turmoil.

4.2.3: Iraq

4.2.3.1: Background

Iraq has been at war since the 1980s which reflected negatively on people's life, infrastructure, finance, resources, and socioeconomic development. With a population of almost 39 million people including 57% of youth between 15 and 65 years old (Central Statistical Organisation, 2019), Iraq holds a significant potential opportunity for growth and development. Nevertheless, only war against ISIS displaced more than six million people since 2014, of which five million had returned and 1.186 million are still displaced (IOM, 2021). In addition, trillions of dollars were recruited in the war machine in Iraq as well as wasted due to economic sanctions and aid intervention (Wilson, 2006).

Iraq's economy is fundamentally based on natural resources, namely oil and gas. In 2019, the oil sector accounted for more than 43% of the GDP. In 2020, while oil prices crashed due to the effects of the COVID-19 pandemic, the oil sector provided more than 90% of government revenues, 96% of export revenues, and 32% of GDP (Nakhle, 2021).

Iraq's banking sector is considered to be a weak sector in terms of public trust and development among its neighbours in the region. Today, the banking sector has 7 public banks and almost 70 private banks with only 4 million accounts according to (Central Bank of Iraq, 2020). In addition, different non-banking financial institutions are available that utilise FinTech and cards better than banks for development and payment purposes. The banking sector needs a lot of support and development as currently it has weak corporate governance, weak IT infrastructure, very weak public confidence & trust.

Iraq is still a cash-based society due to many reasons including the lack of trust in the banking sector, government, the local IQD currency as well as the security and instability issues in Iraq. According to the World Bank (2017), financial inclusion rates (Iraqis with banks accounts) have increased from 11% in 2014 to 23% in 2017. In addition, 63.4% (aged above 15 years old) borrowed money out of which only 3% borrowed from official financial institutions. Meanwhile, 52.1% borrowed from family and friends. On the other side, 31% (aged above 15 years old) saved money of out of which 1.6% saved with official financial institutions. Meanwhile, 16.9% saved with non-family associations and corporations. In addition, The DataReportal website reported that 96% of the Iraqi population has mobile registration and 49% use the internet. Meanwhile, only 4.2% have mobile money accounts (DATAREPORTAL, 2019).

While the Central Bank of Iraq has no financial inclusion strategy, CBI introduced its Strategic plan 2016 – 2020 with focus and initiatives to strengthen and support the financial inclusion efforts to individuals as well businesses including the One Trillion Initiative to lend to SMEs and the Tamkeen Initiative to lend to micro businesses (Central bank of Iraq, 2020). ILO under its job creation mandate worked with the

Central Bank of Iraq and created their own financial inclusion strategy 2020 – 2023 to guide the bank and its efforts towards proper inclusion actions in order to create and enhance the lives of Iraqis (ILO, 2021). The strategy's objective is to enhance working conditions and access to financial services under different levels and pillars including building a financial institutions capacity to offer financial services using digital services.

4.2.3.2: Ecosystem

According to Arab Monetary Fund (2021), Iraq's FinTech ecosystem is limited to payment services including mobile.

wallets (4 service providers), cards issuers, acquirers, and processors (10 service providers) and cards issuance services. The ecosystem lacks many types of FinTech companies due to security, infrastructure as well as talents and skills. In addition, and under this ecosystem, there are several payment systems that enable payment services including Real Time Gross Settlement (RTGS), Cheque Automated Clearing House (C-ACH), Inter Bank Clearing System (IBCS), Central Securities Depository (CSD) and Retail Payment System Infrastructure (RPS) for cards.

The Iraq's FinTech ecosystem lacks many players including software developers, digital financial services providers that finance consumers and/or MSMEs based on digital platforms or digital intervention, credit information or credit bureau services provider and different type of FinTech based service providers like insurance, audit, and crowdfunding. Figure 4-2 shows the available and operating fintech companies and service providers in Iraq as per the Central Bank of Iraq website (Central Bank of Iraq, 2021).

Enablers: Payment Infrastructure: Iraq Gate (SWITCH). Regulator: CBI.	Payment Service Providers: Mobile Money: Zain Cash/Asia Hawala/Nass Wallet/FAST. MM Agents: Foreign Exchange Companies/Mobile Shops. Cards Issuing & Merchants Services: BLUE/Amwal/QiCard. CSC Transfers: Foreign Exchange Companies
Many other ecosystem components are not available in Iraq including: MSMES & Consumer lending companies/Saving companies/Software & Financing System Developers/Crowdfunding & Peer to Peer/FinTech Incubators & Accelerators/MSMEs Aggregators/Audit/Insurance/Taxation.	

Table 4-2 Iraq's FinTech Ecosystem
Source: Central Bank of Iraq website (www.cbi.iq)

Today, there are four Mobile Money operators in Iraq (Zain Cash, Asia Hawala, Nass and Fast) which provide a wide range of services that enabled users (individuals and businesses) including the following business to consumers (B2C) services such as utility payment, transfers, cards recharging, loans application & repayment, paying governments fees, funds withdrawal & deposits and transactions through e-commerce platforms. On the other hand, wallets allowed business to business (B2B) services such as salary payment to employees, paying government fees, provide e-commerce services, collect payments from clients and pay suppliers.

More important, wallets allowed different stakeholders to support and pay cash to refugees, Internal Displaced People IDPs as well vulnerable families & individuals to receive support from international organisations and local authorities (UNHCR, 2019: UNHCR, 2021).

4.2.3.3: Regulations

The Central Bank of Iraq introduced several regulations, instructions, and guidelines to promote and govern payment and enable financial inclusion. The regulations are:

- Electronic Payment Services System Regulation No 3 in 2014.
- Electronic Signature and Electronic Transactions Regulations No 78 in 2021.
- PSPs Guidelines & Instructions 2020.
- PSPs Retail Payment Services Infrastructure membership guidelines 2016.
- PSPs Compliance & Capital Requirement 2014.
- Customer Protection Instructions 2016.

4.2.3.4: Financial Literacy

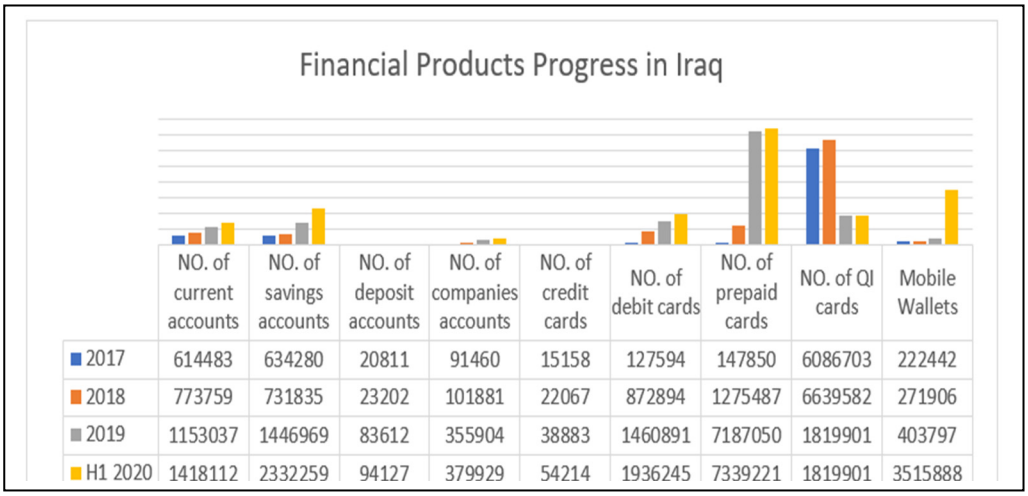
One of the main findings in Iraq from the several interviews conducted in Iraq whether the Central Bank of Iraq or the PSPs, all confirmed the low level of Financial Literacy in the country and the lack of support and initiatives to promote that as a tool and enabler of financial inclusion. CBI has very limited financial literacy activities which mostly limited to some explanations and clarifications on limited financial issues. More important, people and businesses inclusion in the formal financial system is perceived by the public as an attempt for taxation and anti-money laundry activities. Therefore, the public still avoids such issues and where the regulator needs greater efforts to explain the actual purposes in that.

4.2.3.5: Access to Finance

According to financial products figures provided by the Central Bank of Iraq, it is clear that financial inclusion efforts by the Central Bank is giving positive results in general. Figure 4-4 below represents the progress as per each product. Nevertheless, it is important to highlight the reasons behind the significant growth behind mobile wallets in the first half of 2020 which was due to the COVID 19 assistance package (government emergency grant) which was delivered to beneficiaries through mobile wallets. According to the Central Bank of Iraq, 2,355,480 wallets were opened to deliver cash grants to low-income daily workers and other beneficiaries like IDPs and martyrs' families and others. Furthermore, the reduction in QI Cards in years

2018/2019 is due to the migration of clients from QI cards to prepaid cards which offer better benefits and features according to the interview with service provider representative during the data collection phase.

Figure 4-4: Financial Products Progress in Iraq 2017 – 2020.



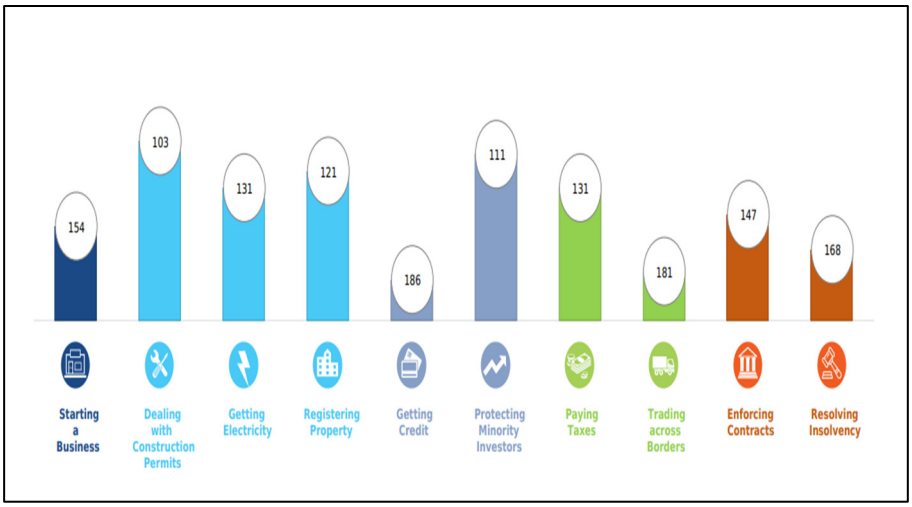
	NO. of current accounts	NO. of savings accounts	NO. of deposit accounts	NO. of companies accounts	NO. of credit cards	NO. of debit cards	NO. of prepaid cards	NO. of QI cards	Mobile Wallets
2017	614483	634280	20811	91460	15158	127594	147850	6086703	222442
2018	773759	731835	23202	101881	22067	872894	1275487	6639582	271906
2019	1153037	1446969	83612	355904	38883	1460891	7187050	1819901	403797
H1 2020	1418112	2332259	94127	379929	54214	1936245	7339221	1819901	3515888

Source of data was provided by Central Bank of Iraq during the interview.

While Iraq is taking important steps towards enabling FinTech to play an important role in promoting financial inclusion, it is still not enough and requires many faster and fundamental work on regulations, infrastructure and more important financial literacy and trust among users including individuals and businesses. Moreover, the emerge of e-commerce in Iraq due to COVID 19 as well as the significant interest in promoting business incubators will significantly have an impact on developing and promoting FinTech. In addition to the fact that Iraq youth population is 57% (Central Statistical Organisation, 2019) which are more interested and oriented to technology and eager for digital financial services.

Iraq challenges facing the FinTech and Financial Inclusion growth is not limited to financial related issues. It is also tied to the general investment climate in Iraq which will distract investors from investing in infrastructure, FinTech companies and other important factors in Iraq. As per the World Bank Doing Business Report (World Bank, 2020); Iraq ranks 172 among 190 countries in ease of doing business. Figure 4-5 shows different doing business indicators that reflect the weak and unattractive investment climate that will challenge the growth and progress of FinTech and Financial Inclusion in Iraq.

Figure 4-5: World Bank Doing Business Indicators
Source: Iraq Doing Business Report 2020 issued by World Bank 2020



It is clear that Iraq ranks at the bottom of the 190 economies ranking in most of the indicators which represent the actual picture and status of the country in different sides of investments including starting a business, getting electricity, access to credit, protecting minority investors, trading across borders. More important, investors will shy away under the current low ranking of enforcing contracts (147/190) and Resolving Insolvency (168/190). Based on that, Iraq needs to pay significant efforts not limited to financial inclusion and infrastructure, but also on general investment and trade regulations, investor protection, enhancing access to credit, and paying taxes and more. Furthermore, there are general national issues including the quality of education, health, talent skills, corruption, and many other issues that Iraq needs to work on as well to build an attractive market to local and international investors as well.

4.2.4: Palestine (West Bank & Gaza)

4.2.4.1: Background

Palestinians all over the world count for 14 million people according to the Palestinian Central Bureau of Statistics (PCBS, 2021). Only 5.3 million Palestinians live in Palestine of which 3.2 million (59.6%) live in West Bank and 2.1 million (40.4%) in Gaza. Even within the Palestinian territories, 42.2% of the population are displaced people (26.3% displaced in West Bank and 66.1% displaced in Gaza) (PCBS, 2021) due to the long Israeli – Palestinian Conflict and the Palestinian – Palestinian Conflict as well between Fateh and Hamas groups. Unemployment among Palestinians is around 25.9% for people aged 15 years old and above, while unemployment is significant among women in Gaza, but it reaches 63.6% and 42.1% for men (PCBS, 2021). While the Israeli occupation of Palestinian territories places a hardship on Palestinian daily life, the Palestinian – Palestinian conflict also places

an additional burden on policies, regulations and decision making to reach to a common regulatory ground for all territories and provide common and equal services. Both conflicts and in addition to the several wars on Gaza during the last years have placed many issues and burdens on people and the Palestinian Authorities including financial, social, health, education, employment, infrastructure, and others (PMA, 2018).

