Arab Regional Fintech Working Group

Fintech Strategy Guidelines for the Arab Region

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Preface:

Fintech is not a new concept, it had emerged in the 21st Century and the term was initially used in reference to technology employed at the back-end systems of established financial institutions. Since then, however, there has been a shift to more consumer-oriented services and definition. Fintech has expanded to include any technological innovation in, as well as the automation of the financial sector. This includes advances in financial literacy, advice and education, as well as streamlining of wealth management, lending and borrowing, retail banking, fundraising, money transfers/payments, investment management and more.

Technological innovation changes the way in which consumers are able to conduct financial transactions in terms of their ability to access, borrow, lend, insure, invest and transfer funds; as well as transactions involving the making of or receipt of payment for goods and services. This supports financial inclusion whereby technological advances are helping banks reach an increased number of individuals of the world's large and diverse, previously unbanked population. Statistically it is reported that more than half a billion people were availed access to financial services for the very first time between 2014 and 2017, according to the World Bank's Global Findex Database 2017.[1] In 2011, the global unbanked population was estimated at approximately 2.5 billion people, but just six years later in 2017, that figure had dropped significantly to 1.7 billion.[2] Today, innovative fintech solutions (including the likes of mobile banking and payment applications) are attracting attention from consumers, investors, service providers, regulators, supervisory authorities, law and policy makers alike. It is reported that the adoption of Fintech services has moved steadily upward, from 16% in 2015, the year that EY's[3] first FinTech Adoption Index[4] was published, to 33% in 2017, to 64% in 2019.[5]

[1] The Global Findex database 2017, https://globalfindex.worldbank.org/
[2]How technology is driving financial inclusion around the world, Courtney Goldsmith, May 16, 2019 https://www.worldfinance.com/banking/how-financial-technology-is-driving-financial-inclusion-around-the-world
[3] Ernst & Young; https://www.ey.com/en_gl
[4] https://www.ey.com/Publication/vwLUAssets/ey-fintech-adoption-index-2017/$FILE/ey-fintech-adoption-index-2017.pdf
[5] Global FinTech Adoption Index 2019, EYGM Limited, https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf.

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This Fintech Strategy Guidelines document was produced within the Arab Regional Fintech Working Group (WG) mandate, which implies the exchange of knowledge and expertise, strengthening the capacity-building of the Arab regulators, as well as building a network of peer to peer between Arab and international experts from the public and private sectors to promote Fintech industry and the development of innovation. The WG has a comprehensive structure from the different Fintech industry stakeholders, within the Arab region and worldwide, to enhance establishing a proper Fintech ecosystem in the Arab region.

