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FinTech: From Evolution to Revolution

MENA Region

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Abstract:

Financial innovation has been revolutionizing the traditional banking throughout the financial history. However, a newly concept known as “FinTech” has been rapidly changing the pace and the elements of competition in the industry, exponentially, during the last seven recent years. Such an inevitable change is known to be a disruptive one. The disruptive power of finTech applications is even stronger when applied to address the needs of the populations in developing economies with substantial numbers of unbanked population, like that of the MENA region. Accordingly, the evaluation of the concurrent development and the maturation of finTech is vital to draw the future roadmap of the banking and financial sectors in MENA region. The evaluation is executed through comparing the dominance and prevalence of the finTech products and the coordination of the stakeholders of the finTech ecosystem, among seven Arab countries in the MENA region. The countries are; United Arab of Emirates, Egypt, Jordan, Lebanon, Morocco, Kuwait and Saudi Arabia. The selection of those countries is attributed to the fact that they account for almost 92% of the total number of startups in 12 Arab Countries in MENA (Wamada, 2017). The paper concluded that massive efforts and initiations had been introduced to the mentioned Arab countries and are still on going, however, more is still needed in the near future. Such required efforts are paramount in order to boost the digitalization pace in the financial systems, surge the percentages of financial inclusion and overcome the existing deterrents while maintaining financial stability. Some recommendations in this regards are highlighted within the paper context.

Introduction:

Traditional banking has been gaining momentum and trust throughout the past decades. Banks have been leading economies and enjoying monopoly in most of the global financial systems. They proved to be successful financial intermediaries; they have been attracting savings and channelling them to profitable investments.

Nevertheless, during the last decade, globalization and technology have been accelerating at a mind blowing pace, so that the traditional banking is striving to cope with. Furthermore, technology revolutionizes the financial and banking systems, taking them into a completely new era of business. The internet and mobile devices became the core elements of the people's lifestyle. They have disrupted all the businesses' sectors whether in developed or developing countries. The financial services industry is no exception; the digital revolution is transforming the way customers access financial products and services. Technology in the financial sector has been moving slowly and steadily from internet to mobile banking and is now taking its road towards the internet banking, in addition to the emergence of the e-commerce platforms and multiple other forms. Consequently, at this intersection of finance and technology in today's globalized world lies a phenomenon that has been accelerating and reshaping the industry's status quo – it is called **FinTech**.

The expanding pace of the finTech market shows that customers accepted finTech innovations and financial systems adopted its systems quickly. Proving this norm, data of PWC revealed that 30% of consumers plan to increase their usage of non-traditional financial services providers and 77% of financial institutions will increase internal efforts to innovate¹.

Nevertheless, the disruptive power of finTech's applications is more apparent when introduced to developing countries facing numerous economic challenges. An evident example is that of the Middle East countries, where, embedding finTech into the financial sectors of developing countries is expected to be arduous. It requires a deep evaluation of the proposed policies that might help in leveraging the finTech's potential and contribute to the regions policy priorities of financial inclusion and inclusive growth.

In this context, the paper provides a holistic understanding of the finTech's evolving concept, its products and development in the MENA region. In details, the paper's **first chapter** will demonstrate the finTech's definitions and concepts, drivers and evolvement. **Chapter two** will be dedicated to explore the main areas in which finTech started to reap its benefits, focusing on the MENA region, along with displaying the detailed cases of the seven Arab countries, which accounts for almost 92% of the total number of startups in 12 Arab Countries in MENA (Wamada, 2017). **Chapter three** is dedicated to exploring the challenges embedded in incorporating finTech in the MENA region and the potential sectors for finTech deployment in the near future. Finally, the paper will provide some policy recommendations and concluding remarks.

¹ PWC, Global Fintech Report, 2017

Chapter One: Definition of finTech, evolution and drivers

FinTech concept has received rudimentary research, with almost all the concerned stakeholders focusing more on embedding it in their systems. Nevertheless, growing interest in finTech research is expected to be reflected on the academic literature in the near future to fill in the current knowledge deficit about this field with its evolving concepts and perceptions. In this regards, this chapter will introduce the definitions and the evolution of the finTech concept. It will also shed light on finTech drivers and benefits, with some focus on the MENA region.

Definition of finTech:

FinTech proved to be an evolving and contentious concept. Opinions varied between limiting the finTech concept to the newly emerging technology-based financial companies or expanding it to include the existing incumbents if they are innovating a new technology-based service or product. According to DÁVID VARGA, 2017, given the differences in the mentioned opinions, definitions generally agree that finTech refers to companies that develop financial services and products by relying on much more intense use of information technology.

Historically, one of the pioneer scholars defining finTech were Arner, Barberis and Buckley (2015), using a broad definition of the term which proposed that all incumbents, new financial companies and industry participants could be regarded as finTechs, regardless of their size, business model or product portfolio. Another important definition of finTech by Farha Hussain (2015), referred to it as; "the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions and markets. It includes institutional, product and process innovation". Kim, Y., Park, Y. J., & Choi, J. (2016), introduced the mobile device in the previous definition. As for Ernst and Young²(2016), they referred to finTechs as organizations combining innovative business models and technology to enable, enhance and disrupt financial services. Hussain, Kim *et al* state that finTech refers to companies that are not only using IT as a differentiator, but which also are striving to provide more efficient services, streamlined processes and to enter traditionally non-banking markets. Another simpler definition provided for finTech by KPMG (2017) is; FinTech is an evolution of financial services driven by technology, changing customer expectations, availability of funding, and increasing support from governments and regulators.

As for the legislators, Basel Committee on banking supervision has opted to use the Financial Stability Board (FSB)'s definition for finTech as "technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services"³.

As depicted, all the definitions capture an important feature of finTech; namely, that there is no consensus about where the boundaries of the newly emerging sector lies. However, it is pivotal for the concerned entities, legislators and stakeholders to arrive at a common definition for finTech. Unifying the definition will help in measuring and expecting the varied financial, economic and social implications of the phenomenon.

² Ernst & Young is a global advisory company with a broad clientele of large companies, including banks and insurance companies.

³ Basel Committee on Banking Supervision, Consultative Document, Sound Practices: Implications of fintech developments for banks and bank supervisors, 2017, Bank for International Settlements, P: 9

Evolution of finTech:

Light had been spotted on the impact of finTech, however, less attention had been dedicated to the origins of its emerge.

According to Douglas W. Arner, *et al*, the evolution of finTech has been unfolded in three stages, as follows:

- **The first stage: FinTech 1.0 (from 1866 till 1913)** is a period that witnessed the development of finance alongside with trade. The period stretches from the laying of the transatlantic telegraph cable in the late of 19th century to the development of the global telex network followed by rapid post– World War II technological developments by the end of the period.

- **The second stage: FinTech 2.0 (from 1968 till 2008)**, is the period, which encompasses digitization of traditional financial services, beginning with the first ATM and culminating in e-banking. In details, the innovations during this period can be listed in the two tables hereunder demonstrating **the two phases of developments**.

Table 1: First Phase Establishments

Year	Establishments
1968	The basis of modern automated clearing services was formed: The establishment of the Inter-Bank Computer Bureau in the United Kingdom
1970	The US Clearing House Interbank Payments System
1973	The Society of Worldwide Interbank Financial Telecommunications (SWIFT) was established in 1973

Table2: Second Phase Establishments

Year	Establishments
1990s	The emergence of the internet
1995	Provision of online consumer banking by Wells Fargo

- **The third stage of FinTech 3.0 (2008–PRESENT)**, is characterized by the rapidity of technological development post, the global financial crisis and the proliferation of start-ups and IT. At this point, finTech was drove ultimately by both the technological penetration and the development or the change of the financial services providers.

Accordingly, **the current stage** is ongoing and involves both newly emerging technology-enabled financial service companies and traditional banking institutions. During this stage, the traditional financial sector was developed. Banks became increasingly digitized and built significant IT infrastructure to support their operations, while ATMs and other innovative financial products and services were created.⁴

⁴Varga, David., FinTech: The new era of financial services, November 2017, p:25-26

FinTech benefits and drivers:

FinTech innovations hold potential benefits for all users of financial services. FinTech is an attempt of embracing the existing IT technologies functioned at the banks' IT departments, with the initiative of inducing massive investments and enhancements to the system's infrastructure and programming capabilities. Such a development will result in building finTech business models around technology and software that is flexible to any business needs and competitive without incurring massive costs and prolonged preparatory work and required approvals.

Additionally, finTech has the potential to provide affordable, convenient and secure banking service in a better accessibility and affordability. Compared with traditional financial transactions, finTech customers can increase their transaction speed and financial transaction efficiency through seamless transaction of digital financial services⁵. Furthermore, such an efficient characterized transactions can help millions of poor customers move from cash-based transactions to formal digital financial transactions on secured digital platforms as Consultative Group to Assist the Poor (CGAP)⁶. In this sense, finTech is considered as the main banking tool towards achieving a higher level of financial inclusion. Digital finance has improved access to financial services by under-served groups as it can reach remote locations, through technology.

In fact, the benefits of finTech are not limited to the efficient business of the banking system in the era of technology instead; finTech has a significant effect on the economy as a whole through its positive effect on the GDP and financial inclusion. In details, finTech promises to boost the gross domestic product (GDP) of digitalised economies by providing convenient access to diverse range of financial products and services (and credit facilities) for individuals as well as small, medium and large businesses, which can boost aggregate expenditure thereby improving GDP levels. Digital finance can also lead to greater economic stability and increased financial intermediation, both for customers and for the economy⁷.

Adding to the opportunities of finTech, finTech could be used to improve compliance processes at financial institutions. Regulation is increasing globally but the effective development and application of "RegTech" could create opportunities too, for example, automate regulatory reporting and compliance requirements as well as facilitate more cross-sectoral and cross-jurisdictional cooperation for improved compliance (eg: AML/CFT)⁸.

Towards reaping the mentioned benefits of finTech in the developing countries, it is needed to spot the finTech's drivers and focus on the apparent ones in the developing countries. Actually, it is believed that the main drivers of finTech, according to Douglas W. Arner, János Barberis et al.(2017) are; **(1)** the high penetration of mobile devices (especially with broadband internet access⁹), among the young and technologically literate,

⁵Hyun- Sun Ryu, "Understanding Benefit and Risk Framework of Fintech Adoption: Comparison of Early Adopters and Late Adopters", 2017

⁶ Peterson, Kitakogelu Ozili, " Impact of Digital Finance on Financial Inclusion and Stability", 8th January 2018, Munich Personal RePEc Archive (MPRA), University of Essex , P:5

⁷ Ibid, P:2

⁸ Basel Committee on Banking Supervision, 31 October 2017, Opcit, P:22-23

⁹ Broadband Internet service truly is the most used form of Internet access because of its high access speeds; it is offered in four different forms, DSL (or Digital Subscriber Line), also fiber-optic, cable, and satellite.

Link:<https://whatismyipaddress.com/broadband>

(2) the untapped market opportunities, (3) the lack of physical banking infrastructure in some regions in the developing countries, (4) consumers increasingly valuing convenience over trust, (5) low levels of competition in this niche domain, and (6) the weaker data protection requirements.

As for the MENA region, there are some specific additional drivers of:

- SME lending accounts for 8% of credit lending by Arab banks across MENA, compared to 18% in middle income countries globally. They represent 80% - 90% of all formal sector enterprises, and account for 80-90% and 20-40% of all private sector employment.¹⁰ This comprises an area for finTech lending targeting SMEs as peer to peer platforms.
- Coupled with a much higher smartphone penetration and one of world's highest per capita GDPs, many of MENA's highest valued start-ups come from the e-commerce industry. Souq.com, MENA's first unicorn¹¹, counts 34 million unique visitors every month. FinTech plays a crucial role in that as it will boost e-commerce and benefit from its growth – forecast to quadruple from 2015 to 2020¹².
- One of the most important drivers of finTech in the region is the fact that 86% of adults do not have a bank account, as per the Wamda report (2017).
- MENA's banked population is increasingly looking for a digital banking experience. A survey of 1,429 banking customers in MENA conducted by YouGov on behalf of PayFort found that 47% of bank customers were interested in using services provided by new companies offering payment, lending and investment solutions¹³. To add more details, the data of the Global Findex Data Base (2018), proved the actual significance of those drivers by showing that the key driver of finTech adoption in GCC¹⁴ countries is demanded due to the clients' preferences for digital banking besides the availability of financial capital in these countries.