The financial sector in Palestine is relatively new and was established in 1994 by the foundation of the Palestine Monetary Authority (PMA) after the signing if the Oslo Accords and the Paris Protocol in 1994. The Palestine Monetary Authority is the regulator and represents the Central Bank and regulates banks and microfinance institutions. In addition, the Palestine Capital Market Authority (PCMA) was established in 2004 to regulate the insurance, securities, mortgage, and leasing sectors (PMA, 2018). The financial sector in Palestine is very limited and consists of 7 local banks, 6 foreign banks, 8 lending institutions (MFIs) and 5 electronic payments service providers, 10 insurance and 10 leasing companies (PMA, 2021).

The Palestine Monetary Authority is promoting financial inclusion and FinTech by introducing regulations, promoting financial literacy, and providing encouraging infrastructure and enabling environment, but still financial inclusion rates and indicators are low (PMA, 2018). According to PMA (2018), the financial inclusion rate is only 36.4% which includes owning a bank account, holding an insurance policy or a bank loan. In addition, according to the World Bank (2018) no mobile money accounts or transactions existed at that time, 3.9% used accounts to pay utility bills, 3.7% pay private sector salaries, 7.1% used the internet to pay for utilities or buy online and 5.1% used a card to make a purchase. Furthermore, the following Table 4-3 shows some financial inclusion figures in Palestine (World Bank, 2018; PMA, 2021):

25% has account with FI	**15.7% of women has account with FI**	**14.2% made or received a digital payment**
2.4 ATM for 10,000 adults	**1.3 branch for 10,000 adults**	**46% of adults have at least one regulated deposit account**
7% of adults with at least one credit account (banks)	**3% of adults with at least one credit account (MFIs)**	**11.7 of DFS agents per 10,000 adults**
31 merchant payment per 10,000 adults	**8% of adults have registered DFS accounts**	**703 ATMs & 130,770 ATMs Cards**
7,221 POSs	**91,476 Credit Cards**	**997,861 Debit Cards**

Table 4-3: Palestine's Financial Inclusion Data
Source: Palestine Monetary Authority Website (www.pma.ps)

4.2.4.2: Regulations

Digital financial services have been a recent key focus for the Palestinian Monetary Authority (PMA) to overcome many challenges facing Palestinians due to the Israeli occupation and the Palestinian – Palestinian conflict. Based on that, PMA has adopted a digital transformation strategy that will allow recruiting digital financial services to overcome the political, social, economic and financial challenges facing Palestinians in West Bank and Gaza. The year 2020 was the key turning point for PMA and the implementation of digital strategy through different steps (PMA, 2021) including the following:

- Electronic clearing system for different currencies.
- The licensing of 4 Electronic Payment Service Provider and in 2021 licensed the 5th company. Three of these payment providers offer Mobile Wallets services.
- Developed a hosting and enabling FinTech environment including the creation of committees, FinTech Task Force (Consulting team).
- Finalised the Regulatory Sandbox Guidelines which will encourage and regulate the FinTech innovation and development. This space will allow innovation, product development and testing without being regulated and will provide technical and financial support and business modelling.
- Training and capacity building on FinTech, digital financial services and other related issues.

Earlier, the Palestinian Monetary Authority adopted a National Payment Strategy for 2018 – 2023 with a focus on several areas, including: developing a legal environment in support of e-commerce and payment, developing the infrastructure, increasing access to electronic payment to different parts of the population and raising awareness about digital financial services (World Bank, 2021) . With that, the payment infrastructure is still emerging with only 5 licensed service providers, no mobile wallets dedicated switch and only the national payment switch called BURAQ responsible for retail and large transactions. To expand the ecosystem and the FinTech scene, there is a FinTech strategy under development among different stakeholders including PMA, donors (World Bank, USAID, GIZ and others), private sector, financial sector, ICT sector and others (World Bank, 2021).

4.2.4.3: Ecosystem

While important steps were taken to improve financial inclusion in general and FinTech in specific. Nevertheless, the landscape is still underdeveloped in many areas and requires more work and promotion to enhance usage and inclusion rates (USAID, 2020). The PMA has introduced important laws and regulations including the introduction of the Electronic Transaction Law No 15 / 2017 and regulations to license Payment Service Providers. In addition, a Credit Bureau was established in 2008. Nevertheless, many other areas are underdeveloped and need further

development and enhancement (USAID, 2020), including strengthening the consumer protection practice and the judicial system. In addition, the launch and implementation of the Regulatory SandBox is very important to the introduction of innovative FinTech solutions in Palestine. Furthermore, the financial literacy effort also should be strengthened with more clear action plan to promote financial literacy among schools, adults, women and others. One important issue that should be considered under financial inclusion strategy is to bridge the financial inclusion gender gap (only 15.4% of adult females have bank account, while 41.1% of male adults have bank account) through the use of FinTech and the revision of regulation to serve this purpose (PMA, 2018).

Only three of the five licensed electronic payment service providers provide Mobile Wallets services. They are Jawal Pay, Pal Pay and Maalchat. The providers provide various services including e-payment of e-commerce transactions, local money transfers, cash in and cash out, utility bills payment, issuance of prepaid cards, payment of loans' instalments and charging mobile phones balances. Clients can charge their wallets through banks and a limited network of agents.

4.2.4.4: Financial Literacy

During the research interview, the regulator advisor and FinTech Expert in Palestine, stressed on the facts that justify the low usage and recruitment of Mobile Wallets in Palestine. The reasons are:

- It is still a new service and there should be more promotions on the issue.
- Palestine is a cash society and cash still dominates the commercial and the individual payments.
- Financial literacy is low in Palestine and people avoid formal financial tools including wallets to avoid taxation as well the lack of trust in the Palestinian Authority.

In addition, the PMA's National Strategy for Financial Inclusion (PMA, 2018) highlights many constraints facing financial inclusion and the promotion and use of digital financial services (FinTech) in Palestine. Some of the results were based on a survey on financial inclusion conducted in 2016 which highlighted the following constraints:

- The lack of financial capabilities of the demand side. This reflects on poverty and unemployment as reasons for lack of income to transact with. In addition to the limited financial literacy as 68.8% of females and 49% of males have weak financial literacy. Only 37% of adults reported that they knew about financial products and services from friends and family. Only 16% relied on information from the FIs.
- Religious beliefs as 31% of adults abstain from taking loans for religious reasons.

- Poverty and unemployment. It was reported that 60% of adults do not have a bank account due to their low income, while unemployment was 26% in 2016 and reaches 40% in Gaza.

In addition to the demand side, the supply side also imposes and faces many constraints including:

- The regulatory environment which needs many developments and work to enable inclusion, FinTech and build trust.
- Technology infrastructure including the financial sector as well others such as e-government, e-commerce, availability of internet & communication in rural areas.
- The role of the informal financial sector that dominates the scene as 57.2% of the outstanding loans were obtained from the informal sector including friends, family, suppliers, unregistered finance companies and individuals. The attractiveness of the informal sector is due to the ease of taking a loan with no requirements (PMA, 2020).
- Tight credit policies by FIs due to the risk associated with some segments and geographic areas as 60% of the West Bank remains under Israeli occupation.
- Limited movement of cash especially with Gaza which imposes a liquidity issue.

4.2.4.5: Access to Finance

Most important challenges facing the Palestinian financial and political authorities are the lack of self-control over their revenues and payments as Israel controls that and many time freezes the movement of funds and payment from and to the rest of the world (PMA, 2021). In addition, Palestinian Authorities rely heavily on financial aid from Arab countries as well international countries including USA and international donors which can cause uncertainty and instability in the financial, economic, social and political scenes.

While the FinTech and digital financial services are new in Palestine, the potential is high and great due to the steps already taken as well as the promising indicators including high adults' rate of 51.3% (PMA, 2018), high internet penetration (64%) and mobile phones penetration (45%) (USAID, 2020).

4.2.5: Afghanistan

4.2.5.1: Background

Afghanistan has a population of almost 39 million people, of which 47.5% of the population are females and 52.5% are males. The work force is around 9.695 million persons, of which only 17.4% are females. Afghanistan has a long history of conflict and political instability that negatively reflected on all sides of political, social and economic sides people's lives. While, the country is considered rich in resources, due to the long war and political instability, it is classified as a low-income country with an income per capital of USD 2,110 in 2020 and a GDP of USD 20 billion in 2020

with a (-2.4%) growth at the same period. Unemployment is 13.3% of the work force population and insignificant 0.1% Foreign Direct Investment of the GDP in 2020. Afghanistan's income per capita is USD 2,110 (World Bank, 2020).

The Afghanistan economy is mainly concentrated around services which contribute 56% to the GDP, agriculture 23% and industrial 21%. The country's economy and government budget support come mainly from international aid agencies and international governments which are estimated to be around 45% of GDP. The latest August 2011 political turmoil and the takeover by the Taliban already had a negative impact on the economy through lower resources, lower expenditure and less support to main sectors including health, education, exports, banking and others. In addition, almost USD 9 billion of Afghanistan's international assets were ceased.

Banking and financial sector in general in Afghanistan is of limited size. There are only 12 banks in Afghanistan of which 3 are public owned banks, 7 private banks and only 2 foreign banks. Furthermore, there are NBFI including NGO and microfinance companies, foreign exchange dealers and four Electronic Money Institutions (EMI) which is MPAISA, M-HAWALA, MY MONEY and MOMO (DAB, 2022).

Da Afghanistan Bank (DAB) which is the Central Bank of Afghanistan focussed at an early stage on digital financial services since 2009 by creating the Afghanistan Payment System (APS) which is the national e-payment switch that provides innovation in electronic and mobile payment (APS, 2022). As of May 2021, there are 524,455 international cards on APS system, 520,091 local cards issued, 390 ATM through 12 banks in Afghanistan (APS, 2022). In addition to that, DAB created a dedicated department (Financial Inclusion Department) to manage and promote financial inclusion. The department issued the National Financial Inclusion 2020-2024 which maps all available resources, challenges, and a plan to implement the strategy in Afghanistan. Nevertheless, the implementation is very limited due to the continuous political stability especially the recent Taliban takeover of the country after the US Troops withdrawal.

Not only is security a challenge facing promoting and implementing the financial inclusion strategy. According to DAB's National Financial Inclusion Strategy (DAB, 2020), 54.4% of the population lives under the national poverty line, 85% of adults have no access to transaction accounts and only 11% of the adults use digital financial services. In addition, access to finance is the main challenge in Afghanistan as only 0.17% of the GDP are loans for SMEs, only 3.9% of firms rely on banks for their working capital financing and 0.8% deal with banks for their investments. The total MSMEs credit need is estimated to be USD 4.7 billion. Furthermore, The World Bank Global Findex Database (World Bank, 2017) confirms the low financial inclusion and digital finance transactions for the population of over 15-year-olds through Table 4-4 below. According to the research interview with the DAB representative, challenges also include the fact that Afghanistan is a cash society and people and businesses avoid transacting with FIs due to concerns about KYC and Money Laundry as well

taxation. In addition, Afghanistan is one of the lowest financial literacy rates in the world which is 55% for men and 29.8% for women (UNESCO, 2020).

15% has account with FI	**7% of women has account with FI**	**11% made or received a digital payment**
7% received government wages or transfer through an account	**Only 10 mobile agents' outlet per 100,000 adults**	**Only 41 SME with an account with formal FI**

Table 4-4 Afghanistan Financial Inclusion Indicators
Source: World Bank Findex (2017)

While Afghanistan has 68% mobile phones penetration (DataReportal, 2022), the use of mobile money still very low and weak and insignificant. Only 0.9% has a Mobile Money account and less than 1% of women and men make online transactions according to the same source. Since the inception of Mobile Money initiatives in Afghanistan in 2010, the different stakeholders did significant steps towards the promotion of mobile money and the usage of digital financial services. The government signed agreement with the different service providers to transfer salaries through the wallets including the Ministry of Education, the Ministry of Interior. The service allows individuals to send and receive money to a certain limit, cash in and cash out and pay the salary of some governmental employees including the Ministry of Education and the Police Forces. In addition, the service enabled people to pay utilities as well. In addition, several humanitarian agencies used mobile money for aid support as well salary payments.

Microfinance institutions allowed loan repayment instalments to be made through mobile payments to ease the process for borrowers (Better Than Cash Alliance, 2016). The same report identified the total number of registered users are 155,516.

4.2.5.2: Regulation

While there was progress in the operation and growth of mobile money, DAB is aiming to conduct many regulatory reforms under its National Financial Inclusion Strategy to enable financial inclusion and digital financial services (DAB, 2020). DAB is working on different regulations including the Financial Consumer Protection Regulation, Electronic Funds Deposit Insurance, Payments Regulations, Electronic Money Institutions, Non-Banking Financial Institutions Regulations and others. In addition to the regulatory environment, DAB is also considering the ICT infrastructure requirement to support its financial inclusion strategy and efforts.

Digital financial services can play a great role to overcome the unstable political conditions in Afghanistan especially after the August 2021 events. It can be a significant opportunity to promote FinTech as a solution to a crisis especially the usage of mobile money for humanitarian aid delivery and support. A study by the Norwegian Refugee Council (NRC) investigated the different options to resume humanitarian aid in Afghanistan after the Taliban takeover. The study highlighted that

Mobile Money and other digital payment platforms can play a significant role in humanitarian aid and are an important mean to transfer funds to NGOs, beneficiaries and avoid bank notes. In addition to the four established Mobile Network Operators (MNOs), there are some digital platforms that started to exist in Afghanistan that also can be used.