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Table of Abbreviations

ADGM: Abu Dhabi Global Markets

AFI: Alliance for Financial Inclusion

AFIN: Asean Financial Innovation Network

AML: Anti Money Laundering

B2B: Business to Business

B2C: Business to Consumer

BDL: Banque Du Liban

BFA: Bali Fintech Agenda

BIAN: Banking Industry Architecture Network

Bigtech: Big Technology

CBB: Central Bank of Bahrain

CBD: Commercial Bank of Dubai

CBE: Central Bank of Egypt

CBRC: China Bankig Regulatory Commission

CFFC: Comission for Financial Capability

CFPS: Crowd Funding Platforms

CFT: Countering of Financing of Terrorism

CIRC: China Insurance Regulatryy Commission

DFS: Digital Financial Services

DFSA: Dubai Financial Services Authority

DIFC: Dubai International Financial Centre

DLT: Distributed Ledger Technology

ESCWA: Economic and Social Commission for Western Asia

EY: Ernst Young

FBS: Financial Stability Board

FFO: Fintec Facilitation Office

Fintech: Financial Technology

FSB: Financial Stability Board

GFIN: Global Financial Innovation Network

HKMA: Hong Kong Monetary Authority

INFE: International Network on Financial Education

IT: Information Technology

ITAP: International Technology Advisory Panel

KPIs: Key Performance Indicators

KYC: Know Your Customer

LBS: London Business School

MAS: Monetary Authority of Singapore

MENA: Middle East and North Africa

MIIT: Ministry of Industry and Information Technology

MLETR: Model Law on Electronic Transferable Records

NFTS: National Fintech Strategies

PBOC: Peoples Bank oof China

Regtech: Regulatory Technology

RTGS: Real Time Gross Settlement System

SAMA: Saudi Arabian Monetary Authority

SCA: Securities and Commodities Authority

SMEs: Small and Meduim Sized Enterprises

Suptech: Supervisory Technology

UAE: United Arab Emirates

UAECB: UAE Central Bank

USA: United States of America

Introduction

With the success of mobile money and the advent of peer-to-peer lending as well as regulatory sandboxes and innovation hubs in many countries around the globe, technology-driven innovation in finance (Fintech) has raised expectations to spur competition, financial inclusion, and structural transformation for economic development at pace, scale and more efficiently.[6]

Information and communication technology, financial services, and the convergence of both at the nexus of Fintech, are considerable growth sectors and growth enablers that hold promise to unlock the potential for new jobs and structural diversification in many Arab countries on their path to digital economies:[7] e.g. in Egypt every ICT job created 2.8 indirect jobs between 2008 and 2011; M-pesa in Kenya directly generates income for more than 80,000 agents let alone the effects from increased levels of financial inclusion.[8]

The use of Fintech in identification and KYC procedures, payments and money transfers, lending, investments and savings, insurance, in public administration as well as in supervisory and regulatory practices drives the convergence of traditionally segregated sectors, the transformation of markets and institutions, and the digitalization of economies.[9]

Moreover, mobile money industry became a path to financial inclusion in many countries playing a leading role to achieving Sustainable Development Goals (SDGs). Since mobile money is typically increasing the opportunities for accessing financial services for women, small farmers, low-income households, as well as millions of migrants[10].

Fintech developments in the Arab world are driven by the increasingly well-educated and tech-savvy young populations. Likewise, record-level remittance flows to as well as across the region on legacy rails, the vast market potential of unbanked people as well as a massive funding gap for millions of businesses across the region incentivize disruptive start-ups, big technology (Bigtech) companies, or Techfins, with deep pockets and data pools, leading financial institutions, and authorities to harness the possibilities brought about by the latest wave of technology in finance.[11]

The possible range of business model, channel, and product innovations raises many questions for regulators, given their mandate for financial stability, protection, integrity, or inclusion, as well as by providers, given legacy frameworks.[12] Fintech enables disruptive, breakthrough, and game-changing opportunities for digital financial transformation. Yet, it poses new challenges and risks for clients (e.g. data privacy and security concerns, fraud, theft and loss of funds), providers (e.g. operational, reputational, investment risks), regulators (e.g. interinstitutional coordination, data abundance, regulatory arbitrage, scope creep, and regulatory capture), and the financial system (e.g. integrity, cybercrime, and exclusion concerns, prospective market contestability and stability issues).[13]

Overall, Fintech - conventional and shariah-compliant alike - can bear democratization effects as it allows to customize digital financial services down to the individual level. It brings about new players, new opportunities, and new risks and challenges into the financial system. Informed by global practice and experience in policymaking such as in financial inclusion, these guidelines are a pioneering attempt by a

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[6] AFI, 2018a.
[7] World Bank, 2018a.
[8] World Bank, 2017.
[9] Arner, Barberis, Buckley, Zetzsche, 2017a/b/c; 2016.
[10] GSMA, 2020. State of the Industry Report on Mobile Money 2019, GSMA, March 2020. https://www.gsma.com/sotir/wp-content/uploads/2020/03/GSMA-State-of-the-Industry-Report-on-Mobile-Money-2019-Full-Report.pdf
[11] Wamda, 2017.
[12] AFI, 2018b.
[13] BIS, 2019; FSB, 2019; FSB, 2017; IMF, 2019; World Bank, 2018b.

regional group of advocates and overseers coming together in the Arab Regional Fintech Working Group to provide country stakeholders with guidance in devising their National Fintech Strategies (NFTS).

This document is structured as follows: chapter one provides the background about the emergence of Fintech globally and relevant developments in the Arab world; chapter two sets the framework for this guideline note and lists the basic foundations for preparing national fintech strategies; chapters three through eight flesh out the specific guidance for each of the Fintech ecosystem pillars that are considered as the key levers.