¹⁰ Wamda. PAYFORT , State of FinTech “FinTech In MENA: Unbundling the financial services industry”, 2017, P:2

¹¹ A unicorn is a privately held startup company valued at over \$1 billion

¹² Wamda, PAYFORT, 2017, Opcit, P:22

¹³ Ibid, P:23

¹⁴ The GCC consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates

Chapter 2: FinTech key sectors, ecosystem's elements and their development in the MENA region

This chapter will explore the main finTech services and products, which are being utilized in the financial sector, in addition to shedding light on the main enablers of such products. The chapter is also introducing the fundamentals of the finTech ecosystem. Additionally, the chapter is providing an overview for the finTech's total investments, globally and regionally. The chapter is also highlighting the key trends and developments in financial technology (finTech) across seven different MENA jurisdictions.

✚ FinTech key sectors:

The exploration of the leading key finTech sector's in the new era of digitalization requires the differentiation between the two distinct sides of the finTech coin. Based on the theoretical definitions of finTech (covered in chapter one), finTech's simplest two expressions, as per KPMG (2017) refer to either:

- **Businesses** that use technology to change how financial services are offered to end-customers.
 - **Firms** that use technology to improve the competitive advantages of traditional financial services firms by improving efficiencies, and driving new products and solutions for customers.
- FinTech generally excludes pure technology providers, such as large software companies, which provide unregulated services to financial institutions.

As a matter of fact, finTech in its broad meaning covers the following four areas of; **banking, insurance, asset management and other cross industry prepositions**. The papers' concern domain is to elucidate the banking finTech products, however, a breifed overview for the reminder 3 sectors is thought to be beneficial. Accordingly the three sectors of finTech (other than banking) are defined according to KPMG, (2017) as follows:

Firstly, **asset management**: finTech can take a pioneer role through the channels of;

- 1. Distribution:** offering wealth or investment management services to retail investors via platforms. Platforms include simplified interfaces/systems and tools for insights and investments.
- 2. Advice:** using algorithms to support the advice process. Often called robo-advice, they provide access to customer segments who cannot afford traditional advisors.
- 3. Portfolio management:** using the artificial intelligence and machine learning for management of portfolio.

Secondly, **insurance**, is a domian where finTech can have a valuable contribution to the services of InsurTech, which takes place through;

- 1.Products and solutions:** using data analytics and technology to develop new insurance products (for example, on-demand and peer-to-peer insurance, , non-standard insurance) .
- 2.Distribution:** using digital platforms and aggregators to provide insurance products in a targeted manner.
- 3.Servicing and claims management:** focusing on improving services and overall insurance experience (for example, policy processing and claims management).

Thirdly, some other **cross-industry propositions** which recently became universal in the finTech industry are:

1.Capital markets: providing various types of financial intermediation services, which were historically performed by investment banks and brokerage firms.

2.Business-to-business fintech: offering technology-driven solutions and services specifically for other enterprises or financial institutions. For example, software to automate financial processes, and enhance financial security (excluding blockchain), authentication, and make strategic decisions.

3.RegTech: facilitating and streamlining regulatory compliance by leveraging new technologies, such as big data and machine learning.

Finally, the main domain reflecting the finTech's evolution, that the paper is concerned with, is the banking sector.

✚ FinTech key products and services in the banking sector;

FinTech in the banking sector have been taking various forms, in terms of innovative services and products, through which the three main pillars of the banking sector happened to be disrupted. The disrupted channels in the banking sector domain are, mainly:

1.Personal financial manager services; finTech consolidated services to be integrated in one place, like a united and integrated account balances for each user, card transaction histories, credit scores and other key financial data from across providers. They add value through analytics and data visualisation to provide the user with a picture of their current financial health, forecasts on how this will change in the future and suggestions on how to improve, for instance by switching to a better credit card deal.¹⁵

2.Lending models services; finTech's effect is universally witnessed in the domain of launching platforms to lend money for the existing customer segments and the new markets using data analytics techniques.

In fact lending comprises a major finTech sub-sector. World Economic Forum analysis indicates that, of total investment in finTech enterprises: 27% has gone into consumer lending and 16% into business lending. The contribution of finTech to fostering business lending had also been critical to the small businesses as well, SMEs. While the boundaries are sometimes fluid, five key products for funding businesses, especially small businesses are :

a.Marketplace (peer-to-peer) lending; providing unsecured lending where no collateral is required, and applying innovative credit scoring models.

b. Merchant and e-commerce finance; starting in 2012, an entirely new set of players entered the field of small business lending, e-commerce platforms, payment processors and telecom companies. Small businesses selling their goods on platforms such as Amazon, eBay or Alibaba are now offered working capital lines and loans by those platforms. Payment processors (e.g. Square or iZettle) started to offer similar services in 2014, and telecom companies, such as Safaricom or Telmex, have increasingly moved into the loan business, starting in frontier

¹⁵ Consumers International (coming together for a change), "Banking on the Future: an exploration of the Fintech and the consumer Interest", July 2017,P:9

markets. Payment processors and e-commerce platforms may often be better placed than banks to assess the risk of advancing money to small merchants. They have visibility on a substantial portion of a merchant's daily transactions.

c. Invoice finance; allowing small businesses to monetize outstanding receivables quickly and easily. Online invoice finance is a rather flexible tool. Small business owners can directly connect their accounting software, such as Xero or QuickBooks, to the invoice finance platform. Integration can typically be completed within few days. From then onward, SMEs can apply for a loan based on the value of individual receivables. Since the application is processed mostly automatically, payment can be received almost instantly.

d. Supply chain finance; supply chain finance (SCF) is another way to improve an SME's working capital situation. In contrast to invoice finance, which usually does not rely on the cooperation of the receivables counterparty, SCF is typically initiated by the buyer. Traditional SCF involves a high degree of cooperation and integration between the smaller supplier and the buyer on the other end.

e. Trade finance; through which the current conduct involving (physical) letters of credit will likely be replaced by an online solution over time. As for many other financial products, third-party investors may be willing to provide financing means in exchange for an attractive return. Taken together, employing these solutions can have enormous positive effects on businesses, generally, and SME's balance sheet situation, specifically, leaving small businesses with more cash, improved working capital management, and more stable and secure funding ¹⁶

3. Payments/transactions: FinTech has already caused significant disruption in the area of payments. For consumers, finTech innovations in retail payments now combine features of mobile money with Application Programming Interface (APIs) and Quick Response (QR) codes with underlying changes to payment systems¹⁷. This unbundles payment services from underlying accounts, makes them faster, more cost effective, available around the clock, and—as a result—more user friendly. FinTech's advances in the payments space are most apparent in the evolution of 'digital wallets'. Emerging initially as a response to consumer concerns around the security of online payments, the first wave of digital wallets (e.g. PayPal) provided a virtual alternative to consumers' physical wallets, enabling them to complete online transactions without divulging card details. Consumers can also deploy apps to send payments to each other via their phones. In some high and middle income countries, the uptake of digital wallets has tracked growth in consumer access to the Internet, online purchasing habits and, latterly, smartphone penetration.

In this regards the expanded use of the digital wallets has been featured in three main lines of businesses:

a. Digital wallets for e-commerce; prior to 'digital wallet' services such as PayPal and Alipay, paying for an online purchase presented challenges, both for consumers and vendors. Consumers were concerned as to whether providing card details to unfamiliar vendors would be secure. PayPal and later Alipay addressed these issues by providing an encrypted digital wallet that stored bank, debit or credit card details enabling users to make online payments on websites via their PayPal accounts.

¹⁶ World Economic Forum, The Future of FinTech - A Paradigm Shift in Small Business Finance, 2015,p:11,18,20, 21,24

¹⁷ International Monetary Fund, IMF Policy Paper: FINTECH: the Experience so Far, JUNE 2019,P:25

Users only had to register with their email account and input their payment details once to make purchases globally¹⁸. Additionally, such platforms initiated several policies to enhance the trust with their customers, an illustration of such policies is the decision of Alipay to withhold payment to the seller until the buyer declares the goods have arrived and are satisfactory, as per Consumers International, (2017).

b.Mobile payments: the attraction and utility to consumers can go beyond using a smartphone to make in-store payments. Depending on the digital wallet being used, the wider services and functions offered can also bring together the following in one place:

- Peer-to-peer payments.
- Coupons and loyalty rewards: like store vouchers, gift cards, or store loyalty programs.
- Tickets and transport: like boarding passes or concert tickets.¹⁹

c.Digital wallets as a substitute to banks account; mobile money transfer services have had a major impact in some low income countries. The growth of this service has enabled people to bypass bank accounts, instead transferring money to each other and to merchants via mobile phones²⁰.

FinTech enabling technologies:

The observed universality success of the new and innovative products and services mentioned above are actually being created and leveraged through three main technological enablers, namely; **artificial intelligence (AI) /machine learning (ML)/advanced data analytics, DLT and cloud computing. Those are to be addressed as follows;**

1.Artificial intelligence (AI) /machine learning (ML) /advanced data analytics; AI makes possible advanced analytical tools that, by leveraging the capability to process large volumes of data, support innovative solutions for business needs. This capability enables the development of multichannel customer access, increased self-service by customers, ability to gain greater insight into customer needs and the provision of more tailored or customised services. There is an increasing use of AI/ML for the termination of credit limits, although the accuracy and validity of these models is as yet unproven.²¹

2.Distributed ledger technology (DLT) or Blockchain:

As an emerging technology, DLT solutions, such as Blockchain, tends to be more complex than other enabling technologies and have the potential to be applied for multiple purposes. DLT is being considered for a large number of use cases. Some DLT developments focus on facilitating value transfer exchanges between parties without the need for intermediation, such as central counterparties and central securities depositories, while others target the efficiency of the intermediary functions, without challenging the role of intermediaries, by reducing settlement times or improving the transparency of recordkeeping and reporting. Some DLT solutions also focus on banks' back office operations.

¹⁸ 'Why Alipay is more than just the Chinese equivalent of PayPal', Tech in Asia, August 2015

¹⁹ 'Five Key Things You Need To Know About Digital Wallets', Nasdaq, November 2016

²⁰ Consumers International (coming together for a change), Opcit, P: 12.

²¹ Basel Committee on Banking Supervision,2017, Opcit, P:30

3.Cloud computing:

Cloud computing allows the sharing of on-demand computer processing resources in a way that promotes efficiencies and economies of scale. Such cost-cutting is attractive for banks, but concerns over safety and privacy initially inhibited banks from using cloud computing infrastructure. Now, however, many banks are experimenting with public cloud operations. For fintech companies, cloud solutions often allow easier access to back office infrastructure that incumbents spent decades building, helping to engage in operations at a lower cost.²²

Additional Solution

Furthermore, in the realm of providing more solutions to the financial sector, fintech has had an evident value added, especially in the MENA region, in leveraging more opportunities for **crowd funding**. **Crowd funding** is defined as the practice of funding a project or venture by raising monetary contributions from a large number of people. It is often performed via internet-mediated registries that facilitate money collection for borrower (lending) or issuer (equity).²³

FinTech's Ecosystem: The participants, pillars and framework development

FinTech ecosystem is critical to provide a nurturing environment for financial technology aiming at paving the way towards digitization and improving the overall customer experience. In this regard, a dynamic fintech ecosystem will energize and broaden the local economy by attracting talented and ambitious people to the field of fintech industry. Additionally, such a dynamic system is expected to attract investors in the field of fintech startups. Towards the end of launching such a stable fintech platform, one has to understand and realize divergent ways of flourishing fintech industry. Such a holistic understanding requires identifying, each of; **the participants, the pillars** of a fintech ecosystem and **the development framework** for a well-established fintech ecosystem.

Reference to In Lee, Yong Jae Shin (2017), there are **five main participants** in fintech ecosystem. **First: Fintech startups** (e.g., startups in the field of either payment or wealth management or lending or crowdfunding or capital market or insurance fintech companies). **Second: Technology developers** (e.g., big data analytics, cloud computing, cryptocurrency, and social media developers). **Third: Government** (e.g., financial regulators and legislature). **Fourth: Financial customers** who represent the source of revenue inside the ecosystem (e.g., individuals and organizations). **Fifth: Traditional financial institutions** (e.g., traditional banks, insurance companies, stock brokerage firms, and venture capitalists). Therefore, these five elements together contribute to improve economy, creating a smooth customer experience as well as enhancing collaboration and competition between the main players within the financial industry. Consequently, each participant within the fintech ecosystem must clearly understand its role and the potential benefits of being engaged into such a system.