Another important role that digital financial services can play is to include and use the wide network of "Hawala System" that dominate the financial sector in Afghanistan (Norwegian Refugee Council, 2022). The Hawala System is an informal network of different players including shops, money exchangers, and individuals that facilitate the transfer of funds between individuals and businesses within Afghanistan and with neighboring countries like Iran and Pakistan. The Hawala services also provide loans to individuals and businesses and facilitate trade. The development and growth of the Hawala System comes as a result of the lack of trust in the formal banking and finance system in Afghanistan as well as to avoid compliance with regulatory requirements. According to the regulator representative during this research, he said:

"There is no information about the size and spread of the network but is widely covering the country. Several attempts to regulate and include the network in the formal system but never succeeded. A significant part of the network can be formalised and play an agent role in the mobile money landscape".

4.2.5.3: Ecosystem

Currently the FinTech ecosystem in Afghanistan is limited and includes a limited number of players including banks, MFIs, MNOs and limited number of agents. Nevertheless, there is a significant opportunity to grow the landscape and include more players and services including E-Money Issuers and Electronic Fund Transfer and other service providers. This can be done through many actions and steps according to the National Financial Inclusion Strategy 2020-2024 (DAB, 2020), including:

- Build further the ICT infrastructure including switch, interoperability, and other requirements.
- Promote financial literacy with focus on digital financial literacy specially among youth and women. Literacy in general is low in Afghanistan as well as financial literacy.
- Build the capacity of financial institutions including banks, MFI and others to offer products especially lending products based on best international practices and risk management approach.
- Build the capacity of financial institutions to offer digital financial services to different beneficiaries especially in rural areas.
- Continue the legal reforms covering all sides of the business as well consumer protection issues.
- Promote the recruitment of agents to spread and promote digital financial services.

4.3 Comparison of Case Studies

The following Table 4-5 represents a summary as well as a comparison between all case studies to enable show the status of the FinTech and financial inclusion practices in the country in relation to different variables and factors affecting that.

Item	Jordan	Egypt	Iraq	Palestine	Afghanistan
Security Situation	Stable.	Stable.	Moderate to weak stability.	Moderate stability.	Unstable.
Financial Inclusion Strategy	Exists.	Under development.	Not Existing.	Exists but limited.	Exists but not applied due to security issues.
Applications / Products	Different applications are available and there is interest to develop more including Mobile Money, Cards, QR, Payments, and others.	Different applications are available and there is interest to develop more including Mobile Money, Cards, QR, Payments, and others.	Only mobile money and cards.	Mobile Money, cards, QR, and initiatives to develop and apply more.	Mobile money on a limited scale and cards.
Regulations	Well developed with a comprehensive set of regulations governing the practice.	Well developed with a comprehensive set of regulations governing the practice.	An acceptable set of regulations are in place but need more.	An acceptable set of regulations are in place but need more.	Limited regulations are in practice, but many are under development contingent on security situation.
Financial Literacy Level	Significant effort and initiatives to promote financial literacy	There are a number of initiatives.	Very weak with recent efforts for development.	Weak.	None.

	under financial inclusion strategy.				
Infrastructure	Advanced and support fintech solutions, innovation, and financial inclusion.	Advanced and support fintech solutions, innovation, and financial inclusion.	Weak and lack support to different fintech and inclusion factors.	Acceptable and in progress based on a development vision.	Very weak and lacks technology infrastructure, internet, payment systems, communications, and other factors.
Access to Finance	Fintech facilitated access to finance and credit.	Fintech facilitated access to finance and credit.	Limited access to credit through FinTech.	Fintech facilitated access to finance and credit.	None.
Regulators Financial and Fintech Initiatives	Many initiatives to encourage innovation, FinTech, and financial inclusion.	Many initiatives to encourage innovation, FinTech, and financial inclusion.	Limited initiatives.	Limited initiatives.	None.
The Ecosystem	Well-developed and includes various stakeholders.	Well-developed and includes various stakeholder.	Limited.	Limited.	Limited.
COVID 19	Used FinTech during COVID 19.	Used FinTech during COVID 19.	Used FinTech during COVID 19.	Used FinTech during COVID 19.	None.

Table 4-5: Case Studies Comparison

4.4 The Findings

4.4.1: The Conceptual framework

The proposed "FinTech for Development" conceptual framework presented earlier in figure 2-1, suggests that FinTech contributes to financial inclusion and socioeconomic development through different factors including **economic, social, regulatory and policy, and ecosystem and infrastructure.** In this chapter, the research presents our empirical findings relevant to the framework factors by answering the research questions in order to show the impact of FinTech on development. The findings are organised under different sub questions the research proposed.

4.4.2: Interviews findings

While some research studies showed the negative and unsustainable impact of FinTech (e.g., Dos Santos and Kvangraven, 2017; Kabakova and Plasksenka, 2018), interviews conducted for this research and other recent reports showed a positive impact and confirmed different development agencies reports including World Bank (2012), Ernst & Young (2014), CGAP (2015) and McKinsey Global Institute Research (2016). The findings of the interviews and other reports confirmed that FinTech has a positive impact on socioeconomic development by enhancing individuals and families' welfare and providing businesses with better access to finance and the ability to develop their businesses. The remainder of this section elaborates on these finds and provides evidence for our conclusion.

The research asks the main research question: How can FinTech Help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries? To empirically address this question, this study investigates the following specific research questions:

- How does FinTech enable individuals and businesses in post-conflict countries to gain access to finance?
- What are the main factors that influence the development of FinTech in post-conflict countries?
- What are the types of FinTech that can be widely used in post-conflict countries and what are the potential impacts on the socioeconomic development and financial inclusion in those countries?

The findings sections will be organised to address each question to illustrate the interplay between the various elements of the framework in context. The rich qualitative data illuminates the complexity of the nature of the use of FinTech in post-conflict developing countries. This is the contribution of this multiple case study and is essential for verifying and further developing a comprehensive framework that can be used in future research.

4.4.2.1: How does FinTech enable individuals and businesses in post-conflict countries to gain access to finance?

Our theoretical model (presented in Figure #), suggests that access to FinTech can lead to greater financial inclusion such as allowing the unbanked and underserved population to have access to different financial services and products that meet different needs and wants. In this section we will share findings that support our model which suggest that FinTech has a **positive economic impact** through:

1. Providing access to different sources of finance including loans, grants, equity investment and others.
2. FinTech increasing sales, collection, and access to new markets.
3. Enabling various stakeholders including people, businesses, and governmental agencies access to financial and non-financial products and services leading to overall development for the most disadvantaged and excluded (e.g., retirees, youth)
4. Reducing transaction costs.

Our findings further extend the model suggesting **positive social impact** through:

5. Preventing fraud and enhancing trust between government and people.
6. FinTech providing convenience and dignity.

The remainder of this section elaborates on and provides evidence for each of these findings.

4.4.2.1.1: FinTech provides access to different sources of finance.

Based on the results of the interviews, FinTech has enabled unbanked individuals and businesses to transact financially and **access different sources** of finance including loans, equity, and other tools. For example, Mobile Wallets (Mobile Money) enabled individuals to conduct different financial transactions including sending and receiving money, depositing, and withdrawing funds, paying bills & fees, paying for goods & services and other transactions. This was confirmed and discussed during all (four out of four) interviews with Mobile Wallet service providers in Jordan, Iraq and Palestine. They confirmed that mobile wallets also enabled business to business (B2B) and business to consumer (B2C) and consumer to business (C2B) transactions including businesses paying vendors by mobile wallets, businesses paying salaries to employees, consumers using wallets or cards for paying the cost of products and services and paying the prices of products and services to business. Such ability to conduct financial transactions helped businesses and individuals in many ways including individuals' access to more products and services and markets.

Perhaps most interesting of our findings is revealing the positive impact of FinTech on various segments of society to access various types of funds. According to the interview with a development agency (donor) and NGO operating in Iraq, FinTech allowed different society members including youth, entrepreneurs, women, micro and small businesses, farmers, and others **access to finance whether grants or loans.**

The development agency now uses digital applications to allow applicants to apply for their grants and soon they will be able to apply for loans via a digital loan application as stated during the interview. The loan or grant application is also providing convenience as applicants do not need to attend to the agency offices to do so. It is online and in field remote application which will provide convenience and reduce the risk of travelling in countries with unstable security conditions like Iraq and Afghanistan. This is a critical enabler for people in post-conflict countries to participate in financial markets and advance development opportunities. Many in post-conflict countries had forgone essential aids and grant opportunities to them due to barriers to accessing applications and financial institutions. So far, the development agency using FinTech to facilitate access to grants contributed to create more than 5700 jobs and helped more than 1600 businesses to access grant funds (IOM, 2022).

In Egypt, FinTech allowed people to access different types of financial services other than payments, loans, grants. It enabled them to access insurance and savings. In their interview, the Egyptian Regulator stressed the following:

"Technology allowed access to different financial services other than access to funds and finance, other services can be accessed through FinTech applications including insurance and savings."

InsurTech or Micro-insurance in Egypt is mandatory as borrowers should have a life insurance policy which can be issued digitally for a limit of EGP 100,000 to cover medical and life insurance. In addition, FinTech allowed women and others to **save money** and borrow against that for productive microprojects through (Tahwisha/saving) mobile application. According to CNN (2022) the national women council in Egypt is targeting 500 women to use Tahwisha application for saving and borrowing for productive purposes.

4.4.2.1.2: FinTech increases sales, collection, and access to new markets.

Our findings suggest that FinTech increases sales, collections and access to new markets and was evident in all case studies. More specifically, interviewees emphasised the ability to access international markets and buy products through paying by cards or wallets. Consequently, businesses were able to increase their sales and collection by accepting payment through wallets, cards and other methods. The quote below from a payment company in Iraq illustrates and elaborates on this finding:

"While it was difficult and not permitted in most cases to ***conduct international financial and e-commerce transactions in post-conflict countries,*** *due to security and very strict credit conditions posed by international traders and e-commerce platforms. FinTech enabled such transactions due to the partnerships created by FinTech solutions with International Financial Institutions and others."*

He added *"Our company in Iraq found a partnership with MasterCard International in 2018 which allowed us to buy online and use their card internationally anywhere in the world. This was not possible using the old local Qi card."*

In addition, in this example we learned that Wallet in Iraq has an embedded card number that is connected to the wallets and wallet users use for their international payments, transfers, purchase of goods and other transactions. Another partnership between the payment company and a bank in Iraq allowed cardholders to access loans via their card's phone application and can withdraw it using the card via purchases or ATMs. This further illustrates our hypothesis that FinTech enables people and customers in addition to enabling businesses to participate in international markets which is an indicator of development.

4.4.2.1.3: FinTech enables various stakeholders to access to different financial and non-financial services.

The interview with an Iraqi payment company, further explained that such benefits of their products (cards) in Iraq extended to different types of people perhaps historically excluded financially to enable **retired people** who are mostly immigrants to access and use their retirement salaries via the international card anywhere in the world without the barrier of travelling or transferring funds which will entail a high cost in comparison to their income.

Beyond businesses and people, our research findings supported that the benefits of FinTech extended to governments. Fintech enabled **government to people (G2P)** transactions and vis versa according to an interview with a financial regulator in Iraq.

"The government of Iraq used mobile wallets to reach to more than two and a half million Iraqis for paying financial aid packages during COVID 19 crises".

Furthermore, and as per the same interview, beneficiaries including various marginalised historically excluded from financial markets groups such as IDPs, martyrs' families, social welfare beneficiaries, widows, unemployed, poor families and others. Such capabilities further support the positive impact of FinTech on developing post-conflict countries and the most disadvantaged of their populations.

Our interview with another financial regulator in Afghanistan further supports the impact of FinTech has on people as well as on government agencies. The interviewee explained that the government of Afghanistan launched a pilot project to pay salaries to two ministries employees (Education and Interior) via mobile wallets despite the limited ecosystem in Afghanistan. The interviewee added:

"This practice was to be promoted to all Afghanistan public employees but due to security challenges after 2014 and the late August 2021 political turmoil, the project become on hold".

Our data suggested that while there might be challenges to extending this application to all agencies, mobile wallets and FinTech in general allowed **people to pay government (P2G) fees** and allowed the **government to collect their funds** whether fees, taxes or other sources of income with more secured transactions and less possibility of fraud and corruption.

Another application of FinTech is payment dispersion for expenses for volunteers in Iraq. An Iraqi's NGO allowed youth to volunteer and help refugees and IDPs in Iraq to enhance development. They used mobile wallets to pay young volunteers for transportation and other costs, which encouraged young Iraqis to volunteer and contribute to their societies. Most volunteers are around 18 years old and their participation in such activities encourages them to work, gain access to and provide social services, and eventually enhance their skills and determination to seek and secure employment later on. Also, according to the interview, the NGO used mobile wallets for further transactions to pay aid to beneficiaries and pay service providers proving that FinTech may have various applications within any one organisation to add to financial inclusion and development.

4.4.2.1.4: FinTech reduces transaction costs

In addition to the direct transaction cost which is less than a traditional transaction cost. it is worth highlighting that FinTech brought down other costs, indirect costs, security, less travel cost and access to funds on a timely manner as mentioned by mobile wallets clients in Iraq. On the other hand, as per the interviewed wallets clients and entrepreneurs, some agents impose illegal additional fees for any transaction to increase their profit or compensate their transaction cost as agents claim. This was confirmed by users in Iraq specially in remote areas with a limited number of agents which represent a challenge to FinTechs spread and usage.

4.4.2.1.5: FinTech prevents fraud and enhances people's trust in the government and financial systems.

According to the Afghanistan Regulator's interview, the wallets reduced the number of fraudulent salary payments of fake identities of public employees. DAB representative emphasised the importance of FinTech to reduce fraud stating:

"Before using salary payment through wallets, there was many fraud salaries with fake identities. When using wallets and the need of identity registration, many of those fake employees disappeared".