Guidelines for a National Fintech Strategy

1. Background on Fintech and Developments in the Arab World

1.1 The Emergence of Technology-enabled Financial Innovation and the Transformation of Finance

Fintech is not a new concept, it had emerged in the 21st Century and the term was initially used in reference to technology employed at the back-end systems of established financial institutions. Since then, however, there has been a shift to more consumer-oriented services. Fintech has expanded to include a wider set of technological innovation as well as the automation in the financial sector. This includes advances in financial advice and education as well as streamlining of wealth management, lending, retail banking, fundraising, money transfers and payments, investment management and more.

Technological innovations change the way in which consumers are able to conduct financial transactions in terms of their ability to borrow and lend, insure themselves, invest, transfer funds and make payments. They enable incumbent financial institutions to reach an increased number of previously unbanked populations. The adoption of Fintech services has moved steadily upward, from 16% in 2015 to 33% in 2017, and to 64% in 2019 according to EY's Fintech Adoption Index.[14] [15]

Figure 1: Global Drivers of Fintech Innovation[16]

Fintech is evidently showing a global impact on the provision of financial services. Mobile payments have been a key early developer for financial inclusion and has boosted competition and efficiency, while too raising new risks to financial stability and integrity. One such example is Africa, with its rapid growth in mobile money. M-Pesa[17] is an example of how fintech has disrupted the financial sector and increased efficiency across the economy.

[14] https://www.ey.com/Publication/vwLUAssets/ey-fintech-adoption-index-2017/$FILE/ey-fintech-adoption-index-2017.pdf
[15] Global Fintech Adoption Index 2019, EYGM Limited, https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf.
[16] Financial Stability Board (FSB), Financial Stability Implications from Fintech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf
[17] https://en.wikipedia.org/wiki/M-Pesa

Case study: M-Pesa - rapid fintech developments with financial inclusion outcomse[18]

M-Pesa[19] is a mobile phone-based money transfer fintech solution, which operates in Kenya, Tanzania, Afghanistan, South Africa, India, Romania and Albania. M-Pesa is considered to be one of the biggest fintech success stories since its launch in 2007. M-Pesa has effectively transformed mobile phones into payment accounts, increasing financial access for previously unbanked people.

The success of M-Pesa is largely due to the permissive stance of the Kenyan central bank, whom had allowed the sector to develop rapidly in one of East Africa's most developed economies. This is consistent with a Bank for International Settlements study that found fintech is most prominent in countries with less stringent banking regulations, higher incomes and less-competitive banking systems.

Statistically it is reported in Kenya that:[20]

1. The proportion of Kenya's population with access to formal financial services rose to 83 percent in 2018 from 75 percent in 2016, driven largely by mobile technology, as per Central Bank of Kenya's recent survey; with only 14 percent of the Kenyan population had bank accounts in 2006, and the ratio rose to 34.4 percent in 2016.[21]

2. Kenya had 31.6 million active users of mobile money transfer services, as per latest data as of December 2018, and M-Peza was the market leader with 25.57 million users.

3. There are between 110,000 and 120,000 M-Pesa agent, where Kenyans can exchange cash (fiat currency) for virtual currency and vice versa.

4. The number of ATMs in Kenya has decreased from an estimated 3000 to 2000 since the introduction of M-Pesa.

5. 1.7 billion transactions processed over M-PESA between July 2016 and July 2017

6. 48.76% of Kenya's GDP is processed over M-PESA, in the equivalent of approximately 3.6 trillion Kenyan shillings (over 30 billion euros).

7. 93% of the Kenyan population have access to mobile payments through M-Pesa.

M-Pesa is an example of how fintech has disrupted the financial sector and increased efficiency across the economy. In Kenya, it has been estimated to contribute an impressive 14% to TFP, or total factor productivity growth - and that is what's needed to raise overall economic growth.[22]

[18] https://en.wikipedia.org/wiki/M-Pesa; Bank for International Settlements study, https://www.bis.org/publ/qtrpdf/r_qt1809e.pdf

[19] https://www.safaricom.co.ke/personal/m-pesa & https://www.vodafone.com/what-we-do/services/m-pesa

[20] https://mag.n26.com/m-pesa-how-kenya-revolutionized-mobile-payments-56786bc09ef