²² Ibid, P:31

²³ Union of Arab Banks, Research & Studies Department, "Financial Technology & its effects on Banks in the Arab Region", 2018, P: 33

When it comes to **the pillars of a finTech ecosystem**, there are five main pillars as mentioned in E&Y(2018). Each pillar and its main components will be listed in the hereunder table (Table3)

Table: 3 The Pillars of a FinTech ecosystem	
Pillars	Components
First pillar: Sustained demand	<ul style="list-style-type: none"> ➤ Consumers: Digital readiness in terms of mobile and internet penetration, smartphone penetration, banking penetration and ease of access to financial services ➤ Corporations: Demand from enterprises, including small- and medium-sized enterprises (SMEs) and institutions ➤ Financial institutions: Demand from financial institutions for FinTech offerings
Second pillar: Access to capital	<ul style="list-style-type: none"> ➤ Risk capital: Access to angel funding²⁴, government funds; ease of raising capital from alternative sources such as initial coins offerings (ICOs)²⁵ ➤ Growth capital: Access to venture capital (VC) and government funds, financial institutions and tech companies ➤ Strategic capital: Funding from traditional institutions, tech firms, corporates and private equity (PE) funds
Third pillar: Talent availability	<ul style="list-style-type: none"> ➤ Attract: Access to international talent, ease of mobility and visa policies ➤ Upskill: Development of talent pipeline, university courses, research and development investment ➤ Retain: Policies and initiatives that would reduce ‘brain drain’ and provide conducive environment to grow and flourish
Fourth pillar: Regulatory openness	<ul style="list-style-type: none"> ➤ FinTech laws: Specific regulations and policies ➤ Overall regulatory environment: Ease of doing business, credit availability, taxation policies, visa policies and presence of regulatory sandboxes ➤ Competition: Encouragement of competition through policies
Fifth pillar: Enabling environment	<ul style="list-style-type: none"> ➤ Strong: Collaboration with incumbents; and presence of accelerators, incubators, community enablers and co-working spaces (public or corporate) ➤ Scalable: Ease of access to local and international markets ➤ Sustainable: Government and industry support for sustainable development

Source: SFA, EY, FinTech ecosystem playbook, 2018, p.6

²⁴ Angel funding Refers to angel funder, or also known as angel investor who is a high net worth individual who provides financial backing for small startups or entrepreneurs, typically in exchange for ownership equity in the company. For a list of Egypt Startup / angel investors:

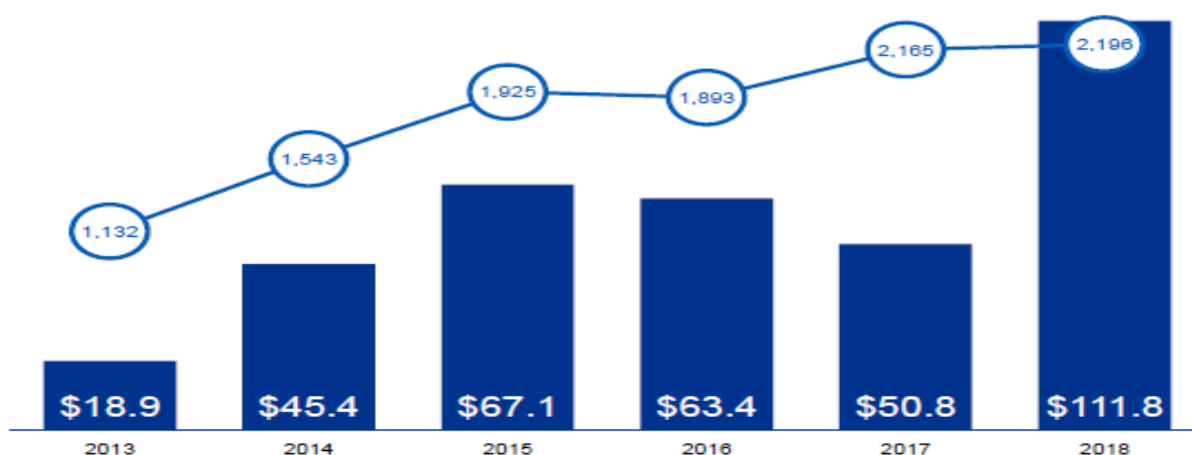
<https://www.wamda.com/2016/09/complete-list-egypts-startup-investors>

²⁵ Initial Coin Offering (ICO) is an innovative approach for raising funds through the use of digital currencies ([cryptocurrencies](#)). Such a strategy is more prevalent in cryptocurrency projects that are yet to fully developed their blockchain-based product, service, or platform. Link : <https://www.binance.vision/glossary/initial-coin-offering>

✦ Global finTech overview:

Today, finTech has expanded in scope, now covering the full spectrum of finance and financial services. This trend is proved by the available short time series data.(Graph 1)

Graph 1: Total investment activity (Venture Capital “VC”, Physical Education”PE” and Mergers & Acquisitions “M&A”) in finTech 2013-2018



Source: KPMG, “The Pulse of Fintech 2018”, February 2019, P:11

As per the KPMG report (2018), finTech investment increased substantially in 2018, with total global investment in dollars across M&A, PE and VC more than doubling from \$50.8 billion in 2017 to \$111.8 billion in 2018, with 2196 deals. M&A and buyouts accounted for the largest finTech investments during the year, regarding the technology level, payments and lending continued to attract the most significant investment dollars globally, although insurTech and regTech were also quite high on the radar of investors. With regard to the future outlook, finTech investments are on the rise, in part due to the strong and highly diverse finTech hubs cropping up around the world and also due to the increase in investments focused on solutions targeted to the needs of unbanked and underbanked people in the developing world. Another reason for expecting more expansion is that many challengers and digital banks are also focusing on broadening their service offerings expanding from niche offerings into a wider range of services similar to those offered by traditional banks.

✦ FinTech in MENA region: Overviewing and exploring the finTech solutions

FinTech in MENA region: Regional overview

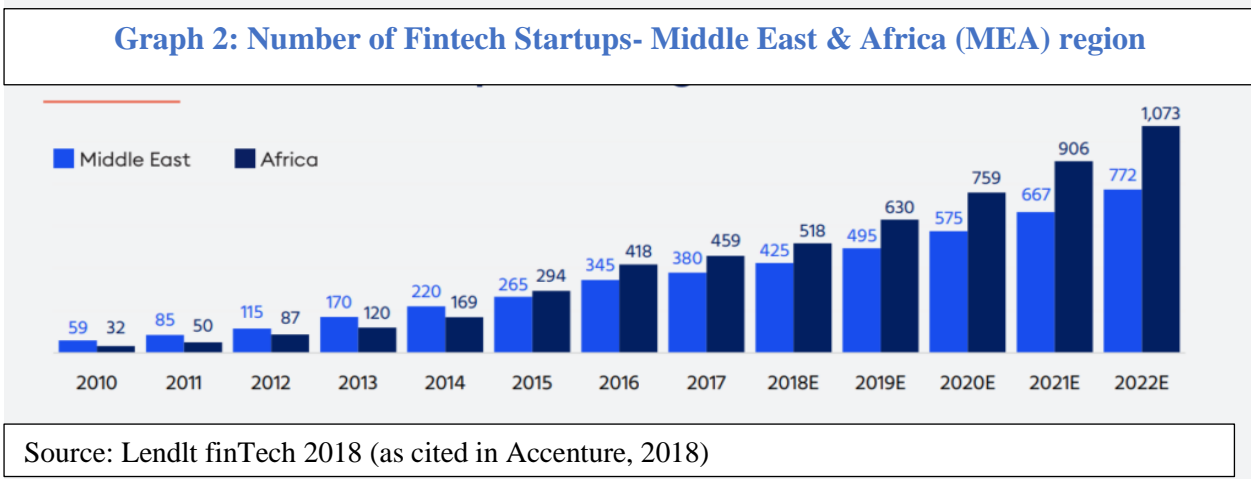
The finTech sector is rising globally, and has already arrived in the Middle East and North Africa (MENA), hence it has been transforming the financial services delivery throughout the region. During 2013 and until 2015, the number of start-ups offering financial services in the region doubled from 46 to 105. In addition, MENA-based finTech startups employ over 1,600 people in MENA.²⁶ As of 2016, it has been reported that 84% of all middle east finTech startups

²⁶ Wamda, PAYFORT, 2017, Opcit, P.3

are payments and crowd funding. By 2017, disclosed finTech investments in the MENA reached USD 24 million representing an increase of 13%, compared to USD 18 Million in 2016²⁷.

Across the region, UAE, Egypt, Jordan and Lebanon out of 12 Arab countries²⁸ are hosting 73% of all MENA finTech startups²⁹.

As for the Middle East and North Africa’s portion of the total global fintech’s invested the data, published by Clifford Chance(2019), revealed the fact that such portion is still minor compared to other fintech hubs with a potential of more future surge. Actually, the total fintech start-ups in the Middle East and North Africa were valued at US\$66.6 million by end of December 2017. However, signs show a potential of substantial growth of those numbers to reach an estimated value of US \$2.5 billion by 2022, across the MENA region. Another positive indicator for the future prospects of finTech in the region was estimated by Lendtl (2018), were the share of the finTech startups’ earnings of the financial services revenues is expected to reach 8% by 2020, compared to the current percent of 3%. Not only this, but the number of finTech startups in Middle East and Africa will witness a significant increase as it is estimated to reach 1845 by 2022 compared to 943 startups in 2018, as per Accenture in partnership with finTech Hive report(2018).



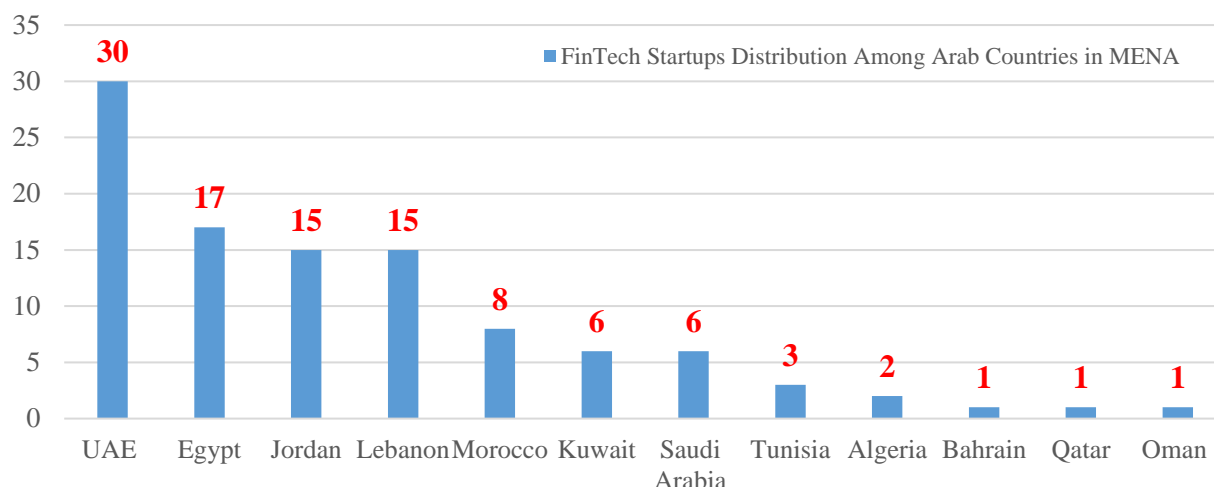
Among the MENA countries, the paper will demonstrate the finTech market opportunities, services and products in seven Arab countries, with some examples reflecting the maturity of their ecosystems. Those are: United Arab of Emirates, Egypt, Jordan, Lebanon, Morocco, Kuwait and Saudi Arabia. The selection of those countries is attributed to the fact that those countries account for almost 92% of the total number of startups in 12 Arab Countries in MENA (Wamada, 2017) (see graph 3). In details, United Arab Emirates (UAE) alone hosts 30 finTech Startups, followed by Egypt (17), both of Jordan and Lebanon (15), Morocco (8) and both Kuwait and Saudi Arabia(6).