In addition, it is clear that FinTech facilitated the work of international NGOs and donors' communities in conflict or post-conflict countries. According to the interview with one of the development agencies (donors) working in Iraq, technology in general facilitated the reach to the target beneficiaries, registration, payment, monitoring and impact assessment of the NGO or donors' support. FinTech specifically, facilitated online grants applications, payment of funds to beneficiaries and more important built a database for monitoring and analysis. One important issue the development agency

added is that FinTech rebuilt the trust in the fragile financial system and the government as people in Iraq in general do not trust public systems by stating:

"Implementation using technology is faster and bringing hope again to the people."

4.4.2.1.6: FinTech provides convenience and dignity.
In addition to the access to funds that FinTech provides, the interview with a Mobile Wallet service provider in Jordan as well in Iraq, stressed the fact that FinTech goes beyond access to service or reduce the cost of transaction. It provides **convenience and dignity** as Jordan's service mobile wallet service provider added:

"Using FinTech save time in waiting lines, transportation and more important provide dignity for certain clients."

According to different interviews (regulator in Iraq and mobile wallet service provider); FinTech allowed **refugees and IDPs with no identity to receive aid funds** and transact for different purposes including paying for goods, services and others. This major breakthrough is based on a Biometric Technology which takes the eye print and uses it as a unique personal identity for several purposes including identity registration, refugees' registration and others. This was utilised for the benefit of refugees and IDPs registration in different countries including Iraq, Jordan and Egypt. Based on this technology, refugees and IDPs in these countries were able to register as refugees or IDPs and benefit from UNRWA and other NGOs and donors' community support through their mobile wallets or cards. Refugees and IDPs receive their monthly financial aid through the mobile wallets or cards and use it to buy goods and services, pay utilities, pay for transportation and other needs. As such, it is clear to see that FinTech enables participation in society and enhances the self-determination of the least advantaged people such as refugees.

Similarly, according to an interview with a payment service provider in Afghanistan and a microfinance institution, both use online loan applications to support remote areas clients and farmers in Afghanistan. The online loan application will be filled in the field by the client and FINCA credit officer and submitted to the head office for decision-making through an electronic workflow and credit scoring system. Such technology enabled farmers and remote area clients living in very hard conditions to apply for and access credit in a convenient and fast way.

4.4.2.2: What are the main factors that influence the development of FinTech in post-conflict countries?
This section further presents the findings related to the conceptual framework specially related to **Regulatory & Policy and Ecosystem & Infrastructure** along with different other **economic and social factors** which were not covered in the first question. In addition, this section highlights the factors influencing the role of FinTech which contributed to the development of the conceptual framework.

4.4.2.2.1: Regulation & Compliance

FinTech in general had a great impact on regulation through developing existing and introducing new regulations that govern and protect both sides of the business (supply and demand). While this issue varies within this research case studies, as some post-conflict countries such as Jordan and Egypt had advanced and intensive regulatory work throughout the development of their FinTech journey. Others such as Iraq and Palestine have a moderate level of regulatory intervention. While Afghanistan has a slow and limited regulatory development of related FinTech practices. Case studies section (4.2 Overview of the case studies) in this research illustrated the details for each case.

The following table 4-6 presents the regulations evolved in Jordan and Egypt due to the development and promotion of FinTech based on the interview with related stakeholders in both countries and as mentioned under both case studies. The Jordan and Egypt cases cover most of the concern regulations and can be used as a benchmark for other countries due to the developed and rich work done there in this regard (CCAF, 2021):

Jordan	Egypt
• FinTech Regulatory Sandbox in Jan 2019 • Mobile Payments Working Instructions • Electronic Payments & Transfers Regulation 2018 • Anti-Money Laundry AML • Financial Consumer Protection Regulation • Electronic Transaction Law 2015 • Finance Companies Bylaws 2022 • National Financial Inclusion Strategy 2017 • Cyber Security • eKYC	• Less – Cash Payment Law • Digital Signature Law • Personal Data Law • Banking Sector Law which promoted the use of technology, electronic documents and cheques. • Alternative Finance Law that regulates Non-Banking Financial Institutions or what so called Alternative Finance Activities including P2P Lending, Crowdfunding, Rotating Savings and Credit Associations (ROSCA) and others. • Instant Payment Network. • Agent Banking • Customer Due Diligence Procedures CDD • Digital Lending • Payment aggregators and facilitators. • Standards for issuance and acceptance of contactless payments. • QR Code Standards • Internet Banking Services Regulations • Cyber Security • eKYC

Table 4-6: FinTech related regulations in Jordan & Egypt

Based on Table 4-6, it is clear that both countries have different approaches to deal with regulation. Jordan approaches FinTech based on a cross-sectional area while Egypt's approach is more cross-sectoral areas (CCAF, 2021).

An important issue under the regulation and ecosystem that supported and boosted FinTech solutions is the **digitisation of government services and payments**. According to the interviews with the regulator in Egypt and the mobile wallet service provider in Jordan; governments are directing people to use e-governments platforms to conduct their transactions with the government and they are posing maximum amount to accept cash transactions such as in Egypt with a limit of EGP 500. Jordan did the same for everyone not only for refugees, where any governmental transactions, regardless the limit, should be paid using digital payment platforms whether wallets, cards or banks applications. Iraq is heading the same way and working on digitising government services and payment through their electronic collection, but it is taking longer to do so. The regulator in Iraq said in the interview:

"The process of digitising government collection in Iraq is slow due to the internal resistance among stakeholders for different reasons".

Under government services digitisation, governments directed all social welfare support programs (support to poor, refugees, IDPs, widows, unemployed, martyrs' families and others) to be paid digitally through cards (Iraq) or wallets (Jordan) or both (Egypt). This also helped boost FinTech in post-conflict countries.

While FinTech has an impact on regulations and contributed in developing many regulations to facilitate transactions, and protect clients and stakeholders. There is a great need to develop regulation further in post-conflict countries to allow different FinTech solutions to be offered as mentioned by most regulators including Iraq, Egypt and Afghanistan. For example, Crowdfunding or Peer-to-Peer financing is considered an important FinTech solution and enabled many individuals and businesses to access finance. According to (Ziegler; Shneor; Zhang, 2020) crowdfunds transaction volume reached more than USD 470 billion which affected different economic sectors and launched significant entrepreneurship projects. Crowdfunding in post-conflict countries is not available or allowed and there are no regulations to govern the practice so far as confirmed in the interviews with regulators in Iraq, Afghanistan, and Egypt.

Another regulatory challenge limiting the use of FinTech and payment solution is the **transaction limit**. This was confirmed by all wallet's clients in Iraq and Palestine specially in B2B transactions where it required higher limits and businesses avoid using wallets for the higher transactions amount.

Banks in post-conflict countries such as Jordan, Egypt and Palestine still dominate the scene and the sector and mostly own FinTech and payment service providers. Therefore, growth in the FinTech sector will be slower than in other countries, particularly developed countries as people have all tools and solutions they need from

their banks. This was highlighted by interviews with Egypt's regulator, Palestine's regulator advisor and the mobile wallet service provider in Jordan.

Sustainability remains an issue while there is a significant lack of trust in banking and governments in developing post-conflict such as Iraq and Afghanistan. In addition, the low level of financial literacy and awareness is also affecting individuals' and businesses' behaviour toward FinTech as they still prefer to withdraw their wallets and deal with cash. This was confirmed in the interview with Iraq's wallet clients and as well businesses from Palestine.

To overcome such challenges and gear individuals and businesses towards digital finance and greater financial inclusion, regulators in post-conflict countries adopted many initiatives which were presented earlier in the case studies, including:

- Payment of public sector employees and retirees via FinTech solutions including mobile wallets and cards. Such measures were adopted in Jordan, Egypt, Iraq, and Afghanistan.
- Enforce digital payment for all transactions with the government for amounts above a certain threshold. This was adopted in Jordan and Egypt.
- Facilitate financial support for certain social segments through the use of FinTech solutions including financial support to special groups such as refugees, IDPs, martyrs' families, widows, unemployed, poor families and others.
- Pay food stamps and other social welfare benefits to individuals through FinTech solutions in Jordan, Iraq, and Egypt.
- Conduct all COVID 19 financial support to beneficiaries through FinTech solutions in Jordan, Iraq, and Egypt.
- Create and support FinTech incubators and accelerators to promote FinTech development and investment (Jordan and Egypt).
- Create FinTech Sandbox to develop and test FinTech solutions before operations. It provides different support including regulatory, technical, and financial (Jordan and Egypt).

4.4.2.2.2: Financial literacy

While FinTech can be an important solution to overcome different payment and finance issues in post-conflict countries. There are significant **challenges facing the development and practice of FinTech and Financial Inclusion in such countries**. The most important challenge which was stressed on by all interviews with regulators and service providers in all countries is the Financial Literacy level in such countries. While there is no reference to measure financial literacy for the people of any country, financial literacy in post-conflict countries is weak and has an impact on people's financial decisions. In addition to the weak literacy issue, post-conflict countries are still cash societies and prefer to deal with cash than digital payment although lately governments are promoting the use of digital financial solutions. This was confirmed in the research interviews with regulators in Iraq, Afghanistan, Egypt and Palestine.

In addition, the interviews with the mobile wallet service providers highlighted the fact that most people who are paid via mobile wallets withdraw their salaries immediately and keep it in cash with them. As explained by different interviewees: **this is due to weak financial literacy among people as well trust in governments and the financial sector**. In addition to regulators, this was confirmed by mobile wallets clients in Iraq and Palestine that they withdraw funds and salaries immediately and then transact in cash due to limited agents' points, high charges on each cashing transaction by the agent, lack of trust in the government and the finance system and literacy level.

Additionally, the regulator in Egypt said *"Such low-income societies and individual weak purchase power is making individuals withdrawing cash from wallets to meet their daily life requirements of food, transportation and basic needs."*

Regulators saw the importance of building the financial literacy capabilities of individuals and businesses in order to use FinTech and achieve more inclusion ratios. Such attempts came in different forms in countries like Jordan, Egypt, Iraq, and Palestine:

- Direct capacity building actions such as training individuals and businesses on financial matters.
- Provide literature and promotional material on financial literacy through websites and social media platforms.
- Include financial literacy educational material and courses in schools and universities (Jordan).
- Support private sector initiatives to promote financial literacy.

4.4.2.2.3: Technology Infrastructure and Ecosystem

Another important challenge facing the development and progress of FinTech in post-conflict countries is **Technology Infrastructure**. While the cost of transacting using a FinTech solution whether a mobile wallet or a card is lower than traditional solutions (Dos Santos and Kvangraven, 2017). The cost of building the infrastructure itself including communication network, internet & technology platforms, payments switches, and other items are very expensive to such countries, and require massive investment from the private sector and governments which can be difficult due to security issues in some countries such as Afghanistan as stressed by the Afghanistan regulator. He added that:

"The typography of Afghanistan land is very difficult for telecommunications and infrastructure as 70% of the countries are remote mountains that are difficult to reach and access."

Additionally, **different indirect costs are associated** with digital transactions such as Foreign Exchange commissions and other commissions on cards, fees & commissions on withdrawals and transfers using mobile wallets and so on. Furthermore, **affordable, and reliable internet** is a great challenge facing people in

post-conflict countries as the cost of good internet might exceed USD 50 monthly in some countries which might range around 25-50% of the household income according to the interviews with regulators in Afghanistan and Egypt. Nevertheless, it is worth highlighting that FinTech reduced many other costs related other than lower direct transaction costs as mentioned earlier such as convenience, security, less travel cost and access to funds on timely manner. This was confirmed during the interviews with all mobile wallet clients in Iraq. Furthermore, as per the interviewed wallet clients, some agents impose illegal additional fees for any transaction to increase their profit or compensate their transaction cost as agents claim. This was confirmed by users in Iraq especially in remote areas with a limited number of agents.

Other challenges facing FinTech in some post-conflict countries are related to **limited ecosystem** such as the availability and spread of agents to enable users to cash in and cash out transactions. This is very clear in remote areas of any post-conflict country even in the advanced ones such as Jordan and Egypt where individuals and businesses find it hard to transact using FinTech solutions such as cards or wallets due to the unavailability of agents or weak infrastructure as mentioned before. Both countries are working on spreading access points in rural areas using smartphones as POS based on QR codes technology (JOPACC, 2022). Afghanistan has very limited access points to serve users specially in remote areas as there are only 10 mobile agents for 100,000 adults (World Bank, 2017).

4.4.2.2.4: Risk Management

Post-conflict country's main challenge and risk remain security as it affects people's trust in the systems and governments as well as the ability to invest in FinTech infrastructure and have financial inclusion as a priority to governments. In addition, security risk also reflects other issues such as foreign exchange risk, governance, corruption and other issues as confirmed by regulators in Iraq and Afghanistan.

According to CCAF (2021), cyber security is one of the growing concerns in the world and related to FinTech. Based on that 92% of countries in the MENA region has a regulatory framework to counter cyber security and data protection issues. In addition, most of the regulators in the research case studies developed their cyber security practices including data protection.

Furthermore, other risks are evolving throughout the development of FinTech including credit risk. Therefore, part of the FinTech solution focusses on credit scoring solutions that provide guidance to the credit decision based on historical and behavioural data.

4.4.2.2.5: COVID-19 Pandemic

The COVID-19 pandemic had a significant impact on accelerating the use of FinTech solutions to allow people access to financial support from governments and international donors agencies. This was confirmed by the interviews with regulators in Palestine, Egypt, Iraq as well as by mobile wallet service providers in Iraq, Jordan

and Palestine. All interviews confirmed that both governments and donors used FinTech solutions to reach to beneficiaries to provide financial support.