[21] https://www.cnbcafrica.com/east-africa/2019/04/03/m-pesa-has-completely-changed-kenyans-access-to-financial-services-this-is-how/

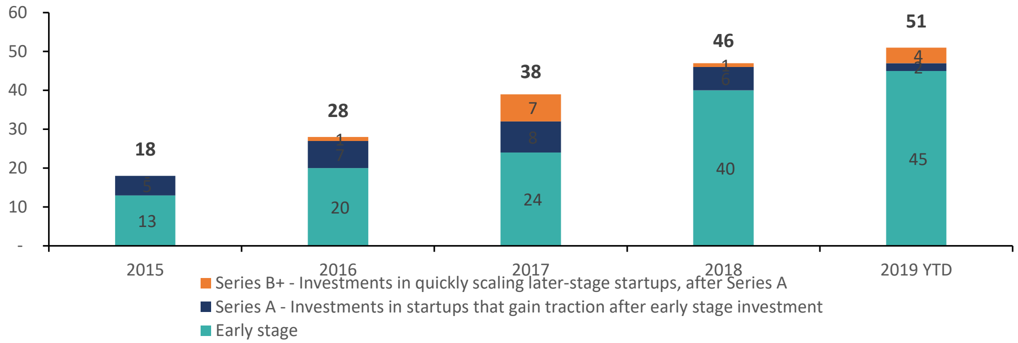
[22] https://voxeu.org/article/mobile-money-trade-credit-and-economic-development

1.2. Fintech Developments in the Arab World

1.2.1. Growth of Fintech Startups

A total of $237M has been invested in 181 deals since 2015 in MENA-based Fintech startups, with 51 of those deals being made in 2019 alone. Early stage investments make up the majority of deals at an average of 75.8% between 2015 and H1 2019.[23]

Figure 2: Number of deals breakdown according to stages, 2015A – 2018A

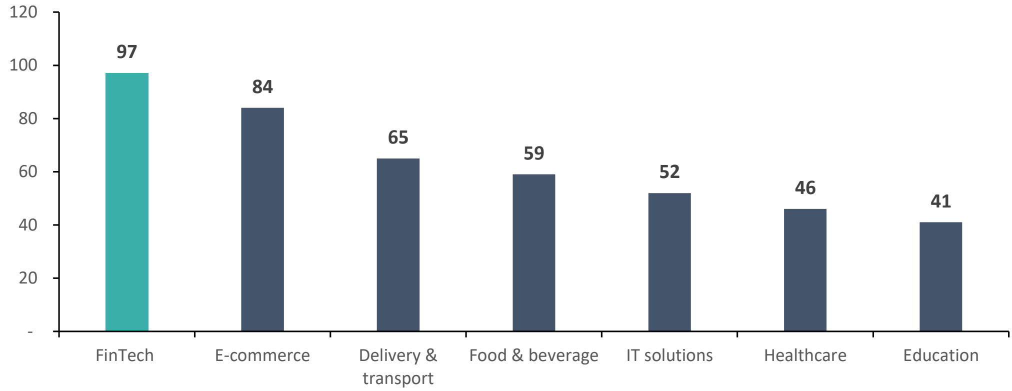


Source: MENA Fintech Venture Report, 2019 Edition, MAGNiTT and Abu Dhabi Global Market (ADGM)

2017 was the breakout year for Fintech venture investment across MENA, and in 2018 and 2019 YTD Fintech ranked first among the sectors which received venture investments in the region by the number of deals, overtaking other popular industries such as e-commerce and transport and logistics.

[23] https://magnitt.com/research/50675/2019-mena-fintech-venture-report

Figure 3: Top seven industries by number of deals, 2018A – H1 2019A



Source: MENA FinTech Venture Report, 2019 Edition, MAGNiTT and Abu Dhabi Global Market (ADGM)

Despite the rapid growth of fintech in the Middle East, the sector remains in its early stages in the region when compared with counterparts such as China or Europe. As of January 2017, the Middle East only attracted 1% of the US$50 billion raised globally by fintech startups since 2010, according to Accenture[24].