²⁷ IDAL, FinTech Sector in Lebanon: 2018 factbook, 2018, P.8 (as cited in Arabnet, 2018)

²⁸ The twelve Arab countries are: UAE, Egypt, Jordan, Lebanon, Morocco, Kuwait, Saudi Arabia, Tunisia, Algeria, Bahrain, Oman, Qatar

²⁹ Wamda, PAYFORT, 2017,Opcit ,P.14

Graph 3 : FinTech Startups Distribution Among Arab Countries in MENA



Source: Union of Arab Banks, 2018 (as cited in Wamda, PAYFORT,2017)

Putting the mentioned numbers in percentages, and as per Union of Arab banks (2018), 44% of finTech companies in Arab countries are serving UAE market, 39% are serving the market in Jordan, 34% in Egypt, 29% in Saudi Arabia, 27% in Lebanon, 24% in Kuwait and 15% in Morocco.

✚ FinTech in the MENA region: exploring the maturation of some finTech solutions in the region and the status quo of the finTech ecosystem

1- United Arab Emirates (UAE): Approximately one-third of Middle East and North Africa's finTech startups are located in the UAE. As a start-up center for the regional economic industry, UAE is rapidly accelerating its pace in the realm of finTech. Dubai and Abu Dhabi, due to their sophisticated technological infrastructure, are the most prominent destinations within the UAE, this is attributed to their renowned two key financial free zones, the **Dubai International Financial Centre (DIFC)** and **Abu Dhabi Global Market (ADGM)** which are cementing their significance in the sector³⁰. The zones are worth elucidating, as follows;

- **DIFC** is established in 2004 as a major financial hub, with an independent regulator and judicial system and a global financial exchange. The district has 2003 active registered companies with a workforce of 22,768. In August 2017, the Dubai Financial Services Authority (DFSA) launched its regulatory framework for loan and investment based crowd funding platforms. ³¹DIFC established finTech HIVE, an accelerator that aims to bring financial and technology firms together. The DIFC Fintech Hive has expanded to include regTech, insurTech and Islamic finance as new areas of focus, with the Dubai Financial Services Authority (DFSA) offering dedicated commercial licences in relation to these. In addition, the DIFC has entered

³⁰ Lendlt FinTech, Dubai International Financial Center, A Roadmap for FinTech Firms Entering Fast-Growing Emerging Markets, 2018, P.5

³¹ SFA, EY, "FinTech Ecosystem playbook", 2018, P:38

into a memorandum of understanding with the Dubai Islamic Economy Development Centre with the aim of nurturing and mentoring start-ups in the field of Islamic finTech.³²

Furthermore, DIFC launched a US \$ 100M finTech-focused fund to accelerate the development in financial technology by investing in startups, from incubation to growth stage. Additionally, it launched the ‘Academy’, an executive education centre, in 2017. Formed in partnership with leading business schools, the academy provides access to financial services courses.³³

- **ADGM** was founded in 2013, it comprises three independent authorities: ADGM courts, the Financial Services Regulatory Authority and the Registration Authority. Through its development, ADGM has introduced several initiatives and programs to support the UAE’s ecosystem with its sandbox program. An important milestone in this regards is the launching of the finTech innovation centre, a co-working space for finTechs and entered in partnership with plug and play, in October 2017. Similar to the DIFC, ADGM academy was launched in May 2018 where specific finTech courses are being offered.

Focus areas:

- “**Smart**” technology has gained the consolidated efforts of the governments and the financial hubs seeking benefits in the domain of the public services, such as the Dubai Land Department’s adoption of blockchain or Abu Dhabi’s new public outreach app.

- **Digital platforms and innovative electronic solutions**, had been announced by UAE banks and financial institutions on a regular basis. These range from e-payments and electronic wallet services to robo-advisor platforms, which offer computerised financial planning services that, are algorithm-driven, with little or no human supervision.

- Dubai has integrated **blockchain** as a core element of the Smart City Initiative, both through the UAE Blockchain Strategy and its support of the Global Blockchain Council.

- **Voice banking** had been embraced into the banking system by Emirates NBD. The bank launched a service known as Emirates NBD skill for Amazon Alexa, through it the customers will be able to ask for their account and credit card balances, as well as details of their recent transactions using conversational language through an Amazon Echo smart speaker from their home or offices.³⁴

- On the other side, the UAE, like many other jurisdictions **is not yet** specifically regulating **Initial Coin or Token Offerings (ICOs) and other crypto asset-related activities**. Whereas, ADGM Free Zone is actively encouraging licence applications for operating cryptocurrencies.

✚ The Ecosystem: Examples of facilitating laws, initiatives and undertaken collaborations:

- A new banking law has been issued containing some provisions relevant to finTech. Decretal Federal Law No. (14) of 2018 regarding the Central Bank and Organization of Financial Institutions and Activities (2018 Banking Law) came into force in October 2018, with a grace period for various provisions. The 2018 Banking Law sets out a number of new categories that

³² ClifFord Chance, “FinTech in the Middle East- Developments across MENA”, January 2019, P: 10.

³³ SFA, EY, 2018, Opcit, P:38

³⁴ Fintech Middle East, “Emirates NBD to launch voice banking through Amazon Alexa”, 16th Septemeber 2019.
Link: <https://fintechnews.ae/4737/abudhabi/emirates-nbd-to-launch-voice-banking-through-amazon-alexa/>

are to be considered “financial activities”, and therefore regulated by the Central Bank, such as the provision of virtual banking services, stored value services, electronic retail payments and digital money services.

- In addition, the 2018 Banking Law explicitly requires licence-holders to keep customer data and information confidential, thereby setting a standard for data protection in the UAE banking sector .

- In November 2017, it was reported that the Central Bank Governor informed a banking forum in Abu Dhabi that the Central Bank is considering crowdfunding regulations that may benefit SMEs and in July 2018, Securities & Commodities Authority(SCA) announced that it had plans to work with the OECD to establish a crowdfunding platform for the purposes of funding SMEs in the country.

-In January 2017, the Central Bank established a new licensing framework for stored value facilities offering certain digital payment services.

Collaborative examples among the stakeholders of the ecosystem;

-The Central Bank in collaboration with PWC was engaged in the process of establishing the finTech sandbox. It has also involved benchmarking international capital markets practices.

-The Central Bank has been receptive to hearing presentations from firms, in the payment services industry, and working with them. This phase appears therefore to offer a real opportunity for such firms to be licensed by Central Bank regulation in a way which works for their business.

-An example of partnership among banks: the Emirates Digital Wallet initiative is a joint project amongst a large number of UAE banks to create a mobile cash wallet available to their respective customers.³⁵

2- Egypt, there are an increasing number of finTech start-ups, driven by the collaborative efforts of the Egyptian government, the Central Bank of Egypt (CBE) and the stakeholders to upgrade payment systems and convert the economy to be cashless. The drivers of finTech in Egypt are numerous and varied between its large economy, young population and plentiful skilled human capital. Accordingly, Egypt has a huge potential to flourish its business in the realm of finTech. Actually, the utilization of finTech in the financial sector contributes by 1.6% to the GDP.

Focus areas:

- **Payment System:** The payment system had been attracting the investments and initiations. In this regards, the national payment scheme “**Meeza**” had been launched in December 2018, reaching 500,000 issued cards since its take-off. Meeza cards are now accepted across all 12,000 ATM machines and 76,000 POSs across Egypt³⁶.

-**Mobile Wallets:** the service had been first licenced by the CBE in 2013, since then number of mobile payments were introduced to the market. Vodafone Egypt was the first to launch its mobile wallet, Vodafone Cash, in cooperation with the Housing & Development Bank in June of 2013. The other two carriers, Etisalat and Mobinil, have coordinated with the National Bank of Egypt and Emirates NBD, respectively, to launch Flous (money) and MobiCash. The NBE, meanwhile, has independently launched its own mobile money service, Phone Cash, in

³⁵ ClifFord Chance, 2019, Opcit, P:35,39

³⁶ Seamless North Africa Conference: the future of payments, FinTech and E-commerce, June 2019

cooperation with MasterCard, Fawry and the Egyptian Banks. It is worth noting that in Egypt, the law dictates that cell phone providers can only offer mobile transfers through a bank³⁷. Currently, more banks had joined in providing the service, among them: QNB Al Ahli- E wallet, CIB E-wallet, Alex bank Ma7fazty, United Bank Digital Wallet, Banque Misr Wallet...e.t.c

-In addition, in April 2018, Egypt's first **blockchain-focused** incubator opened in collaboration with Egyptian firms as Novelari (an Egyptian accelerator) & zk Capital (Blockchain investment fund)³⁸. In this regards and in line with Egypt's national digital transformation strategy, the National Bank of Egypt has joined enterprise software firm R3's global blockchain, an initiative of over 200 financial services firms comprising technology companies, banks, trade associations and regulators, according to bank officials. The R3 global network started as a consortium of banks looking to use blockchain technology, recently broadening its ambitions by proposing its distributed ledger technology (DLT) platform, used to link together a wide range of businesses. The new technology will enhance instantaneous processing of transactions across multiple distributed databases efficiently and securely³⁹.

- On the other hand, **bitcoin is banned** in transactions since it had no monetary cover by the Central Bank of Egypt (CBE). As a matter of fact, in December 2017, the Head of the Egyptian Financial Supervisory Authority (EFSA) stated that the trading of bitcoin is illegal in Egypt⁴⁰.

The Ecosystem: Examples of facilitating CBE laws, initiatives and undertaken collaborations;

-In February 2017, the President issued legislation to establish the National Council for payment reflecting the support of the state to the less cash transformation. Furthermore, an e-commerce law, and several economic regulatory reforms had been issued to respond to the development in digital credit lending and crowdfunding.⁴¹

- The Central Bank of Egypt has licensed 7 banks to provide QR code acceptance. Consequently, the 13 million customers registered on mobile money, will be able to do digital merchant payments.

- The Central Bank of Egypt released the Contactless Payment Regulation, allowing NFC payments & Wearables to be used for the first time in the Egyptian Market.

- In 2016, the CBE released new regulations for cashless payments using smartphones by introducing mobile wallets⁴².

- **Number of major initiatives were announced by the CBE, including:**

³⁷ Hafiz, Tamer, In Depth- Digital Finance: Egyptians slow to Embrace Mobile Money, American Chamber of Commerce in Egypt, September 2014

³⁸ Clifford Chance, 2019, Opcit, p:19

³⁹ Ahram Online , Sunday 22 Apr 2018

⁴⁰ Clifford Chance, 2019, Opcit, p:19

⁴¹ Lendlt FinTech,2018, Opcit, p.7

⁴² Clifford Chance, FinTech In the Middle East: An overview, October 2017, P:11

- **Launching the finTech & innovation strategy**, with more than 30 initiatives directed towards Egypt's digital transformation
- **Launching the regulatory sandbox**; within which finTech companies can experiment their innovative finTech solutions in a live & relaxed regulatory structure.
- **Creating the finTech HUB**; in collaboration with the Greek Campus, the FinTech hub aims to connect all FinTech ecosystem.
- **Launching the finTech portal**, a virtual gateway to the FinTech Hub. This online platform is now live and ready to be accessed by anyone who's interested to be connected virtually to Egypt's finTech ecosystem from anywhere across the globe.

- It is worth mentioning that the Central Bank of Egypt has committed, in 2018, to dedicating 1 billion EGP towards finTech innovation investments in the finTech Fund⁴³

Collaborative examples among the stakeholders of the ecosystem;

- The Egyptian government and the CBE are working closely with ministries and other governmental authorities to develop and encourage fintech companies to integrate into the financial system. In February 2017, the President issued legislation setting up the National Council for Payment. Its members include the President, the head of the CBE and the head of the Financial Supervisory Authority. Its role is to promote the move towards cashless payments (as mentioned earlier).
- The launching of the Mobile wallets was the main exemplar of the collaboration among the stakeholder comprised of; the CBE, the National Telecom Regulatory authority, the banks and the mobile operators. The service reaped its benefits of the relatively high mobile penetration in Egypt.
- The experience of NBE joining the enterprise software firm R3's global chain initiative includes numerous stakeholders of 200 financial services, firms, technology companies, central banks, regulators and trade associations.
- The Ministry of Finance has proceeded with mandating electronic payments for government fees above EGP 500 since the 1st of May 2019. In response to that and under the supervision of the Central Bank of Egypt, the banking sector managed to install 16,000 POSs at governmental entities that provide public services, with more than 31 million cards now accepted on those POSs.