In addition, the World Bank (2022) in the latest Global Findex Database stressed the role of COVID 19 in promoting FinTech and increased financial inclusion. In addition, the pandemic and social distancing has helped in creating new FinTech tools and solutions to overcome restrictions. Such solutions are e-wallets, e-accounts, the QR Codes and Touchless Cards. This was also confirmed by FinTech and mobile wallets service providers in Jordan, Iraq and Palestine which introduced new tools such as touchless cards and QR codes to comply with distancing and health regulations. The regulator in Iraq added:

"As a central bank, we have benefited from the Covid-19 crisis, where the State has allocated expenses to unemployed people and these amounts were paid through the e-wallets. Under the CBI's instructions, we facilitated the opening of e-wallets, where we allowed the companies to open online e-wallets. This contributed to increasing the use and inclusion".

4.4.2.3: What are the types of FinTech that can be widely used in post-conflict countries and what are the potential impacts on the socioeconomic development and financial inclusion in those countries?

This part presents the Applications & Technology factor as well the FinTech Ecosystem in the conceptual framework highlighted earlier in the research.

The research focussed on two main **types of FinTech Products or Solutions** available in post-conflict countries; **Mobile Wallets (also called Mobile Money) and Cards**. This selection of the products was confirmed as well by the interviews as they are the most common FinTech products used and available in such countries. In addition, the country case studies show the numbers and the ecosystem around that. Mobile Wallets also known as Mobile Money is a very common FinTech product that is widely used in developing countries in general as well as conflict countries. It is based on the telecommunication infrastructure and the high mobile phones penetration in these countries as it is easier and less expensive infrastructure than other telecommunication solutions. Furthermore, cards of different types (ATM, debit, credit, prepaid, and others) are mostly used and common while credit card is not much used due to credit risk issues and considerations. All country case studies show the available number of these two main products.

In addition to mobile wallets and cards, **QR Codes** is becoming more known and widely spread especially after COVID-19 which enables remote, touchless and secured transactions as well used as **Mobile Point of Sales (POS)** infrastructure in remote areas in any country such as Jordan's case where JOPACC as an enabler is working on spreading access points in rural areas using smartphones as POS based on QR Codes technology (JOPACC, 2021). No available statistics on the QR codes.

Crowdfunding (CF) or sometimes known as **Peer-to-Peer financing** is also becoming a tool to access finance without the intermediary role of financial institutions. It is direct financing between the financier (investor or lender) and the investee or borrower. In post-conflict countries, CF is still a new tool and is not regulated or has a clear regulatory framework in such countries. Nevertheless, many individuals and businesses in these countries use regional or international crowdfunds to access finance in different forms. In Egypt, Iraq, Palestine and Afghanistan CF is not yet regulated or allowed as per the different interviews with the different stakeholders. Jordan introduced CF regulation just recently in October 2021 under Central Bank of Jordan Finance Companies Regulation.

The research showed the role of FinTech in developing the **payment and finance ecosystem** by creating new and different players and stakeholders to enable FinTech and payment solutions. The following classification confirms IFC MSME Financing Market Study (IFC, 2022) with differences in the type of stakeholders in each post-conflict country.

1. **Enablers** which are institutions providing products and services to enable others to provide FinTech and payment services. This includes regulators, infrastructure such as payment switches, business development services (incubators, accelerators, training) and loan guarantees institutions. In addition, **enablers also include software & hardware developers and data analysis.**
2. **Service Providers** are institutions providing payment services including payment of bills, cards issuance & acquiring and mobile wallets companies.
3. **Access to Finance Institutions** that offer finance through digital infrastructures such as banks, NBFIs, mobile wallet providers and others.

While looking at the different **FinTech Ecosystems** in the researched post-conflict countries, the research highlights the **different FinTech solutions that indirectly and significantly contribute to access to finance in specific and to the socioeconomic indicators of each country**, including:

1. **Credit Workflow Systems** including credit scoring systems that provide electronic credit evaluation to applications based on pre-agreed and set criteria. **The Credit Scoring Systems** are usually tied to a workflow. This was demonstrated in Iraq with IOM where applicants use online grant applications, and it is processed electronically as per the interview with a development agency in Iraq. In addition, FINCA Afghanistan uses online application as per the Afghanistan regulator interview to allow farmers to apply remotely without the hassle of travelling under unsecured conditions. In addition, Credit Bureau services in different research countries allowed people and businesses to access finance as well informed and enhanced FIs' credit decisions.
2. **Biometric Technologies** such as IRIS Recognition Technology enabled different stakeholders including governments, NGOs and donors to overcome the identity issue for refugees, IDPs and others and allowed them to access aid

funds, finance, open accounts, use wallets, cards and so much more benefits as per the interview with the Mobile Wallet service provider in Jordan.

3. Other solutions that contributed to the access to finance by using technology and digital infrastructure and supported FIs to offer access to financial services such as **Credit Bureau and Credit Information Companies, Asset Registries such as movable assets and non-movable assets** (IFC, 2022).

4.5: The Conclusion

Based on the above interviews and new literature findings, and in comparison, with the suggested conceptual framework. It is clear that the interviews' findings and different literature findings support the suggested framework in which FinTech plays a significant role in the socioeconomic development of any country especially the post-conflict countries. In addition, FinTech contributes significantly to financial inclusion and including more people and businesses and providing them with different financial products and services at the right time and location.

FinTech has allowed Syrian refugees and Iraqi displaced people to access financial sources and services as well as facilitated financial aid without having an ID and helped them to overcome very difficult life situations and security threats allowing them to live with better life conditions. In addition, FinTech helped the government and thousands of Afghani public employees to access their salaries and get paid without being theft or subject to an illegal act. Furthermore, it allowed governments to collect service fees without being subject to corruption and theft.

FinTech allowed businesses to transact and develop their business in different forms including payment to suppliers, receiving payments from customers and buyers and allowing access to international markets and collection of fees. Nevertheless, individuals are enjoying a wide range of benefits due to the facilitation of mobile money and other FinTech products including access to international markets, payment of different products & services fees, access to government aid schemes and others.

In addition to FinTech socioeconomic impact, FinTech has an impact on different factors and has been a driving force in developing different sides of the socioeconomic scene as well the practice in post-conflict countries, including: the regulation, risk management practice, infrastructure, ecosystem, and products (applications). FinTech contributed to changing existing regulation and introducing new ones. FinTech forced the development and expansion of the ecosystem of different sectors including banking, financial, IT, payments, e-commerce and others. Finally, the most important contribution of FinTech is that it introduced new products and services to ease people's lives in post-conflict countries and allowed them to access different products and services including payment for education, health, products, and other issues which facilitated the achievement of their goals and dreams.

One important finding of this research is the fact that COVID-19 pandemic had a significant impact on the development and enforcement of FinTech in post-conflict countries but not limited to it. COVID-19 accelerated the use of FinTech to allow people to access to financial services and funds to transact and meet their life requirements as well as facilitated financial aid by governments and international donors' agencies to help less fortunate and marginalised people all around the world in funding their daily food and support.

5. Discussion and Contribution

5.1 Introduction

The aim of this research is to investigate the role of Fintech in assisting socioeconomic development and financial inclusion in post-conflict countries. The primary research question is: How can FinTech help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries? To address this question, the study investigated the following specific questions:

- How does FinTech enable individuals and businesses in post-conflict countries to gain access to finance?
- What are the main factors that influence the development of FinTech in post-conflict countries?
- What are the types of FinTech that can be widely used in post-conflict countries and what are the potential impacts on the socioeconomic development and financial inclusion in those countries?

5.2 Theoretical contributions

This study has made several theoretical contributions. The most notable contribution is that the study presents a holistic framework that synthesises and extends the literature relevant to socioeconomic factors around the development, use, and impact of FinTech in post-conflict countries. While previous literature focussed on some factors in isolation, the holistic nature of the framework illuminates the complexity of how various factors interrelate and how they may influence the adoption and impact of FinTech. Please refer to Figure 2-1 for the conceptual framework.

The study is the first empirical effort to investigate the role of FinTech in socioeconomic development. All previous studies investigated the role of ICT in general for development with a focus on developed or developing countries. Most importantly, it is the first study to look into post-conflict countries. In addition, this study is one of the few empirical efforts that explore socioeconomic factors surrounding FinTech in post-conflict countries across several case studies. This enables the researcher to confirm findings in the existing literature and further extend the literature. The study design including multiple case studies illuminates the interrelatedness of the factors presented and therefore provides theoretical as well as practical insights on how to advance FinTech for socioeconomic development in such countries.

Perhaps one of the most unique aspects of this study is the fact that the data collection took place over three years presenting a longitudinal study before, during, and after the COVID-19 global pandemic. This provided a revelatory multiple case study (Yin, 2009) of the impact of the pandemic on the role of FinTech in socioeconomic development and empowerment.

This chapter elaborates on these theoretical contributions with more specificity organised under seven critical insights from the analysis presented below.

5.2.1: Stability enables the use of FinTech

It is clear that countries more stable in their security, economic system, and technology infrastructure are also more advanced in their use and support of FinTech practices and interventions. In this study, the cases of Egypt and Jordan demonstrated advanced and well-established trustworthy banking sectors, more stable and applied regulations, and advanced technology and internet infrastructure. This is reflected in the levels of financial inclusion and usage of FinTech solutions discussed in interviews. Meanwhile, other investigated countries including Iraq and Afghanistan still struggle with security, with limited related governing regulation, and have weak technology and infrastructure such as internet, electricity, payment solutions and other facilities and means. Palestine may be considered at the middle of the spectrum as it has better development than Iraq and Afghanistan but not to the level of Jordan and Egypt. Reference here is to Table 4-5 in chapter 4 for the detailed comparison.

Moreover, our findings revealed that economic and regulatory stability as a result of political stability also encourages investment and growth in FinTech's ecosystem and infrastructure. For example, Egypt as a stable post-conflict country stands as a leading FinTech scene in Africa and the MENA region and ranked 4th African Country in FinTech Investments and 2nd in FinTech Deals and FinTech Funding in the MENA Region according to the Central Bank of Egypt (2021). Furthermore, the Egyptian investment climate which encouraged both the movement of investment and capital to Egypt and the different government incentives encourage funding of startups such as FinTech startups. This confirms the literature in terms of the importance of a stable FinTech ecosystem within the stable social context.

5.2.2: Maturity of trust in post-conflict countries impact the adoption of FinTech

In general, post-conflict countries are still a cash society and cash still dominate trade and financial transactions. This is mostly due to the low trust in the government and the banking sector within these countries. This was confirmed by many interviewees including regulators, service providers as well individuals and businesses interviewed. This highlights the interrelatedness of both the social and economic factors identified in the framework. Developing a stable and effective FinTech Ecosystem is a systematic effort to develop and balance various social and economic factors and consider/accommodate the various stakeholder needs and priorities.

FinTech, due to its accountability measures and transparency, is playing an important role in restoring the trust between people and governments and the banking system, especially in Iraq. Today, the government of Iraq – despite the low trust from its people - is providing services and financial aid through mobile wallets and cards. Such support has restored trust and increased the level of satisfaction of the people according to an interview with an Iraqi service provider. This is a new finding and contribution to the existing literature.

5.2.3: Ubiquitous technologies such as mobile phones are a significant enabler of FinTech regardless of the maturity of the country's technology infrastructure.

Cross-analysis of the case studies reveals that all post-conflict countries use two main FinTech products: the first one is Mobile Money or so-called mobile wallets and cards. The cards already exist in these countries due to the existence of banks and other service providers. Mobile money or wallets are most commonly used due to the fact that mobile phones are ubiquitous in these countries. Iraq for example has 96% of its population with mobile registration and 49% use the internet. Nevertheless, only 4.2% have Mobile Money accounts. Afghanistan shows 78% of the Afghanistan population having mobile registration and 26% use the internet while less than 1% has Mobile Money account (DataReportal, 2019). This represents a significant growth opportunity for FinTech solutions in these countries specially Jordan and Egypt represent a successful example where Egypt has almost 93.4% mobile penetration rate (DataReportal, 2022) and 25 million mobile wallets (almost 25% of population) as stated in the Central Bank of Egypt Financial Inclusion Report (2021). Meanwhile, Jordan has a mobile penetration rate 78% (DataReportal, 2022) and 1.2 million mobile wallets (almost 12% of population) as per The Central Bank of Jordan Financial Inclusion Report (2020).

In addition to the cards and mobile wallets, different FinTech products are used but with less frequency and penetration, such as QR codes, payments and money transfer solutions. Crowdfunding is still an emerging solution and is not available in the investigated countries due to the lack of governing regulation as well as the risk aversion of investors in these places with a limited exception for Jordan and Egypt. Most of the businesses and individuals using Crowdfunding in the investigated countries are using regional or international crowdfunds. Just recently in 2022, the Central Bank of Jordan introduced a regulation to govern debt finance Crowdfunds. This also confirms the study's first contribution that stability enables FinTech.

Based on that, in order to spread and promote FinTech in a faster and quality manner in post-conflict countries and benefit from the added values that FinTech contributes to the socioeconomic scene, the most effective strategy is to advance FinTech to leverage the most common and ubiquitous technologies/infrastructure rather than introduce new forms of technology that is earlier in adoption stages. In the post-conflict countries, cards and mobile wallets can be easier to use, spread and promote based on their available foundation and ubiquitous usage as well as acceptance. Nevertheless, it is important to investigate the feasibility of other new and emerging solutions and decide on how it fits and meets customer ever-evolving needs and behaviours.

5.2.4: The Pandemic accelerated adoption, development, and investment in FinTech. One important finding that highlighted the role and impact of FinTech not only on post-conflict countries but even on other developed countries is the COVID-19 pandemic. Individuals, businesses, donors, governments, and other stakeholders avoided the use and handling of cash and made their payments electronically and through the use of FinTech applications to reach and distribute their support to their beneficiaries and clients. Most importantly, most of the world was under lockdown

for several months which prohibited people from accessing their funds to pay their dues and liabilities. Therefore, people's only way of transacting was through FinTech solutions as FinTech allowed different stakeholders to conduct many important activities including (a) businesses paying salaries (B2C), (b) governments paying financial compensation to individuals (G2C), (c) consumers paying fees and bills to government (C2G), (d) consumers paying cost of goods and services to suppliers and merchants (C2B), (e) businesses paying suppliers (B2B) and other forms. This enabled people, businesses and governments to access finance and keep life going on during very stressful times such as the lockdown and the COVID-19 crisis.