In Arab countries, various and numerous government driven initiatives have supported the rapidly growing network of fintech startups. Governments across the Arab region have committed to helping create a thriving fintech ecosystem, supporting fintech innovation with favorable regulations and initiatives, such as accelerator programs or regulatory sandboxes.

1.2.2. Prospects for Banks

Digital initiatives will be the most important factor to remain competitive in a market thats embracing technology. Accordingly, notes on key areas for banks in the Arab region to keep pace with Fintech are included in Annex no. (1)[25].

Open banking API, as seen by Emirates NBD bank[26] in the UAE is example of a step toward true engagement with fintech companies. Other banks may follow suit, which would give fintech companies the chance to work closely with banks to drive innovation, but this will come at a cost. Upgrading banks' infrastructure, scalability, and alignment among players in the ecosystem are key to MENA's fintech outlook.[27]

Mashreq Bank[28] and Commercial Bank of Dubai (CBD)[29] too have participating in the digital transformation with their adoption of digital and mobile technologies, the launch of digital only banks,

[24] https://www.accenture.com/us-en

[25] https://fintechnews.ae/4836/abudhabi/5-key-areas-for-uaes-bank-to-keep-pace-with-fintech/
[26] https://www.emiratesnbdlab.com/home

[27] https://fintechnews.ae/4836/abudhabi/5-key-areas-for-uaes-bank-to-keep-pace-with-fintech/
[28] https://www.mashreqbank.com/uae/en/personal/home

[29] https://www.cbd.ae/

creating greater utility for existing digital service delivery channels and making services more customer friendly. Mashreq Bank's digital bank is called *Mashreq Neo.*[30] CBD's digital bank is named *CBD Now.*[31]

Bahraini bank *Bank ABC*[32] has made application to the CBB to launch a neo-bank - a fully digital and mobile bank with no branches and will provide banking services via a mobile phone application and will operate independently from Bank ABC.

The Emirates Digital Wallet[33] is jointly owned by 16 of the leading UAE national banks and supported by the UAE Central Bank. Emirates Digital Wallet promises to dramatically change the way customers pay, receive, store and transfer money. This initiative symbolizes the collaborative effort of banks within the UAE (and the Arab region) for purposes of creating innovative products.

1.2.3. Initiatives by Arab Authorities

i. The United Arab Emirates

The Abu Dhabi Global Market (ADGM) launched its Regulatory Laboratory during 2016: a Fintech licensing regime in the form of a regulatory sandbox, to permit the development and live, controlled (regulated) testing of innovative technology, with the aim of fostering innovation within the UAE financial services market for both new market entrants and existing financial institutions. The ADGM Regulatory lab (RegLab) Sandbox is labelled as the world's second most active regulatory sandbox.[34] In ADGM's further efforts to boost the Fintech ecosystem, ADGM initiated MENA's first venture capital fund framework in 2017, following a proportionate and risk-based approach to regulate this space. In 2018, ADGM introduced a comprehensive crypto-asset regime[35] - a robust framework around crypto business activity. In 2019, ADGM launched its regulatory frameworks for digital banking, digital securities, robo-advisory, and the use of APIs. Presently, ADGM is in the process of launching its first batch of applications for the ADGM Digital Lab, being a cloud-based platform to facilitate collaboration and Fintech trials between incumbents and startups. In facilitation of talent development and professional development, the ADGM Academy has partnered with (and continues to onboard new partners) for strategic international and local academic institutions and professional associations to support the Fintech ecosystem.[36]

The Dubai international Financial Centre (DIFC), together with the Dubai Financial Services Authority (DFSA) and like ADGM, boasts with its own Regulatory sandbox for permitting a bespoke, firm-specific licensing regime for a limited testing period of new, innovative technologies.

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30 https://www.mashreqneo.com/en/

31 https://www.cbd.ae/

32 https://www.bank-abc.com/En/Pages/default.aspx

33 http://www.edw.ae/

34 https://www.adgm.com/setting-up/reglab/overview

35 http://adgm.complinet.com/net_file_store/new_rulebooks/g/u/Guidance_Regulation_of_Crypto_Asset_Activities_in_ADGM_140519.pdf

36 https://magnitt.com/research/50675/2019-mena-fintech-venture-report

Further in the Arab region, the Abu Dhabi government of the UAE partnered with major entities (including the likes of Mubadala[37], Softbank[38] and Microsoft[39]) in the set up Hub71[40], a global technology ecosystem that brings together key enablers for startups to succeed.