3- Jordan: finTech is considered to be inchoate in Jordan with a high potential of future accelerating growth.

Focus areas:

- Similar to Egypt, the main focus areas of finTech in Egypt are the **electronic payments** of bills and facilitating it through smart phones. The Jordanian government is seeking to reduce the amount of cash in circulation by digitising Jordanian money, additionally, the Central Bank of Jordan (CBJ) is embedding finTech products into governmental services.

⁴³ Seamless North Africa Conference, 2019, Opcit

- **Payment** has been an area of priority in the field of finTech, an example is that of eFAWATEER, launched in 2015. eFAWATEER.com is required by the CBJ to be the only electronic means of allowing customers to view and pay their bills from their bank accounts.
- **The CBJ** has introduced an electronic mobile wallet that enables people (especially the unbanked) to make payments from their mobile wallets to any other person with a mobile wallet⁴⁴.
- On the other side and similar to Egypt, **Cryptocurrencies are not permitted** in the Jordanian financial system. In fact, in February 2014, the CBJ issued a circular prohibiting the dealing of cryptocurrencies and, in particular Bitcoin⁴⁵.

The Ecosystem: Examples of facilitating CBJ laws, initiatives and undertaken collaborations;

- In Jordan, finTech is one of the three focal points in the country's National Financial Inclusion Strategy (NFIS) (the first country to launch such a strategy in the Arab region).⁴⁶
- In 2018, CBJ introduced a Fintech Regulatory Sandbox to support FinTech innovation.
- Furthermore, being a principal member of the Alliance for Financial Inclusion (AFI) since 2016, the Central Bank of Jordan (CBJ) has had a leading role in finTech aiming to support financial inclusion through adopting finTech initiatives. For instance, supporting digital payments.
- A new regulation has been issued by the CBJ recently that aims to regulate third-party payment processors. These include the protection of e-payment users' data and personal information.⁴⁷

Collaborative examples among the stakeholders of the ecosystem:

- To encourage Jordanians to start using electronic payments, the CBJ partnered with finTech company Madfoo'atcom and launched eFAWATEER.com in 2015. This is an electronic bill presentation and payment system (EBPP). It is owned by the CBJ, managed and operated by Madfoo'atcom. It enables consumers to view and pay all types of bills electronically through local banking channels, including internet banking, ATMs and mobile banking.
- More recently, Capital Bank of Jordan signed a partnership with Dutch company Backbase for its digital transformation. The project will cover several business lines and result in the digital transformation and upgrading of institutional as well as retail banking platforms⁴⁸.

4- Lebanon, FinTech has had a significant impact on the Lebanese financial sector, with the number of finTechs surging at an exponential growth rate of 50% between 2011 and 2015. The main driver of this increase is the Lebanese banking customers. Actually, the population proved its rapid adaptation to the digital transformation. In this regards, in 2017, 54% of people with a bank account had adopted digital banking in Lebanon which is a significant increase compared

⁴⁴ Clifford Chance, 2019, Opcit, p:20

⁴⁵ Ibid,P:20

⁴⁶ AFI, Jordan Launches NFIS, 4th December 2017

Link: <https://www.afi-global.org/news/2017/12/jordan-launches-nfis-first-arab-region>

⁴⁷ ClifFord Chance, 2019, Opcit, P: 20

⁴⁸ Fintechnews Middle East, Examining Jordan's Emerging FinTech Scene, May 1 2019

Link: <https://fintechnews.ae/4072/fintechjordan/fintech-in-jordan-overview/>

to 38% in 2016. Moreover, Lebanon ranked 5th among the countries of the Arab region , with 76% of the population is utilizing the internet (Union of Arab banks,2017).⁴⁹

Focus areas:

The main focus areas are no different in Lebanon than most of the MENA countries with the local banks **introducing mobile, online banking payment, deposit platforms, and money transfer platforms**, steadily. Similar to Egypt and Jordan, Banque du Liban (BDL) and the Capital Markets Authority (CMA) reiterated the prohibition on issuing electronic money or promoting or dealing (directly or indirectly) with electronic currencies for their own account or for the account of their clients.

The Ecosystem: Examples of facilitating Banque du Liban (BDL) laws, initiatives and undertaken collaborations;

First of all, it is important to identify the roles of the regulatory financial institutions in Lebanon as follows; The Lebanese central bank, Banque du Liban (BDL), regulates electronic banking while the Capital Markets Authority (CMA) regulates crowdfunding. As a matter of fact, the policies and regulations in the financial system might be considered conservative, with the BDL's and CMA regulations are avoiding and minimizing the risk associated with the digitalization. Illustrative examples might be mentioned as follows;

-BDL prohibits the performance of banking operations via mobile and fixed electronic devices amongst customers of different banks, unless these operations are limited to the receipt of transfer requests from the customer, and provided that the operations are not instantly performed through the application or software used by the customer's devices but in the usual and conventional way (i.e. through the SWIFT system adopted amongst banks).

-BDL requires that, for the admission of an electronic signature of the client, the client enters into an agreement with the institution which includes the likely risks associated with the e-signature.

- In order to obtain a crowdfunding licence, the CMA will conduct "Know Your Customer" (KYC) verification and investigate relations between the crowdfunding operation (the institution) and the underlying companies. The institution must also demonstrate compliance with several systems and control requirements and provide documents on technical rules for its electronic systems.⁵⁰

- Furthermore, it is worth mentioning that Lebanon enjoys more competitive advantages, in terms of its ecosystem, which enables finTech adoption at a larger scale. Those are: the relatively robust banking system and its talented human capital, this is attributed to the Lebanese solid educational system. In fact, as per (global competitiveness report 2017-2018), Lebanon ranks 18th worldwide for the quality of its higher educational system. Additionally, the highly skilled labour force is providing Lebanon with a competitive edge in terms of its cost competitiveness, as it is relatively cheaper compared to the US, Europe and GCC countries.⁵¹

⁴⁹ It is worth noting that the reference revealed the fact that Bahrain was ranked as the 1st with a percentage of 98%, Qatar the second (94%), UAE the third (91%), Kuwait the 4th (78), (Union of Arab Banks, "Fintech 2018", p:74.)

⁵⁰ Clifford Chance, 2019, Opcit, p:22

⁵¹ IDAL, 2018, Opcit, P:12

5- Morocco:

Although still in its infancy, finTech has continued to grow as a sector in Morocco and a legal framework.

Focus areas:

- **E- wallet's** development in the payment services seemed to be the departure point of Morocco's involvement in the field of fintech.
- **Crowd Funding is not yet regulated in Morocco**, however, in March 2018 a draft law on the matter was issued to the Government General Secretariat for consultation. The draft establishes a regulatory framework for crowdfunding activities and sets requirements for crowdfunding platform managers.⁵²
- **For the cryptocurrencies**, in November 2017, the Exchange Office banned Bitcoin and issued stiff threats aimed at cryptocurrency enthusiasts in the country⁵³.

The Ecosystem: Examples of facilitating Bank Al Maghreb (BAM) laws, initiatives and undertaken collaborations;

- The Central Bank of Morocco (Bank Al Maghreb – BAM) has been making discernible efforts to improve financial inclusion, utilizing the tool of payments digitalization to boost the percentage of the digital inclusion into the financial system.
- Morocco has adopted a legal framework to regulate the use of mobile payments in the jurisdiction. The new law introduces the notions of “payment institutions” and “payment agents”. A number of banks have quickly responded to the new framework by launching e-wallets, such as “We Pay” by Crédit immobilier et hôtelier (CIH) Bank and “BPay” by Banque Populaire. Nonbanking institutions may also implement mobile payment initiatives, provided they obtain approval from Bank Al Maghrib (the Moroccan central bank)⁵⁴.

6- Kuwait: A minor fintech start-ups are operating in Kuwait, mainly in the payments sector, with an inconsequential development in the regulatory framework. Despite this its rudimentary development in finTech (compared to its peer UAE) the banking industry is taking serious steps towards finTech's revolution aiming at embracing agility standards in its systems. A major step towards this target was the issuance of the Kuwaiti national assembly of Law No. 20 of 2014 (Regarding Electronic Transactions) (the ET Law) in January 2015. This law comprised a crucial milestone of the finTech development. The aim behind the ET Law is to emulate traditional paper-based transaction processes in a regulated, efficient and secure digitised system.⁵⁵

Focus areas:

- **Payment** is by far the most prominent specialization in the realm of finTech for the financial system in Kuwait, with number of laws facilitating and fostering this area of specialization.
- Other recent finTech products had been initiated by banks in Kuwait. Examples may include;

⁵² Clifford Chance, 2019, Opcit, p:2

⁵³ The Financial Times, “FinTech in Africa: Morocco”, 2nd March, 2018

⁵⁴ Clifford Chance, 2019, Opcit, p:21.

⁵⁵ Ibid,P:21

- **Interactive voice response (IVR) portal**, live chat assistance and more mobile and online services, offered by Kuwait International Bank (KIB) in a bid to improve the overall customer banking experience.⁵⁶
- **The first E-signature** function and online account opening, released for the first time in Kuwait by Warba bank, is an attempt to save the effort and cost endured in visiting the banks' branches physically. This is attributed to the function facilitated by the e-signature to enable users to authorize the bank to access their information on the credit network (ci-net) without having to report to the bank's branch personally⁵⁷.
- **Blockchain** was first introduced to the financial market in Kuwait by Kuwait France House, it was the first to adopt blockchain by utilising Ripple's blockchain-based platform to enable faster transactions.
- In November 2018, the Central Bank of Kuwait (CBK) announced the launch of a regulatory **sandbox** for start-ups⁵⁸

The Ecosystem: Examples of facilitating Central Bank of Kuwait (CBK) laws, initiatives and undertaken collaborations;

- The most important regulatory milestone is the ET Law issued by the Kuwaiti national assembly. The ET Law governs electronic contractual agreements and electronic signatures, and covers electronic payments.
 - Data protection represents another area of cooperation between the government and the non-governmental entities according to the ET, where the ET Law also imposes responsibilities on entities that collect personal data.⁵⁹
 - Furthermore, Warba Bank in Kuwait has launched the first E-signature function and online account opening without the need to visit the bank's branch. The E-Signature function is resulting from an agreement between Warba Bank and Kuwait's Public Authority for Civil Information.
- 7- Saudi Arabia**, Saudi Arabia constitutes one of the largest economies in the MENA region in terms of both the side of its economy and size of population. Actually, it is advantageous with regard of its demographic feature of having a large young population (around half of the population are less than 24). Additionally, the country is having the highest penetration of smart phone in the world(65%)⁶⁰. Capitalizing on the above, the country is expected to have a high yielding prospect in the finTech domain, especially that it is attempting to reduce its reliance on oil by promoting other competitive sectors. It is not hard to see that finTech comes at the heart of those sectors. These strategic objectives had been explicitly revealed in "Saudi Arabia's vision

⁵⁶ Interview with: Raed Jawad Bukhamseen, Vice-chairman and CEO, Kuwait International Bank, KIB is leading the FinTech revolution in Kuwait, March 7, 2019, World Finance.com
Link: <https://www.worldfinance.com/featured/kib-is-leading-the-fintech-revolution-in-kuwait>

⁵⁷ Peyton, Antony, Warba Bank first in Kuwait for e-signatures and online account opening, 17th March 2017, FinTech Futures
Link: <https://www.fintechfutures.com/2017/03/warba-bank-first-in-kuwait-for-e-signatures-and-online-account-opening/>

⁵⁸ Clifford Chance, 2019, Opcit, p:23

⁵⁹ Ibid,P:21

⁶⁰ Ibid, P:24

2030” which was launched in 2016. A paramount step which Saudi Arabia has taken towards its finTech evolution through its banking regulator, the Saudi Arabian Monetary Agency (SAMA), was the launching of the finTech Saudi initiative. The finTech Saudi initiative was launched in 2018 to support the finTech ecosystem, promote the kingdom as a finTech hub, improve financial inclusion and encourage the rise of digital transactions. FinTech Saudi is part of Saudi Arabia’s Vision 2030 strategy to promote entrepreneurship and enhance finTech services. Also, Saudi Arabian Monetary Authority’s (SAMA) has appointed Deloitte as the professional services provider to be the support arm for launching the Fintech Saudi initiative.⁶¹

Focus areas:

-Saudi Arabia intensified its investing in **finTech ventures**, where the principal vehicle for these investments is the public investment fund (PIF). One of the PIF’s flagship investments was its 2017 investment in the US\$100 billion “Softbank Vision Fund” established by Softbank. The Fund already holds investments in consumer tech firms such as Uber and DoorDash, chip designer ARM Holdings and software companies such as Slack and Cohesity.