Therefore, one could argue that COVID-19 accelerated the adoption of FinTech. This was confirmed by all interviews with regulators in Egypt, Iraq and Afghanistan. In addition, the World Bank Findex Report 2021 (World Bank. 2022) confirmed this fact as well. Further studies should investigate whether the forced nature to use FinTech through the pandemics will have a lasting impact or whether individuals and businesses in post-conflict countries will revert to cash. Investigating the fidelity for use of FinTech and certain offerings post the pandemic could have significant implications to further implementation of FinTech in these countries. It would be critical to study these impacts across the case studies and compare how various factors (e.g., stability) influence long-term adoption.

5.2.5: FinTech is a crisis and risk management tool

This study is unique in that it spanned pre, during, and post pandemic times and demonstrated that FinTech can be a crisis and risk management tool. In our study, governments and regulators used FinTech to mitigate risks in different ways including:

- Mitigate the risk and impact of COVID-19 pandemic not only in post-conflict countries but all over the world during the pandemic.
- Fight and reduce fraud and forgery in financial transactions and payments. This was confirmed in interviews with different stakeholders in Iraq and Afghanistan. In addition, and as discussed earlier, Jordan and Egypt are eliminating the use of cash in their government-related financial transactions, salaries payment, and fees collection.
- Mitigate the risk of facilitating and handling financial aid to people under war and conflict circumstances. This was confirmed during the interview with Iraqi and Afghani regulators. FinTech ensured that the funds went to the right people in need which is also related the previous point.

These findings confirm different literatures and elaborate on these studies to show both the complexity of deployment of FinTech when social factors relevant to trust, stability, fraud, and safety are low, but the need is high. Further exploration of how FinTech can mitigate risk and curb fraud is necessary. There is further opportunity to also study and observe whether FinTech may be a reinforcing tool to change less

desirable social factors and cement desirable factors into a post-conflict socioeconomic system.

5.2.6: Financial & technology literacy is a major threat to FinTech and development.

It was confirmed by all interviews that financial and technology literacy is a major challenge and threat to the progress and development of FinTech. Low financial literacy is common in post-conflict countries and is considered to be an obstacle to adopting the usage of FinTech by people. Due to this fact, we can see that cash still dominates the scene in post-conflict countries in the attempt by regulators and policymakers to convert their countries to use digital transactions. In addition, according to services providers in Iraq, Palestine and Jordan, older people avoid using FinTech solutions due to their low technology literacy and usage in an attempt not to lose money or waste their funds due to error, while youth are more tech-savvy and adopt using FinTech in a faster manner.

These findings confirmed the Union of Arab Banks Research (2017) research which investigated the level of financial literacy in the Arab World which most of the case studies are covered except Afghanistan. The Arab Union research showed the low level of literacy among different countries with a dive into different social aspects including age, youth, gender as per the following table no. 5-1:

Country	Adult	Men	Women	Gender Gap
Egypt	27%	30%	25%	5%
Jordan	24%	25%	22%	3%
Iraq	27%	29%	25%	4%
Palestine	25%	28%	21%	7%
Afghanistan	Not available	Not available	Not available	Not available

Table 5-1: Financial literacy levels in the case study countries
Source: Financial literacy in the Arab World by Union of Arab Banks 2017

The above table shows that all case study countries are below the financial inclusion world average (30.7%) as per the Union of Arab Banks research. In addition, there is a clear financial literacy gender gap. In addition, the report (Union of Arab Banks, 2017) highlights low financial literacy by age group which also shows that all case study countries are below average for different age groups above 15 years. This finding suggests a significant barrier to development and adoption of FinTech which is necessary for post-conflict countries.

In addition, all interviews stressed the importance of financial literacy to promote FinTech and financial inclusion. Interviewees agreed that financial literacy is low in their countries and considered it is a significant challenge in promoting FinTech and inclusion and the overall development of their countries.

5.2.7: FinTech reduces indirect transaction cost.

While previous literature (Dos Santos and Kvangraven, 2017) suggests that technology reduces direct transaction costs, interviews during this study confirmed that FinTech reduces direct costs (transaction fees) as well indirect costs including travel to collect payments, security, and access of funds on timely and convenient manner. The interviews stressed the fact that some of these indirect costs can be significant such as travel due to the limitations in agents or ATM networks in post-conflict countries. This impact is very significant in Iraq as cards allowed Iraqi retirees to access their retirement salaries from other countries as most of them are immigrants in Europe and Australia.

5.3 Practical implications

The study confirmed many important actions and initiatives taken by different stakeholders to promote FinTech and financial inclusion to capitalise on its positive added value especially in post-conflict countries. Some of the most significant practical implications of this study are presented in this section under five themes.

5.3.1: Policymakers and regulators need to invest in financial literacy and education at all levels.

According to the Union of Arab Banks Research (2017), most of the countries (cases studies) subject to this study have low financial literacy rates and score below average across most metrics as shown earlier in table 5-1.

Based on these findings, policy and decision makers should focus and invest in promoting financial literacy to build the capacity of people, youth and women in particular. Throughout this study, we emphasised the importance of financial literacy, as well as the complexity of social factors around gender and age to gain access to resources and education.

Some of the initiatives in developed countries that may be replicated are:

1. Incorporate financial literacy education and curricula in the official education system at high schools and university levels. Jordan implemented this at the school level in 2018 (Central Bank of Jordan, 2020).
2. Focus on promoting financial literacy to youth and women on a personal and professional level to build their knowledge and capacity to manage their financial life as well manage their businesses using programs such as Central Bank of Jordan universities programs, Central Bank of Egypt Initiatives, USAID Iraq financial literacy training to businesswomen.
3. Financial literacy programs in capacity building and empowerment programs for micro, small, medium sized enterprises through departments of commerce and business bureaus. Incorporate such programming as an essential aspect of government grant and subsidy qualification and maintenance programs.
4. Encourage financial institutions to promote financial literacy to their clients and non-clients whether individuals or businesses through loan qualification programs.

5. Encourage the creation of application and technology-based solutions to promote financial literacy at all levels and among all groups including refugees, displaced people and others. Continuing to be intentional about serving marginalised populations within post-conflict countries is essential to advancing financial inclusion through FinTech. To this end, it is important to design solutions to meet the circumstances and needs of each of these populations to reduce the barriers to adoption and enhance financial inclusion.
6. Promote financial literacy in the native language of each country rather than using the English language. Most financial literacy programming offered by international agencies relies on the English language which is a challenge in spreading financial literacy. Spreading financial literacy using the native language and cultural considerations of the marginalised group increases accessibility to these programs and increases the chances of retention of information and translation to practice and adoption.

Therefore, it is important that regulators promote financial literacy and technology literacy to all different levels of the society including youth, women, elders, and businesses. More important, regulators and policy makers should include financial & technology literacy work streams in their financial inclusion strategies in order to increase and create a promising FinTech practice. This is clearly the case in Jordan and Egypt where FinTech is emerging due to active financial and technology literacy initiatives among other reasons.

5.3.2: Invest in developing people's trust in the financial sector and government.
Another challenge and weakness highlighted in the research is the fact that trust in the financial system and government in post-conflict countries is low in some of the research case countries (Iraq, Palestine and Afghanistan). Trust is clearly reflected in the low inclusion rates of Afghanistan (14%), Iraq (23%) and Palestine (25%) compared to Jordan and Egypt (above 50%) as per World Bank Findex (World Bank, 2017). Based on that, policy makers should invest and adopt initiatives that increase the level of trust and confidence in the financial and public sectors. Below are some potential solutions identified or implied from the research:

1. Conduct and facilitate financial aid and support programs to the public through FinTech solutions which can be a tool to restore confidence and trust. This was clear in Iraq's case study where confidence in banking and government is very low but facilitating financial aid through mobile wallets has restored some of that confidence as per the regulator interview.
2. Encourage transparency and communication to show compliance and commitment to enhance services to the public by the government and the financial sector. This was clear in the case of Egypt and Jordan where both governments introduced payment services to provide convenience to people and businesses as well as ensure transparency and compliance by government.

3. Enforce the use of FinTech solutions and bank applications to facilitate transactions with governments to rebuild trust again. Specifically, include payment of financial aid, collection of government fees, payment of salaries and payment of general services fees through these applications that provide transparency and accountability. This was done in Egypt and Jordan where government restricted payment to be through digital channels.

5.3.3: Invest and strengthen the use of ubiquitous mobile technology rather than investing in new technologies.

While FinTech reduces direct and indirect costs, investing in ICT infrastructure in general and FinTech specifically can be expensive, especially in conflict and unstable countries. Therefore, investing in ubiquitous mobile technology can be more feasible for such countries rather than investing in a new and expensive technologies. As shown in the study findings, most of the case studies have high mobile penetration rates with low usage for financial transaction purposes. This is an opportunity to leverage what the population is already accustomed to in order to advance FinTech and financial inclusion.

Based on the above, some of the potential solutions that can be advanced and invested in is payment solution based on QR codes which is based on mobile phones. In addition to that, using smart mobile phones as Point of Sales (POS) will expand the ecosystem and acceptance of digital payment in rural areas, hence expanding the network, inclusion, and usage of Fintech with limited cost spent on infrastructure development of campaigns to increase adoption of new devises or web applications. Leveraging technologies that are already integrated into the typical daily behaviours of the people increase the likelihood of adoption and cements usage of Fintech, therefore, enhancing financial inclusion.

In addition, some FinTech solutions are internet based, therefore investing in these solutions can be feasible as long as the internet is available and reliable. For example, Crowdfunding requires internet but can hold higher risk factors such as credit risk.

5.3.4: Invest in expanding the ecosystem and agent network in rural and underserved areas.

One of the challenges facing the spread and use of FinTech solutions especially mobile wallets and cards is the availability of such solutions in rural and underserved areas. Mobile agents and POSs are more concentrated in main cities while rural areas lack such infrastructure and services. These areas include the most underserved communities and require the attention of policymakers.

A diversified well spread ecosystem is key to the expansion of FinTech solutions especially when mobile phones are used. The more diversified and spread the mobile agents and merchants are accepting cards, the more these solutions are used and accepted as a natural way of conducting financial transactions countrywide. To this

end, it is important to invest in expanding the mobile agents' network and POS in rural and underserved in the post-conflict countries. This normalises FinTech and enables the development of a stable and trusted financial ecosystem that contributes to both the financial inclusion of all segments of the population and the overall economic development of each post-conflict country.

Jordan identified the challenge in rural areas and is working on promoting agent networks in rural areas using mobile phones as POS is based on the QR code technology (JOPACC, 2021). Further research may track the impact of such practice overtime.

Furthermore, policymakers and regulators in post-conflict countries should encourage building and facilitating new relations between different players of the ecosystem and encourage the introduction of new members or new financial solutions which serve the purpose of inclusion. For example, build the relationship between a financial institution and SME aggregator such as e-commerce platforms where the financial institution can extend credit or provide financial services through the e-commerce platform to the SMEs businesses. This will help SMEs and their individual clients or business suppliers to benefit from different facilities including credit, or better offerings or so on. This was done in different developing countries including Nigeria, Egypt, Indonesia, and Peru (IFC, 2021) where "Embedded Finance" allowed the building of relations among the ecosystem players to serve SMEs and individuals in accessing finance. Again, these integrations across the ecosystem are essential to the financial inclusion of various segments in ways conducive to the nuanced needs, preferences, and capabilities of different segments of the population and sectors within the economy.

5.3.5: Capitalise and reinforce the impact or changes due to COVID 19 to embed FinTech more permanently (do not revert back to old methods)

According to World Bank Findex Report (World Bank, 2021) and most of the interviews under this study, COVID-19 pandemic accelerated the adoption and usage of FinTech solutions. The acceleration of FinTech use during the pandemic reflected positively in financial inclusion rates. Therefore, and while the COVID-19 pandemic is contained and downgraded as a pandemic, it is important to cement the gains from COVID-19 and maintain the momentum of promoting and expanding the use of FinTech. This requires the development of an intentional approach in how to support and encourage continued use by perhaps limiting cash options where possible, providing further services to support new use of FinTech, adding incentives to use and disincentives to not using FinTech such as fees to other services when FinTech is available. Further research can investigate holistic approaches that further the use of FinTech without creating barriers for financial inclusion.

5.4 Research limitation

This study is a comprehensive study that aimed to develop a holistic socioeconomic framework and is one of the first to investigate the role and impact of FinTech in post-conflict countries. This study is unique and novel, but as in most research, it is not

without some limitations. Below are a few of these limitations and ways the researchers tried to limit the implications of the limitations.

a. The study began before the pandemic but was conducted during the COVID-19 pandemic in 2020 and 2022. The nature of the pandemic affected travel, interviews, and working hours and imposed many limitations and restrictions including face-to-face meetings that were not possible and some stakeholders were not responsive due to extended working hours limitations. These limitations extended the duration of the study and the number of people who can participate in this study. To mitigate these limitations the researcher leverages, zoom to conduct interviews and meeting with stakeholders. The research protocols were revised to accommodate and support video conferencing. The researcher extended their own working hours and accommodated the schedules of interviewees whenever possible. Still, with these limitations, the researcher was able to achieve representation of different types of stakeholders to gain a rich representation of perspectives that was essential to and informed and enriched the theoretical development of the framework.
b. It was difficult to hold focus group discussions (as per the original proposal suggestion) during the COVID-19 pandemic for different reasons including the restriction on face-to-face and group meetings as well as the difficulty to gather 8 to 12 people at one time on Zoom. Therefore, the research was limited to one-to-one interviews.
c. Limited data on post-conflict countries as well on the FinTech sector in these countries is a challenge for this study. The researcher, through his professional network and the careful selection of interviewees to represent the various stakeholders to fill in knowledge gaps, was able to get anecdotal knowledge relevant to the study. The primary and secondary data available provided ample evidence to build the theoretical framework and gain rich insights relevant to the research questions.
d. Afghanistan is one of the case study countries that faced a military coup by the Taliban and the withdrawal of the US Army in August 2021 which caused further social, economic and political instability and disturbed the research in the country especially interviews with key stakeholders there. This presented both an opportunity to study the complexity of political disruption on FinTech systems though with limited primary data and interviews. The researcher relied on secondary data and limited interviews to glean some insights and present key comparisons that can be further investigated in future research.