-As for the **blockchain**, SAMA started an initiative of introducing an agreement with Ripple to establish a blockchain platform to settle payments between banks in Saudi Arabia, in February 2018.

-With regard to **crowd funding**, in July 2018, permits were issued by the CMA to two companies providing crowdfunding services, Manafa Capital and Scopeer.

-Similar to most of the countries in the region, in August 2018, SAMA issued a statement warning citizens that **cryptocurrencies were not official currencies** in the Kingdom and were unregulated.⁶²

The Ecosystem: Examples of facilitating Saudi Arabian Monetary Agency (SAMA) laws, initiatives and undertaken collaborations;

As stated above there are numerous signs reflecting the ambition of Saudi Arabia to deviate from the reliance on oil and integrate technology in its industries, with the financial sector at the head of those industries. The main step taken towards that end by SAMA was the initiation of the “**Fintech Saudi**” initiative and incorporating the ambition of integrating the technology as a main pillar in the various Saudi industries. Another future prospect expected from the **King Abdullah Financial District**, an enormous investment area in Riyadh, having the potential to be the future hub of Saudi Arabia similar to its competitors of Dubai’s DIFC and Abu Dhabi’s ADGM.

To Sum up, across the seven countries under study in the MENA region, it is not hard to see that despite the relatively small finTech investments in the MENA region, with UAE hosting the majority of it followed by Egypt, there are numerous signs reflecting the governments’ ambitions and aspirations to digitalize the economies. Such efforts and initiations are capitalizing on the

⁶¹ FinTechnews Middle East , A Glimpse into Fintech in Saudi Arabia, 25 March, 2019
Link: <https://fintechnews.ae/3734/saudi-arabia/fintech-saudi-arabia-overview/>

⁶² Clifford Chance, 2019, Opcit,P: 25

untapped opportunities in the Arab countries, which are characterized by the large economies with massive populations and high mobile penetrations.

Among the finTech products, the paper showed that the vast majority of development in the region is focused on the payment system and incorporating the concept of SMART in the government payments through the digitalization of its services and payments schemes. Examples on such an effort may vary between the launching of : “Meeza” as the national payment scheme in Egypt , the digital platform in UAE and eFAWATEER as the electronic mean in Jordan. Additionally, some more advanced finTech services had been introduced to the Arab MENA countries as that of Interactive voice response (IVR) portal, live chat assistance, the online services, offered by Kuwait International Bank (KIB) and the introducing of the voice banking via “Emirates NBD skill for Amazon Alexa” in UAE. Regarding the Blockchain, there are single digit examples of it in the countries under study. Some point in case examples are that of the National Bank of Egypt’s joining the enterprise software firm R3’s global blockchain, another epitome is that of Kuwait Finance House as the first attempt to Ripple’s blockchain-based platform to enable faster transactions.

Besides the finTech products’ launching, there have been various steps towards embracing finTech in the Arab world. The most prominent of those steps is the launching of the finTech strategies in some countries as that of Egypt and Saudi Arabia and the establishing of finTech Hub. The renowned finTech Hubs in the Middle East are both of DFSA, ADGM in UAE. Furthermore, a promising finTech Hub is to take its role in the region in Egypt (announced by CBE in March 2019) and others yet are expected, namely in the King Abdullah Financial District.

Across the Middle East countries, the regulators had adopted some finTech embracing regulatory structures to facilitate the integration of the finTech in the economy; among those is the launching of the sandbox in most of the countries. For instance, a regulatory sandbox is launched in Egypt within which finTech companies can experiment their innovative finTech solutions in a live & relaxed environment, also, the Central Bank of Jordan introduced a finTech regulatory sandbox, in addition to the ones being maturely developed in UAE. Additionally, crowd funding had been operated at a small scale with the regulators issuing laws to monitor it in DIFC (in Dubai) and to investigate the relations between the crowd funding operations in Lebanon, however, it is not yet operated in other countries like Morocco.

Therefore, it can’t be denied that immense consolidated efforts and initiations among the regulatory bodies in the country had come to action and are more apparent, however, the countries mentioned will have to seize more opportunities to boost the share of the region’s finTechs.

Chapter Three: FinTech challenges and future prospects

✚ Key challenges facing finTech & suggested approaches to mitigate them:

FinTech is transforming the delivery of financial services across the Middle East and worldwide as the global financial system is moving towards the era of financial innovation. Despite this inevitable change, finTech's adoption is accompanied with some key challenges and constraints that may hinder its integration into the prevailing financial systems. In this regards, according to In Lee ,Yong Jae Shin, (2017) and Lukonga, Inutu, (2018),this new era presents concurrent challenges that can be addressed under the below listed categories:

- 1- Dealing with financial regulations
- 2- Talent gap is another barrier for finTech startups worldwide
- 3- Data Security & cyber-risk
- 4- Customers acquisition through partnerships with banks

Those categories can be elaborated as follows;

1.Dealing with financial regulations:

Both traditional financial institutions and finTech startups face regulatory challenges in capital requirements, anti-money laundering and privacy and security⁶³. Furthermore, the complexity of the financial regulations is being intensified by the myriad pressures it faces, especially the pressures attributed to embedding finTech in the financial sector. Such pressures include: individual firms being simultaneously regulated in multiple jurisdictions and with multiple frameworks; institutions being asked to produce escalating amounts of financial risk and compliance data (e.g., stress testing) ;the need to improve regulators' tools and infrastructures; the requirement for flexible regulation of new global alternative finance entrants, such as PayPal, Apple, Facebook, Amazon, etc.; and importantly balancing finTech innovation with regulation⁶⁴.

Suggested regulatory responses to finTech risks:

Consequently, it is not hard to see that effective financial regulation is becoming essential to innovation in response to all these costs, pressures and risks. FinTech's efficient regulation ought to embrace some main aspects, of which; First, financial stability should be the aim; Second, finance should be serving the real economy and bring advantages to society; Third, finance ought to strike a balance between innovation, stability and growth; and Fourth, consumer's rights and data should be protected.

⁶³ Lee, In.,Shin, Yong shae., Fintech: Ecosystem, business models, investment decisions, and challenges,2017, Kelley School of Business, Indiana University.P.10

⁶⁴ Treleaven, Philip, "Article:Financial regulation of FinTech",2015, EY Global Financial Services Institute, P.4

Besides the polices addressed above, regulatory response to finTech developments might take the forms of.⁶⁵

- Focusing analysis on activities involving financial services rather than on firms or technologies
- Continuing collaboration between local and global regulatory authorities
- Investigating and deciding on the most appropriate structures, such as sandboxes, to keep abreast of finTech developments and to allow for demonstration of the technology and experimentation with user cases.
- Investigating the impact of regulatory requirements on the growth of the sector and reviewing outdated policies that directly obstruct local finTech entrepreneurship.⁶⁶
- Enacting policy regulations which illustrate the many opportunities that local, national and regional governments could implement to support the finTech sector.⁶⁷

2.The talent gap is another barrier for finTech startups worldwide:

FinTech organizations worldwide are facing significant challenges in attracting and retaining the talent they need to grow and prosper. There is no doubt there is a widespread demand for talent, particularly technology-based talent, across the financial services sector to overcome the finTech talent shortage. According to the recent report by Ryerson University (2017) titled, “Investigating the Global FinTech Talent Shortage,” three main themes have been identified in overcoming the global skills shortage for finTech along with suggestions for achieving improvements in such themes. These themes are depicted in table no.4 as follows:

TABLE: 4	
Themes	Suggestions for improvements
Educational interventions	<ul style="list-style-type: none"> - Develop finTech specialized programs. - Align STEM (Science, Technology, Engineering, and Mathematics) curriculum with current and future finTech industry’s needs through partnership/ collaboration with the industry as many universities around the world are promoting STEM programs for students; in addition to recommend finTech education for adult learning - Promote STEM education and careers to students of all age groups, especially to female students.
Incubators and extra-curricular activities	-Develop online education programs for finTech related skills, suitable for both university students and adult learners.

⁶⁵ Groepe, Francois, Keynote address, FinTech innovation conference, 22 August 2017, South African Reserve Bank (For the first three alternative regulatory responses)

⁶⁶ Flanagan, Kate & Modjtahedi, Amir & Coe, Imogen, Investigating the Global FinTech Talent Shortage, May,2017, Ryerson University, P.1

⁶⁷ Ibid,P.1

	<ul style="list-style-type: none"> -Develop finTech specific incubator programs. -Design programs for primary and high school students that are targeted at fostering an early interest and passion in pursuing finTech-related careers.
Government and regulatory interventions	<ul style="list-style-type: none"> - Develop/improve government-funded initiatives that promote skills development and incentivize universities to integrate STEM-related education into curricula, and develop/improve finTech incubators. - Streamlined immigration processes meant to attract foreign talent

Source: Flanagan, Kate & Modjtahedi, Amir & Coe, Imogen, Investigating the Global FinTech Talent Shortage, May,2017, Ryerson University, P.1

Another important point to address that is in addition to, establishing a culture of innovation, it is vital to upgrade present workforce to create technical abilities through suitable training programs that would equip staff with new capabilities to assist drive efficiencies and enhance business productivity.

3. Data security & cyber-risk:

According to PWC’s Global FinTech Survey (2016)⁶⁸, the financial services industry handles sensitive information about individuals and enterprises, so seeking an effective approach supporting data security is no longer an option. With the emergence of finTech, more data is now accessible in digital formats, which makes it easier to analyze and generate insights but also makes the data more susceptible to security breaches. Cyber-risk is likely to rise in all scenarios, new technologies and business models can increase cyber-risk if controls do not keep pace with change resulted from adopting technology. Heavier reliance on application programming interface (APIs), cloud computing and other new technologies facilitating increased interconnectivity could potentially make the banking system and finTechs more vulnerable to cyber-threats, and expose large volumes of sensitive data to potential breaches. This emphasizes the need for banks, fintech firms and supervisors to promote the need for effective management for data security and control of cyber-risk.⁶⁹

⁶⁸ PWC, redrawing the lines: FinTech’s growing influence on Financial Services, PwC's insights on FinTech.

Link: <http://www.pwc.com/gx/en/industries/financial-services/fintech-survey/report.html>

⁶⁹ Basel Committee on Banking Supervision, Consultative Document, 2017, Opcit, P.28

Key focus areas for addressing the challenge of data security & cyber-risk;

FinTechs need to find a way forward that allows for technical innovation and performance without compromising security in the hereunder areas of businesses, through applying some of the following security measures:⁷⁰

- **Application security:** finTech largely relies on these applications that can access users' financial profiles to perform a variety of transactions.
- **Cloud security:** is utilized by fintech companies to provide consistent, scalable performance with lower upfront costs. However, the cloud must be secured differently than a traditional network or data center.
- **Automated threat intelligence:** is the knowledge that allows one to prevent or mitigate cyber-attacks. Threat intelligence gives the context that helps in making informed decisions about the security by answering questions like who is attacking the company or the service it provides and what their motivations and capabilities are. Therefore, threat intelligence is only useful when it gives you the context you need to make informed decisions and take actions.⁷¹

As mentioned by In Lee *et al.* (2017), as consumers can easily file complaints related to data security and privacy breaches to regulatory agencies, finTech companies need to develop appropriate measures to protect sensitive consumer data from unauthorized access.

4- Partnerships with banks for customers' acquisition:

Customers' acquisition is essential for finTech startups, which is why the idea around competition between banks and finTech startups has turned to partnerships. While startups have the ideas and the technology, banks have the huge customers' base, data and scalability. On the other hand, finTech startups' partnerships with banks will reduce the higher costs of acquiring new customers.⁷²

According to McKinsey & Company Report (2017), finTechs and banks are increasingly moving towards working together through partnerships. In details, 52% of the top 100 banks in the world are already in active partnership with finTechs.⁷³ Actually, as cited in Cornerstone Advisors (2019), graph (no. 4) shows that **digital account opening** is the most-frequently cited area of focus for these potential partnerships, followed by payments and lending, whilst, graph (no.5) shows that **improving customer's experience** comes on the **top of Bank/ FinTech partnerships strategic objectives**, followed by creating new capabilities or competencies:

⁷⁰ Forster, Brian, "Why Securing Fintech Is Necessary for Financial Startups and Industry Leaders", January 19, 2018, Fortinet

Link: <https://www.fortinet.com/blog/industry-trends/why-securing-fintech-is-necessary-for-financial-startups-and-industry-leaders.html>

⁷¹ Pokorny, Zane., What Is Threat Intelligence? Definition and Examples, April 13, 2019. Recorded future

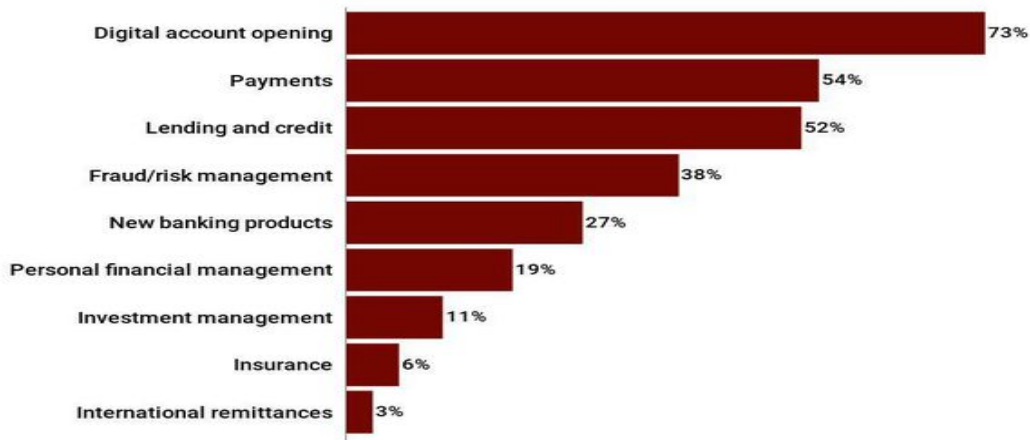
Link: <https://www.recordedfuture.com/threat-intelligence-definition/>

⁷² MACHEEL, TANAYA, "Why customer acquisition is so difficult for financial startups", November 07, 2017, Tearsheet

Link: <https://tearsheet.co/data/why-customer-acquisition-is-so-difficult-for-financial-startups/>

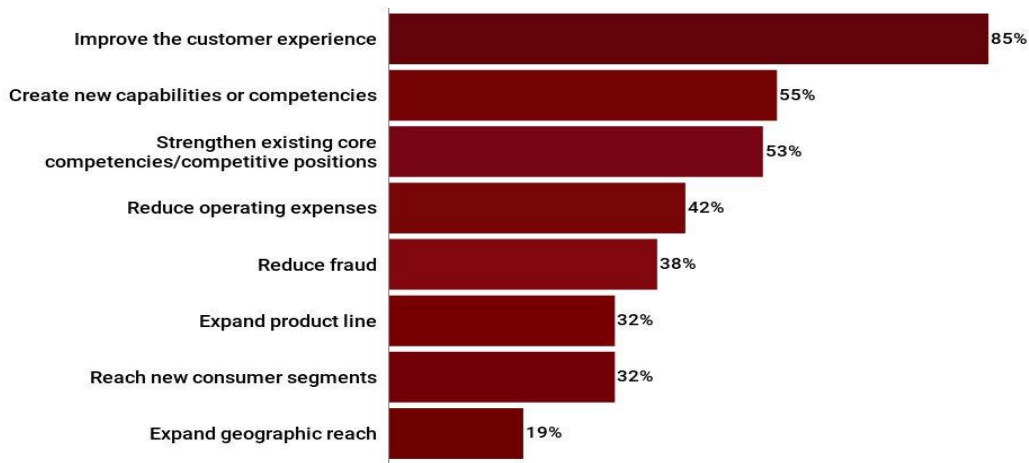
⁷³ McKinsey & Company, "FinTech: opportunities and challenges for banks and regulators", May 30th 2017, P.12

Graph 4: Top bank/ finTech partnerships areas of focus



Source: <https://www.forbes.com/sites/ronshevlin/2019/01/07/bankfintech-partnerships-will-be-a-huge-disappointment-in-2019/#616dd57c37ba> as cited in (Cornerstone Advisors what's going on in Banking 2019 study)

Graph 5 : Top bank / finTech partnership strategic objectives



Source: <https://www.forbes.com/sites/ronshevlin/2019/01/07/bankfintech-partnerships-will-be-a-huge-disappointment-in-2019/#616dd57c37ba> as cited in (Cornerstone Advisors what's going on in Banking 2019 study)

Suggested guidelines to implement successful partnerships:

Towards successful partnership with finTech startups, banks need to be able to answer the following questions:⁷⁴

- Where are the biggest opportunities in the market?
- Which value creation strategies best align with the organization's and potential finTech partners' strategy and capabilities? And have the best opportunities of success?
- Which potential partners have the best prospects for success?
- Which potential partners would actually make good partners?

Here are some instances of partnerships between Banks and Fintech startups in MENA⁷⁵:

- In Kuwait, Ajar Online, a startup that allows tenants to pay their rent via a mobile app, partnered with Warba Bank in 2015, such partnership is helping them to lower the startup's transaction fees, increase tenants and landlords' trust in the service, and make payments more secure. During 2018, Ahli United Bank collaborated with Ajar Online to enhance the growth of rent and property related payments to be submitted through digital channels.
- Boubyan Bank (Kuwait Islamic Bank) partnered with Tap Payments (online services company in Kuwait) as part of its strategy to provide the best payment systems to its customers.
- Although not MENA-based, the finTech startup Ripple has collaborated with MENA banks. For example, Ripple (US based technology company) collaborated with National Commercial Bank-NCB in Saudi Arabia that will enable cross-border payments allowing new payment channels to open towards North America and Asia that were not available before.
- Ripple also partnered with Kuwait Finance House in 2018 to offer cross-border money transfers securely and instantly for their customers. However, they still need the approval of the Central Bank of Kuwait to launch the new Ripple service.

🚧 Addressing the finTechs' challenges in the MENA region:

Although growing, finTech is still in its emerging phase in the Middle East and has faced number of obstacles through its development. As per Domat, Chloe (2019), the main deterrents slowing or challenging the finTechs' development in the MENA region might be specified as follows;

- A combination of lack of finance, low customer acquisition due to lack of talented employees in finTech firms, and difficulties in acquiring partnerships with banks.

⁷⁴ Shevlin, Ron., Bank/Fintech Partnerships Will Be A Huge Disappointment In 2019, Jan 7, 2019, Forbes
Link: <https://www.forbes.com/sites/ronshevlin/2019/01/07/bankfintech-partnerships-will-be-a-huge-disappointment-in-2019/#34809cac37ba>

⁷⁵ Elias, Monika., Partnerships Between Banks and FinTech Startups in MENA, Dec 17, 2018, Arabnet
Link: <https://www.arabnet.me/english/editorials/entrepreneurship/partnerships-between-banks-and-fintech-startups-in-mena>

- The inconsistency between regulations and legal frameworks, in some cases.
- The quality of infrastructure in the region is also a concern, due to some arising problems like internet speed, high prices of connectivity and network coverage still hinder the development of a seamless digital economy in most MENA countries.
- Data security concerns due to the instant increasing number of finTechs can result in system hacking, data breaches and money laundering.
- The prevailing risk aversion attitude of the financial services' providers, especially when it comes to truly disruptive technology.

Despite the fact that such challenges are universal in the MENA region, however, there are numerous ways of challenges' ways of mitigation to spot. Starting with the lack of finance and higher cost to start a finTech company, despite the fact that lack of finance it is still an issue, however, the picture is full of potentials to increase finTech growth in the MENA region. In this regard, the data of Chloe Domat (2019) is revealing the fact that 2018 was a record year, with 366 deals, attracting \$893 million in investment, according to the latest report from Magnitt, a Dubai-based entrepreneurs' network. Also, when it comes to digital startups, finTech is attracting the most interest accounting for 12% of all deals in the region, closely followed by e-commerce.

Attracting and retaining high quality talent is repeatedly expressed by stakeholders as one of the most prevalent contemporary challenges faced by finTech firms in MENA. Despite comparatively high spending on education by countries and while some countries (Egypt, Jordan, Lebanon) have developed substantial talent in technology skills, in many countries, the labor market has not been properly aligned with the requirements of a digital economy. Governments across the Gulf are already taking steps to promote and fund technical education with the hope of alleviating both youth unemployment and the digital talent shortage over the medium- to long-term. Some countries (UAE) have begun to reform entry visas for investors and professionals in the field of finTech.⁷⁶

As for the inconsistency between regulations and legal frameworks, regulation is seen as one of the most significant challenges that can either catalyze or discourage the implementation of innovation in the region; it is also one of the greatest problems for finTech firms because most finTech firms require legislative permission before they can be launched. Therefore, the approval process is often not defined and regulators in the region did not have to play that role before. So regulations need to be developed and the involvement of both governments and financial institutions is necessary to regulate, set policies and provide the necessary infrastructure for the industry to grow sustainably and foster innovation.⁷⁷ Although there are lots of efforts and reaped benefits of some newly regulation to embrace finTech, however, MENA countries have a wide

⁷⁶ Lukonga, Inutu., Fintech, Inclusive Growth and Cyber Risks: A Focus on the MENAP and CCA Regions, September 2018, IMF working paper, P:26

⁷⁷ Bizri, Lian, The Growth and Challenges of Fintech in MENA, 2017, Arabnet

Link: <https://www.arabnet.me/english/editorials/business/industry/the-growth-and-challenges-of-fintech-in-mena>

grey area which needs more future initiatives. For instance, Kuwait, Saudi Arabia and UAE companies identify restrictive labor regulations and inefficient government bureaucracy among the top challenges⁷⁸.

As for the quality of infrastructure, number of countries are trying to mitigate such a challenge through launching finTech hubs so that it constitute a laboratory for nurturing their finTech innovations and projects. Examples to mention are those of DFSA, ADGM in UAE and that of Egypt.

Finally, risk averse for some finTech products are still observed in number of countries. For example, crowdfunding is not still licensed in Morocco, additionally it is worth highlighting that cryptocurrencies is considered high risk product and not permitted in all the countries covered in the paper, except that in AbouDhabi, where, ADGM Free Zone is actively encouraging license applications for operating cryptocurrencies.

Concerning data security, as elsewhere, it is still a concern held strongly in the MENA region and this has implications for finTech start-ups. The majority of emerging finTechs ought to focus on ensuring secure digital transactions in line with expanding the business and gaining market share. Still, few start-ups implement effective data and cyber security measures.

⁷⁸ The other three identified challenges are access to finance, skill gaps, work ethics.

✚ FinTech future prospects and trends:

According to KPMG (2019), Parbhoo, Ameer(2019) and Seamless North Africa Conference,(2019), the global finTech's ecosystem continued to mature at an accelerated pace. Massive developments have been witnessed in various areas. The vital trends shaping the future of finTech can be listed as follows:

1.**Digital banking:** traditional banks and corporates will expand, increasingly, into digital banking, introducing nimble, standalone digital banks that operate independently and do not rely on their existing legacy systems.

2.**Consolidation:** evidences show a future increasing levels of consolidation in some mature investments areas. For instance, there will be a dramatic surge in investment in companies dedicated to building specific products and solutions based on blockchain technology.

3.**Bigger deals and global expansion:** deals' sizes are expected to continue to grow, as investors focus on later stage of increasing the sizes of their businesses. On another scale, competitive banks, multinational and even national, are expected to expand their service's offerings across international borders. Competition among financial services' providers are no longer constrained with the national boundaries.

4.**Open banking**⁷⁹: open banking operations are growing exponentially, forcing the legislators to recognize and enfold it in the regulations in a way that monitors and enables open banking fostering.

5.**Emergence of more e-commerce platforms:** such platforms process a considerable amount of global transactions, driven by the digitization of the world economy. By 2020, the trade on such platforms is expected to exceed \$10 trillion, two-thirds of which will be B2B⁸⁰ e-commerce. An excellent starting point in this domain is Souq.com, MENA's first unicorn, counting 34 million unique visitors every month.