5.5 Future work

One of the key contributions of this study was the development of a holistic framework to explore the impact of FinTech on financial inclusion and economic development. The framework and study confirmed the interrelatedness of social and economic factors in light of technological solutions. The study illuminated the complexity and interrelatedness of these factors through the richness of five case studies. This study, therefore, provides a theoretical foundation to further investigate questions relevant to the framework in post-conflict and developed countries. The framework provides the foundation for comparison across cases and is relevant to specific factors or a more holistic exploration of these factors altogether.

FinTech is a very dynamic area that offers a range of innovative solutions that might fit, and help developed as well as post-conflict countries in their socioeconomic development. Even during the course of the study, new innovative solutions were introduced to contribute to the FinTech role and added value. This study focussed on two main FinTech solutions; mobile wallets (Mobile Money) and cards due to different reasons mainly due to the fact that these products are commonly used with the proper infrastructure in post-conflict countries. Nevertheless, there are many other solutions that can be investigated and can be of added value and contribution to the socioeconomic development of post-conflict countries. Crowdfunding can be one of these solutions, Saving solutions, investments, retirement, insurance credit scoring and others. Investigating various technical solutions in the context of socioeconomic factors presented in the framework is a rich area for future empirical work.

Furthermore, FinTech's impact on finance infrastructure and ecosystem has reshaped and created new relations among players and stakeholders which is forming and introducing new products and services. This includes Embedded Finance where financial services providers team up and collaborate with non-financial services providers to offer financial services to their clients and beneficiaries. This can be another future effort to investigate FinTechs role in development.

Due to the lack of data in post-conflict countries, especially data about the contribution of the FinTech sector in the economy in general, this study could not investigate the contribution of the FinTech sector in the economy. This is an important area for future work to investigate FinTechs sector contribution to the economy of any or more of the investigated case studies. This should be a priority for policy makers as well as researchers.

Further research should explore the extent of impact FinTech has on indirect costs as these costs tend to be the greatest barriers to development in post-conflict countries. Furthermore, future research should investigate how other social factors such as corruption may inhibit the adoption of FinTech as it may reduce potential illegitimate revenue sources. Exploring the interrelatedness of social factors along with economic factors such as cost could reveal barriers and enablers of FinTech adoption.

The most important area for future work is the fact that the deployment of FinTech is recent in these countries. Therefore, an impact assessment should be conducted to understand and assess the actual long-term impact of FinTech on the social and economic sides of people and businesses. This requires longitudinal studies and observations to assess the impact.

Our framework provides a path for how to holistically carry out such assessments by identifying key factors for consideration.

References

AFI. (2018). Financial Inclusion Through Digital Finance Services and FinTech: The Case of Egypt. Central Bank of Egypt. Alliance for Financial Inclusion (AFI).

AFI. (2019). Integrating Gender and Women's Financial Inclusion into the Central Bank of Egypt's (CBE) Framework. Alliance for Financial Inclusion.

Alderete, M. (2017). Examining the ICT access effect on socioeconomic development: the moderating role of ICT use and skills. InformationTechnology for Development, 23, 42 - 58. doi:10.1080/02681102.2016.1238807

Allen, F., Meijum, Q., & Jing, X. (2018). Understanding informal financing. Journal of Financial Intermediation. doi:10.1016/j.jfi.2018.06.004

Alliance for Financial Inclusion. (2018). FinTech for Financial Inclusion, a Framework for Digital Financial Transformation. Retrieved from http://www.afi-global.org

APS. (2022). Afghan Payment System. Retrieved from Afghan Payment System (APS): http://www.aps.gov.af

Arab Monetary Fund. (2021). The Arab Region FinTech Guide. Abu Dhabi: Arab Monetary Fund.

Ashraf, M., Grunfeld, H., Hoque, R., & Alam, K. (2017). An extended conceptual framework to understand information and communication technology - enabled socio-economic development at community level in Bangladesh. Information Technology & People, 30, 736-752. doi:10.1108/ITP-03-2016-0067

Beck, T., Pamuk, P., Ramrattan, R., & Uras, B. R. (2018). Payment instruments, finance and development. Journal of Development Economics, 133, 162-186. doi:10.1016/j.jdeveco.2018.01.005

Better Than Cash Alliance. (2016). Building a Gateway to Digital Payment in Afghanistan. Better Than Cash Alliance.

Blumberg, B. C. (2014). Business Research Methods (Fourth ed.). London: McGraw-Hill Education.

CCAF. (2021). FinTech Regulation in the Middle East and North Africa. University of Cambridge, Judge Business School. Cambridge Centre for Alternative Finance.

Center for Financial Inclusion at Accion. (2017). Governance and Strategic Leadership of Microfinance Institutions in the MENA Region: Key Insights from a regional Assessment.

Central Bank of Egypt. (2021). Egypt FinTech Landscape Report. Cairo: Central Bank of Egypt.

Central Bank of Iraq. (2020). Strategic Plan 2016-2020 Annual Report 2020. Baghdad: Central Bank of Iraq.

Central Bank of Iraq. (2021). Non Banking Financial Institutions. Retrieved from Central Bank of Iraq: https://www.cbi.iq/page/25

Central Bank of Jordan. (2021). Financial Inclusion Report 2018-2020. Central Bank of Jordan, Financial Inclusion Division. Amman: Central Bank of Jordan. Retrieved from http://www.cbj.gov.jo

Central Statistical Organization. (2019). Population. Retrieved from Central Statistical Organization: https://cosit.gov.iq/ar/pop-main

CGAP. (2015). Designing Digital Financial Services for Smallholder Families: Lessons from Zambabwe, Senegal, Rwanda, and Combodia. CGAP, Washington DC. Retrieved from www.cgap.org

CGAP. (2020). Fintech Landscaping in The Arab World Regional Report. The Consultative Group to Assist the Poorest.

CNN. (2022, March 29). Movable Small Bank. Egypt: CNN. Retrieved from https://arabic.cnn.com/business/article/2022/03/29/tahweesha-app-egypt-women

da Cruz, J. (2018). Beyound financing: crowdfunding as an informational mechanism. Journal of Business Venturing, 33, 371-393. doi:10.1016/j.jbusvent.2018.02.001

DAB. (2020). National FInancial Inclyusion Strategy. Kabul: Da Afghanistan Bank Bank (DAB).

DAB. (2022). Licensed Financial Institutions. Retrieved from Da Afghanistan Bank (DAB): https://www.dab.gov.af/Licensed-Finacial-Institutions

DataReportal. (2019, January 31). Digital 2019: Iraq. Retrieved from DataReportal: https://datareportal.com/reports/digital-2019-iraq

DataReportal. (2022, February 15). Digital 2022: Afghanistan. Retrieved from DataReportal: (https://datareportal.com/reports/digital-2022-afghanistan

Department of Statistics. (2021). Department of Statistics. Retrieved from Department of Statistics: http:www.dos.gov.jo

dos Santos, P. L., & Kvangraven, I. H. (2017). Better than Cash, but Beware the Costs: Electronic Payments Systems and Financial Inclusion in Developing Economies. Development and Change, 48, 205-227. doi:10.1111/dech.12296

Ernst & Young. (2014). Winning through customer experience: EY Global Consumer Banking Survey. EY, Global Banking and Capital Markets. Retrieved from http://www.ey.com/globalconsumerbankingsurvey

Gabor, D., & Brooks, S. (2017). The digital revolution in financial inclusion: international development in the fintech era. New Political Economy, 22, 423-436. doi: 10.1080/13563467.2017.1259298

Gai, K., Qiu, M., & Sun, X. (2018). A survey on FinTech. Journal of Network and Computer Applications, 103, 262-273. doi:10.1016/j.jnca.2017.10.011

Ghosh, S., & Vinod, D. (2017). What Constrains Financial Inclusion for Women? Evidence from India Micro Data. World Review, 92, 60-81.

IFC. (2021). Embedded Finance Ideation Series. International Finance Corporation (IFC).

IFC. (2022). IFC MSME Financing Market Study. IFC.

ILO. (2021). ILO Financial Inclusion Strategy In Iraq. Baghdad: International Labour Organization (ILO).

IOM. (2021). Master List Report 124. Baghdad: International Organization for Migration (IOM). Retrieved from http://iraq.iom.int

IOM. (2022, Dec 23). Enterprise Development Fund. Retrieved from International Organization for Migration: https://edf.iom.int/

Jagtiani, J., & Lemieux, C. (2018). Do fintech lenders penetrate areas that are underserved by tradional banks? Journal of Economics and Business, 100, 43 - 54. doi:10.1016/j.jeconbus.2018.03.001

John, K., & Jagtiani, J. (2018). Fintech: The Impact on Consumer and Regulatory Responses. Journal of Eonomic and Business, 100, 1-6. doi:10.1016/j.jeconbus.2018.11.002

JOPACC. (2021, December 2). Media Center. Retrieved from Jordan Payment and Clearing Company (JOPACC): https://www.jopacc.com/En/NewsDetails/JoPACC_partners_with_Network_International_to_increase_digital_payment_acceptance_by_SMEs

Jordan, Central Bank of. (2021). Financial Inclusion Report 2018 - 2020. Amman. Retrieved from www.cbj.gov.jo

Kabakova, O., & Plaksenkov, E. (2018). Analysis of factors affecting financial inclusion; Ecosystem view. Journal of Business Research, 89, 198-205.

Kickstarter. (n.d.). Retrieved from Kickstarter: Kickstarter.com

Kochar, A. (2018). Branchless banking: Evaluating the doorstep delivery of financial services in rural India. Journal of Development Economics, 135, 160-175. doi:10.1016/j.jdeveco.2018.07.001

Lee, I., & Shin, Y. (2018). Fintech: Ecosystem, Business Models, Investment Decisions, and Challanges. Business Horizons, 61, 35-46. doi:10.1016/j.bushor.2017.09.003

Leong, C., Tan, B., Xiao, X., Tan, F., & Sun, Y. (2017). Nuturing a FinTech ecosystem: The case of a youth microloan startup in China. International Journal of Information Managment, 37, 92-97. doi:10.1016/j.ijinfomgt.2016.11.006

Madon, S. (2000). The Internet and Socio-economic development: Exploring the interaction. Information Technology & People, 13(2), 85-101. doi:10.1108/09593840010339835

Mattern, M., & Tarazi, M. (2016). Designing Digital Financial Services for Smallholder Families: Lessons from Zambabwe, Senegal, Rwanda, and Combodia. Washington DC: CGAP. Retrieved from http://www.cgap.org

Mckinsey Global Institute Research. (2016). Digital Finance for All: Powering Inclusive Growth in Emerging Economies. Mckinsey & Company.

Munyegera, G., & Matsumoto, T. (2016). Mobile Money, Remittances, and Household Welfare: Panel Evidence from Rural Uganda. World Development, 79, 127-137. doi:10.1016/j.worlddev.2015.11.006

Nakashima, T. (2018). Creating credit by making use of mobility with fintech and IoT. International Association of Traffic and Safety Sciences, 12, 61 - 65. doi:10.1016/j.iastssr.2018.06.001

Nakhle, C. (2021, October 18). How Can Iraq Move Beyond The Oil Sector? Italian Institute for International Political Studies. Rome. Retrieved from https://www.ispionline.it/en/pubblicazione/how-iraq-can-move-beyond-oil-sector-32014

National Aid Fund. (2021, June). Statisics and Data. Retrieved from National Aid Fund: https://naf.gov.jo/EN/List/Statistics_and_Data

Niebel, T. (2018). ICT and economic growth - comparing developing, emerging and developed countries. 104, 197 - 211. doi:10.1016/j.worlddev.2017.11.024

Norwegian Refugee Council. (2022). Life and Death: NGO access to Financial Services in Afghanistan. Norwegian Refugees Council (NRC).

Ouma, S., Odongo, T., & Were, M. (2017). Mobile financial services and financial inclusion: Is it a boon for savings mobilization? ScienceDirect, 7, 29-35. doi:10.1016/j.rdf.2017.01.001

Ozili, P. (2018). Impact of digital finance on financial inclusion and stability. Borsa Istanbul Review, 1-12. doi:10.1016/j.bir.2017.12.003

Palvia, P., Baqir, N., & Nemati, H. (2018). ICT for socio-economic development: A citizens' perspective. Information and Management, 55, 160-176. doi:10.1016/j.im.2017.05.003

Panic. (2009). Post Conflict Countries: Aid Effectivness and Permanent Peace. University of Cambridge.

PCBS. (2021). Palestinians by end of 2021. Ramallah: Palestinian Central Bureau of Statistics. Retrieved from http://www.pcbs.gov.ps

PMA. (2018). National Strategy for Financial Inclusion in Palestine. Ramallah: Palestinian Monetary Authority (PMA).

PMA. (2021). Annual Report 2020. Ramallah: Palestinian Monetary Authority. Retrieved from http://www.ma.ps

Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2014). Qualitative Research Practice (Second ed.). SAGE Publications Ltd.