6.**InsurTech and regTech are on the rise;** according to KPMG(2019), evidences show that Asia will see substantial growth in insurTech investment, in part by US and Europe-based traditional insurers looking to use Asia to test alternative insurance offerings. Furthermore, investments in regTech will accelerate, as startups focus on helping incumbent financial institutions to reduce costs associated with complying with increasingly stringent regulations.

7.**Financial institutions' partnerships:** corporate investment will remain strong, with an expected increase in partnerships in various specializations of; open banking and the mergers

⁷⁹Open banking involves banks shifting from closed systems and acting as data gatekeepers to open systems where sharing data with more third parties will allow customers to get the most of their financial data and use the financial services that best suit their needs(MIT Technology Review Insights,2018)

⁸⁰ B2B, which stands for business-to-business, is a way of doing commerce, specifically companies doing business with other companies. It refers to the exchange of products or services among companies. The term is more commonly used for e-commerce.

and acquisitions (M&A) strategies for incumbents and areas of KYC, AML and digital identity management – including facial and voice recognition.

8.Customer centricity, acquisition and retention: with more underserved individuals and businesses accessing finTech products, there is a growing awareness of the need for stronger consumer protection and customer centric. Such an approach ensures data privacy and security and puts customer's needs as a top priority. Furthermore, with an increasingly competitive landscape in many markets and the cost of new customer acquisition surging, the focus is shifting to how well a company can retain its customers. There are many strategies which startups can take to improve retention such as developing and offering new products but a major part of it will be improving the customer overall experience.

9.BigTechs take over: BigTechs like Amazon and Google will soon offer financial services to customers such as offering loans. It's expected that Facebook will launch their cryptocurrency.

10. Voice assistants: next step of digitalization, which is expected in the near future, is to be achieved through the "Voice". This is attributed for its imaginable power, which can be used efficiently in peoples' daily habits and details. Therefore, banks ought to seek ways of taking advantage of it.

11. The existence and evolution of robots: in the near future, the existence and evolution of robots would be universal among the developing countries, as the second largest bank in China launched a bank that is completely managed by Robots.

FinTech future prospects in the MENA region:

As illustrated in the previous sections of the paper, finTech is driven across the Middle East by technology-enabled innovation. Currently, innovations have mostly focused on payments and to some degree lending; it also offers access to financial services for unbanked communities. Actually, the future prospects of finTech in the region is promising, given the governments' support. MENA's regulators' priorities has been focusing on addressing the gaps in digital infrastructures, prudential regulations, consumer protection, cyber security, supervision including cross-sector and cross-border collaboration as well as AML/CFT.⁸¹

Accordingly, some examples of the upcoming finTech products in the region are;

- The growth of the startups in the Middle East countries, especially for the emerging countries in the finTech field such as Saudi Arabia and Kuwait. Such a trend is expected in the near future given the high smart phones penetration rate, coupled by the willingness of the GCC countries to reduce its economic dependency on the oil sector.
- The usage of blockchain are starting to prevail in the region, where it will account for 50% of federal government transactions by 2021 in UAE. The intention is announced within the Emirates Blockchain Strategy 2021. Additionally, there are numerous rudimentary experiences of adopting blockchain as that of the National Bank of Egypt. The bank has joined enterprise software firm R3's global blockchain, an initiative of over 200 financial services firms. Also,

⁸¹ International Monetary Fund, IMF Policy Paper, JUNE 2019, Opcit, P:15-16

blockchain was first introduced to the financial market in Kuwait recently by Kuwait France House.

- Other recent finTech products are starting to pave their way in the region and expected to continue on the track. Examples are that of Interactive voice response (IVR) portal offered by Kuwait International Bank (KIB). Also, the E-signature function is released by Warba bank in Kuwait.

- Establishing Robo-advisors platforms on a larger scale in the region (currently it is in UAE), especially with the arising numbers of finTech hubs in the region.

- Establishing more collaboration within the region aiming at maturing the digital transformation and education, as such of;

- Reference to Seamless North Africa conference, (2019), the first draft of; “The Arab Digital Economy Strategy” has been developed by the League of Arab countries through the Council of Arab Economic Unity. The strategy depicted 50 program and leading projects aiming at the digital transformation in the Arab World.

- MENA finTech association (MFTA) ⁸²has worked with Arab Monetary Fund to establish a finTech framework. MENA FinTech Association also signed alliances with (GIZ), for strategic initiatives on financial inclusion and developments of financial services in the region, and the American University in Dubai, for the implementation of specific academic projects as well as collaboration on ecosystem development initiatives for finTech startups.

Considering the estimated numbers of the finTech development in MENA, the picture is optimistic. Actually, as declared by MENA Research Partners, (2018) finTech was estimated in 2018 at US\$2 billion while it is expected to reach US\$2.5 billion by 2022. MRP expects an annual growth in the sector of \$125m, taking the market from \$2bn today to \$2.5bn in 2022.⁸³

⁸² MENA FinTech Association (MFTA): is an inclusive, not for profit association that fosters an open dialogue for the MENA finTech community; shaping the future of financial services in the region. In addition to cross border knowledge exchange platforms and collaborations creating a conducive Fintech ecosystem

⁸³ Sutton, Mark, MENA FinTech market to reach \$2.5bn by 2022, April 09, 2018, says MRP, ITP.net
Link: [https://www.itp.net/616917-mena-fintech-market-to-reach-\\$25bn-by-2022-says-mrp](https://www.itp.net/616917-mena-fintech-market-to-reach-$25bn-by-2022-says-mrp)

Policy Recommendations:

Capitalizing on the existing collaborations, hubs, initiatives and more importantly the willingness to digitize the financial systems in the region, some more efforts are still needed to prosper the finTech in MENA. In this regards, the hereunder recommendations are driven from the case studies in the paper. The recommendations are addressing the key prerequisite elements/roles of the finTech maturation in the region, involving all the stakeholders as follows;

1. Government's (regulator's) role:

- Estimating the financial benefits of establishing finTech ecosystem, defining the financial structure of the ecosystem, its operating model and the governance structure, if an ecosystem is being created. The second step involves specifying and identifying the business needs of the stakeholders, in cooperation with them.
- Acting proactively by introducing the legislative and organizational frameworks for the financial technologies and securing its consistency with the national development strategies.
- Developing of strategic plans for digital transformations, in a way coping with the market variables and focusing on developing and supporting the national and international investments. Such an initiative involves launching a finTech strategy in the countries, taking the examples of Egypt and Saudi Arabia in this respect. It is worth mentioning, that the finTech strategy might be a sub vision of a more comprehensive national ones. A case in point example is that of finTech Saudi strategy which is a part of Saudi Arabia's Vision 2030 strategy to promote entrepreneurship and enhance finTech services.
- Continuing on launching regulatory sandboxes. In addition to enacting regulatory legislations striking the balance between innovation and risk mitigations, such legislations ought to be focusing on customers' centricity while protecting customers' data and privacy. The ultimate goal of such legislations is to provoke innovation keeping an eye on the overall financial stability of the nations and the region.
- Selecting financial institutions to collaborate with, and prioritize the type of startups the government wants to encourage and support.
- Inducing the banks to invest in the finTech, especially that of the blockchain, for its economic benefits and prospects.
- Promoting the financial education as a strategy to enhance the customer awareness and protection from the customer's side.
- Forming a kind of federation, among the Arab countries, by the Central Bank's Union, such a federation might include the major technological companies and the representatives, and experts of the private and public sectors specialized in the financial and communication sectors.
- Addressing the problems and challenges accompanied by the financial technology in the MENA region, through researching and studying it and recommending some feasible ways of overcoming such challenges via regulatory propositions.
- Working on studying the international legislations and experiences and publishing a semiannual publication, among the MENA region, accordingly to share those experiences and legislations among the Arab countries, especially those related to dealing with the digital economy.
 - Supporting the cashless economy by integrating digital payment channels for public sector employees.

2. Financial services' providers:

- Initiating partnerships between banks and BigTechs such as Google. If banks united with Google there will be no limit to the potential of customers' data usage because Google is one of the largest sources of data.
- FinTechs and banks ought to innovate on ways of leveraging while protecting customer's data.
- Cyber risk is the paramount threat embedded in the disruptive change of finTech. Therefore; it ought to be well monitored by the financial institutions, before even the regulators.
- Establishing means of close coordination between the digital departments and other banks' departments. Furthermore, digitalization requires articulating the banks' vision for its objective within a time line of 10 years.
- Creating a new specialized talent of finTech in the banking and financial sector. Such a talent is recently demanded and did not fundamentally exist in the traditional banking functions. Therefore, the financial services' providers ought to create/develop and secure such talents. This step involves the cooperation between the services' providers and the academic institutions. Another dimension of securing the finTech talents is creating a channel of interactive e-learning in alignment with HR management for the existing employees.

Conclusion:

In conclusion, it is an undeniable fact that we arrived at the age of digitization where financial technology (FinTech) has been revolutionizing and disrupting the financial industry. Change is becoming inevitable and non-stoppable. Traditional banking is no more the only preference of the customers. Customer centricity is becoming one of the ultimate goals of the banking and financial sector, such a goal is unachievable without embracing finTech. Digitalization is paving the way for financial services to service customers through providing banking and financial solutions in a more efficient way at a much lower cost and quicker pace. Additionally, digitalization proved to be the most efficient way of reaching the unbanked populations and fostering the business lending to the SME's, especially in the developing countries. The prerequisites of digitalizing the financial system are numerous and their responsibilities relies on all the stakeholders of the ecosystem. Data is the number one requirement of building platforms and hence developing banking and finTech's ecosystem. It should be considered as a foundation to build a better customer experience. Accordingly, banks and finTechs should know how to leverage their customer's data and protect it if they want to grow and develop. Furthermore, collaborations among the stakeholders is crucial to maximize the potential of each of them on establishing a solid infrastructure, capable of embracing finTech. Partnerships among banks, financial institutions, finTech accelerators, finTech hubs and regulators is the optimum approach to: leverage customers' data, secure its privacy, meet customers' expectations and aspirations, seize the market untapped opportunities and maintain the financial stability.

Focusing on seven of the Arab countries in MENA region, the paper demonstrated that policies already taken are encouraging, with various achievements especially in the payments field. Some countries launched their national payment schemes as Egypt, and Jordan, whilst others were rapid in reintroducing their governments as "Smart" in terms of digitalizing the whole system of its payments, like UAE. Block chain is starting to gain its momentum in the area led by the finTech hubs in UAE, with some significant small number experiences by other countries as that of the National Bank of Egypt, Kuwait Finance House, and the Saudi Arabian Monetary Authority's initiative to launch its initiative of establishing a platform for block chain. Not only this, in fact the Arab countries proved their regulators' willingness to embrace finTech in their legislations, through introducing the sandboxes as an experimental lab for the innovative products. Additionally, laws had been enacted rapidly to permit the conduct of the finTech services digitally and in partnership with the mobile operators and finTech accelerators. Nevertheless, crowd funding had been operated at a smaller scale with the regulators issuing laws to monitor it in DIFC (in Dubai) and to investigate the relations between the crowd funding operations in Lebanon, however, it is not yet operated in other countries like Morocco. Other finTech products, like crypto currencies are considered highly risky and are not allowed to be prevailed in the vast majority of the countries under study.

Consequently, it can be concluded that massive efforts had been taking place and are still on going, however, more is still needed in the near future. Such efforts are paramount in order to boost the digitalization pace in the financial systems and overcome the existing deterrents. Some recommendations in this regards were highlighted in the previous section, with the most essential ones related to the regulators' role in; developing of strategic plans for digital transformations, facilitating the launching of sandboxes for the innovative products, prioritizing the mitigation of cyber risk and protecting customers' data without stifling innovative ideas, forming a kind of

federation, among the Arab Countries to coordinate in the domain of finTech. On the other side, the financial services' providers ought to; initiate partnerships between banks and BigTechs, establish means of close coordination between the digital departments and other banks' departments and, most importantly, secure the talents in the finTech sector. Experiences had shown that the finTech talents are available, they ought to be developed and mentored, such a target is feasible with the established finTech hubs and the arising one in the near future. These hubs are encompassing academic institutions specializing in the domain of finTech.

Finally, it is not hard to see that we are entering the era of digitalization, where there is no single scenario of success; the countries have to tailor their way of digitalization, based on their specific characteristics, and in cooperation with each other, regionally and internationally.

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