Roztocki, N., & Weistroffer, H. (2016). Conceptualizing and researching the Adoption of ICT and the Impact on Socioeconomic Development. Information Technology for Development, 22, 541 - 549. doi:10.1080/02681102.2016.1196097

Roztocki, N., Soja, P., & Weistroffer, H. (2019). The role of information and communication technologies in socioeconomic development: towards a multi-dimensional framework. Information Technology for Development, 25(2), 171-183. doi:10.1080/02681102.2019.1596654

Saksonova, S., & Kuzmina-Merlino, I. (2017). FinTech as Financial Innovation - The Possibilities and Problems of Implementation. European Research Studies Journal(3A), 961-973.

The Union of Arab Banks. (2021). Press Release. Retrieved from The Union of the Arab Banks: https://uabonline.org/ar/%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%B9%D8%B1%D8%A8%D9%8A-%D9%85%D9%88%D8%AD%D9%91%D8%AF-%D9%84%D9%86%D8%B4%D8%B1-%D8%A7%D9%84%D8%AB%D9%82%D8%A7%D9%81%D8%A9-%D8%A7%D9%84%D9%85%D8%A7%D9%84%D9%8A%D8%A9/

Thompson, B. S. (2017). Can Financial Technology Innovate Benefit Distrbiution in Payments for Ecosystem Services and REDD+? Ecological Economics, 139, 150-157. doi:10.1016/j.ecolecon.2017.04.008

UNDP. (2010). Capacity Development in Post-Conflict Countries. UNDP, New York.

UNESCO. (2020, March 17). UNESCO Institute for Lifelong Learning. Retrieved from UNESCO: https://uil.unesco.org/interview-literacy-rate-afghanistan-increased-43-cent

UNHCR. (2019). Regional Cash Assistance Monetary Upodate - Syria and Iraq Situations. Amman: UNHCR. Retrieved from http://www.unhcr.org

UNHCR. (2021). Iraq Factsheet. Amman: UNHCR. Retrieved from http://www.unhcr.org

UNHCR. (2021, June). UNHCR Operational Update. Retrieved from UNHCR: http://data.unhcr.org/syrianrefugees

USAID. (2020). Digital Financial Services in the MENA Region. United States Agency for International Development.

Vital Voices Global Partnership, MENA Businesswomen's Network, International Finance Corporation. (2013). Ready for Growth: Solutions to Increase Access to Finance for Women-owned Businesses in the Middle East and North Africa.

Wilson, J. (2006). Cost of War in Iraq. The Guardian. Retrieved from https://www.theguardian.com/world/2006/jan/07/usa.iraq

World Bank. (2012). Financial Inclusion. Retrieved from World Bank: http://www.worldbank.org/en/topic/financialinclusion/overview

World Bank. (2012). Financial Inclusion Strategies - Reference Framework. World Bank. Retrieved from www.worldbank.org/financialinclusion

World Bank. (2017). The Global Findex Database. World Bank.

World Bank. (2018). The Liuttle Data Book on Financial Inclusion. World Bank. Retrieved from https://openknowledge.worldbank.org/handle/10986/29654

World Bank. (2020). Data. Retrieved from The World Bank: https://data.worldbank.org/?locations=AF-XM

World Bank. (2020). Doing Business 2020 Iraq. World Bank. Retrieved from http://www.doingbusiness.org

World Bank. (2021). Palestinian Digital Economy Assessment. The World Bank.

World Bank. (2021, June). World Bank Data. Retrieved from World Bank: https://data.worldbank.org/country/JO

World Bank. (2022). Data. Retrieved from World Bank: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=EG

World Bank. (2022). The Global Findex Database 2021. Washington DC: The World Bank.

Yin, R. (2009). Case Study Research. Canadian Journal of Action Research, 14(1), 69-71.

Zhang, H., & Chen, W. (2018). Crowdfunding technological innovations: Interaction between consumer benefits and rewards. Technovation. doi:10.1016/j.technovation.2018.05.01

Ziegler, T., Shneor, R., & Zhang, B. (2020). The Global Status. Research Gate.

Acronyms

FinTech	Financial Technology
CGAP	The Consultative Group to Assist the Poor
IT	Information Technology
UNDP	United Nation Development Program
FIs	Financial Institutions
SMEs	Small – Medium Size Enterprises
GDP	Gross Domestic Product
MFIs	Microfinance Institutions
NGO	Non-Governmental Organization
STEPE	Social, Technical, Economic, Political and Ecological
ICT	Information, Communication and Technology
G20	Group of Twenty
FIEG	Financial Inclusion Experts Group
AFI	Alliance for Financial Inclusion
ATMs	Automated Teller Machines
STEP	Socio-demographic, Technology, Economic and Political
GMS	Global Mobility Services
BCs	Business Correspondents
POS	Point of Services
MENA	Middle East and North Africa
USD	United States Dollars
P2P	Peer-to-Peer
EKYC	Electronic Know Your Customer
UN	United Nations
KYC	Know Your Customer
UK	United Kingdom
ID	Identification
GPS	Global Positioning System
GNP	Gross National Product
A2F	Access to Finance
QR Code	Quick Response Code
MSMEs	Micro, Small and Medium Enterprises
SWEDO	The Swedish Development Aid Organization
IFC	International Finance Corporation
CBJ	Central Bank of Jordan
UNHCR	United Nations High Commissioner for Refugees
NBFIs	Non-Banking Financial Institutions
CRIF	The Center for Research in International Finance
JLGC	Jordan Loan Guarantee Corporation
JOPACC	Jordan Payment and Clearing Company
JEDCO	Jordan Enterprise Development Corporation
VC	Venture Capital
USAID	United States Agency for International Development
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)

MFW	Micro Fund for Women
AML	Anti-Money Laundry
MM4R	Mobile Money for Resilience
CBE	Central Bank of Egypt
B2B	Business to Business
B2C	Business to Consumer
B2B2C	Business to Business to Consumer
C2B	Consumer to Business
G2P	Government to People
P2G	People to Government
NTRA	National Telecommunication Regulatory Authority
EGP	Egyptian Pound
ROSCA	Rotating Savings and Credit Associations
CDD	Customer Due Diligence
GNI	Gross National Income
IQD	Iraqi Dinar
CBI	Central Bank of Iraq
ILO	International Labor Organization
RTGS	Real Time Gross Settlement
C-ACH	Cheque Automated Clearing House
IBCS	Inter Bank Clearing System
CSD	Central Security Depository
RPS	Retail Payment System
PSPs	Payment Service Providers
PCBS	Palestinian Central Bureau of Statistics
PMA	Palestinian Monetary Authority
PCMA	Palestinian Capital Market Authority
EMI	Electronic Money Institution
DAB	Da Afghanistan Bank (Central Bank of Afghanistan)
APS	Afghan Payment System
UNESCO	United Nations Educational, Scientific and Cultural Organization
KYC	Know Your Customer
FIs	Financial Institutions
NRC	Norwegian Refugee Council
MNOs	Mobile Network Operators
E Money	Electronic Money
IOM	International Organization for Migration
UNRWA	United Nations Relief and Works Agency
FINCA	Foundation for International Community Assistance
CF	Crowdfunding
COVID-19	Coronavirus Disease of 2019
US	United States

Appendix 1: Interview Guide

1. Note related to COVID 19

The interviews were designed to be conducted face-to-face, but due to COVID-19 and restrictions of travel as well as the pandemic threats, the interviews might be conducted remotely through electronic channels like zoom or teams or other tools depending on the country as well participants' preference.

2. Introduction

2.1 Thank you.

Thank the interviewee for his/her time and for the support extended to the research.

2.2 Introduction & background on researcher Sahel Annabi

- Introduce myself as a researcher, facilitator and a professional.
- Academic background
- Areas of expertise
- Countries of service

2.3 Background on the research and study

Research Background

During my last 15 years of experience in which I worked in more than 15 countries including post-conflict countries. I experienced many challenges facing individuals and businesses in accessing finance including low financial literacy, lack of legislation and regulation, weak infrastructure (IT, Telecoms, Internet), unskilful labour, limited governmental resources and liquidity, lack of trust in governments and financial sector, high risks (operational, security, credit, …), and weak governance to safeguard wealth.

Research question

1. How can FinTech Help Socioeconomic Development and Financial Inclusion in Post-Conflict Countries? To address this question, the study will investigate the following specific questions: How does FinTech enable individuals and businesses in post-conflict countries to gain access to finance?
2. What are the main factors that influence the development of FinTech in post-conflict countries?
3. What are the types of FinTech that can be widely used in post-conflict countries and what are the potential impacts on the socioeconomic development and financial inclusion in those countries?

Scope of research:

1. FinTech refers to both; the service provider as well the service (digital finance).
2. Selected applications: Mobile Money & Crowdfunding.
3. Research Dimensions/elements:

- Selected applications are related to financial inclusion policies.
- The applications are related infrastructure and highly used by individuals.
- Availability of related data (World Bank Findex and others).
- Chosen applications are related to relevant socioeconomic indicators.
- Impact on ecosystem
- Impact on regulation

Research Methodology
Qualitative Research Methods using an Interpretive Approach to analyse data collected from interviews and focus groups.

The Knowledge Gaps
The literature review revealed two types of knowledge gap:

Firstly, there is a need to redefine the relationship between finance and development.

The second gap in the literature is the lack of a comprehensive socioeconomic model to measure and assess the impact of FinTech on development.

Objective of the interviews

- The objective of the interviews is to collect data and learn from your experience about the use financial technology in enhancing access to finance and financial inclusion as well.
- The objective is to learn more about the financial technology practice, challenges, opportunities, impact and environment in this country.
- How FinTech impacted the lives of people and businesses?

Brief introduction by each participant

- Kindly introduce yourself and your position and institutions so we can all know each other as well for documentation purposes.

3. Participants consent to recording.

Please note that this interview is recorded for review, analysis and documentation purposes. All information will be confidential. If you have any objection, please let me know.

4. Confidentiality & research ethics

All information you provide will be kept confidential, no identities or names or titles will be identified in the published paper and work.

5. The Interviewees

Three types of interviews:

- Interviews with financial regulators and policy makers.
- Interviews with financial professionals.
- Interviews with development professionals.
- Interviews with Fintech professionals.

6. The Interview

6.1 The structure

6.2 Semi structure interviews

6.3 The questions

Questions / discussion points to be discussed during the interviews.

The group	**Suggested questions / discussion points**
Financial regulators and policy makers.	• What is the status of FinTech or digital finance in your country? • How did the regulator and policy maker react towards the development and application of FinTech? • What FinTech products/applications are available and in use in the market? • Did you notice any impact of FinTech on socioeconomic dimensions? • Describe the impact? How did such applications impact and enhance financial inclusion rates and access to finance for individuals and businesses? • How FinTech impacted the regulations and what regulations where introduced based on the implementation of certain FinTech? • How do you measure the impact of FinTech on the market, economy and population? • How does FinTech depend on the level of financial literacy? Or how financial literacy levels impact Financial Inclusion and FinTech?
Development professionals.	• What role does FinTech play in development efforts? • How did FinTech help provide access to finance for excluded populations? • What is the most common FinTech solution or application? and why is it the most common? • Did FinTech reduce cost of transaction? How? • Do you measure the impact of FinTech on development and financial inclusion and financial access? If so, how do you measure the impact? • Did FinTech provide access to different sources of finance? If so, what sources of funds did FinTech provide access to? Debt, equity or grants? • Did FinTech reduce the cost of financing? If so, how and to what extent?

Fintech professionals.	• What is the status of the FinTech infrastructure available? • Does it need development and upgrade? • What type of applications and solutions are commonly used in the country? • What other applications have potentials to be used? Do they require more enhancement or support in terms of regulations, education and promotion?

7. Brief & discussion summary

- Summarize the discussion and important points.
- Allow any questions and feedback.

8. Thank you.

Thank the interviewee for their time, information, and effort.

Financial Technology (FinTech) is deployed in developing countries worldwide to facilitate access to finance and socioeconomic development. In post-war countries, however, early studies suggested that FinTech do not live up to its promise. This study challenges existing research as to whether and how FinTech's promise may be actualized in post-war countries by developing a holistic socioeconomic framework guided by the Ecosystem Theory and the Development Theory to investigate the impact of FinTech on financial inclusion and development.

The researcher conducted a comparative case study of five post-war countries using interpretive qualitative methods pre, during, and post-COVID-19.

The study identified several factors influencing the use of FinTech including the cost of transactions, risk management, the COVID-19 pandemic, political stability, literacy, and trust in the government and financial system. This is the first study of its kind and lays the theoretical and empirical foundation for future research in the development of post-conflict countries and FinTech more generally. The most notable contribution is the development of the holistic framework that synthesizes and extends the literature relevant to socioeconomic factors around the development, use, and impact of FinTech in post-conflict countries. Moreover, the research has many practical implications to be addressed by policymakers including the importance of investing in financial literacy and education, rebuilding people's trust, strengthening ubiquitous technologies, expanding the ecosystem, and capitalizing on the impact of COVID-19 contribution.

Sahel Philip Annabi is a development finance and economic growth expert with 30 years of experience across the Middle East, Asia, GCC and Africa. Assumed senior consultant and project manager roles in many public and private reforms and business development projects in more than 15 countries. Contracted of several projects with the world's leading development agencies and international financial institutions.

In his long and rich career, Sahel engaged across several domains in private sector investment and development, banking, value chain finance, MSMEs Finance, trade finance, FinTech, financial inclusion, financial literacy, financial product development, feasibility studies development, strategy and policy development and much more.

Sahel holds several post graduates and professional degrees from Jordan, UK and the Netherlands. He is an international speaker on matters of development finance, financial planning and financial inclusion in addition to being a prolific writer with several publications. He is an impactful trainer on different banking and finance topics.

ISBN: 978-94-92970-64-0