Additionally, as part of the Ghadan 21 initiative[41], the Abu Dhabi Investment Office has launched the Ghadan Ventures Fund[42] to attract startups and venture capital funds to the UAE.

The MENA Fintech Association[43], headquartered in ADGM, is a not-for-profit association that fosters an open dialogue for the region's Fintech Community through education, empowering innovation, collaboration and advocation.

The UAE Central bank (UAECB) has adopted the crowdsourcing technique of crowdfunding to enhance the regulatory framework of the UAE financial sector and support the development of financial technology businesses (Fintech). In so doing, the UAECB has released the proposed draft regulation for loan-based crowdfunding platforms (CFPS)[44] operating in the UAE. The regulation aims to establish an appropriate framework for loan-based crowdfunding businesses and create a balance between market development, risk mitigation and consumer protection. The final Regulations will be promulgated in due course.

The UAECB has adopted specific initiatives to regulate digital payments services.

The UAE's Securities and Commodities Authority (SCA) SCA has released the proposed draft regulation for framework for the regulation of Crypto Assets and associated activities, like operating of crypto asset exchanges and custodianship. The final Regulations will be promulgated in due course.

Discussed further above, Emirates NBD Bank has initiated an open API banking sandbox, which serves as a self-contained environment that provides fintechs, developers a simulated banking space where they can experiment and create real world apps and services. The platform consists of over 200 APIs and 900 end points covering retail, corporate and SME business lines. Developers also have access to over three million simulated customer transactions based on the BIAN (Banking Industry Architecture Network) model.[45]

ii. Bahrain

The Kingdom of Bahrain's Central Bank (known as the CBB)[46] has introduced its own Regulatory Sandbox, which serves as a virtual space for both CBB-licensed financial institutions and other firms to

[37]https://www.mubadala.com/en/forthenation?utm_campaign=Mubadala_Local_Campaign&utm_medium=CPM&utm_source=Google_Search&utm_content=Text&utm_term=EN_UAE

[38] https://www.softbank.jp/en/corp/

[39] https://www.microsoft.com/en-us

[40] https://www.hub71.com/

[41] https://www.government.ae/en/about-the-uae/the-uae-government/government-accelerators

[42] https://www.ecouncil.ae/en/mediacenter/pages/news-details.aspx?itemid=627

[43] https://www.mena-fintech.org/

[44] https://www.centralbank.ae/sites/default/files/2019-09/BSD-%20Loan%20Based%20CrowdFunding%20Regulation.pdf

[45] https://www.emiratesnbdlab.com/home

[46] https://www.cbb.gov.bh/

test their technology-based innovative solutions relevant to Fintech or the financial sector in general.[47] The CBB's regulatory sandbox aims to allow startups, Fintech firms and licensees to provide innovative banking and financial solutions, in addition to the issuance of Crowdfunding regulations for both conventional and Sharia-compliant services. The CBB's Fintech & Innovation Unit is also responsible for the approval process for scrutinizing applicants for participation in the Regulatory Sandbox, supervision of authorized Sandbox companies' testing progress, monitoring technical and regulatory developments in the Fintech field, both regionally and internationally, to lead on strategic Fintech initiatives and to work closely with all stakeholders within the Fintech ecosystem in the Kingdom of Bahrain.[48]

The CBB has issued a number of fintech related regulations relating to Payment Service Providers (PSP's), Card Processing Service Providers, e-wallets (part of Payment Service Providers license), Crowdfunding (both Equity and Debt based, conventional and Shariah-compliant), Cloud Computing, Open Banking, Crypto Assets, National e-KYC project, Digital Financial Advice, Insurance Aggregators and the Regulatory Sandbox framework.[49]

The Economic Development Bank (EDB) in Bahrain has created a regulatory sandbox that enables fintech firms and digitally-focused financial institutions globally to test their ideas and solutions within a virtual supervisory framework that nurtures innovation.

Moreover, in Bahrain, there is also an establishment of another consortium of three banks[50] (KFH Bahrain, Al Baraka Banking Group and Bahrain Development Bank) with the determination of enabling the development of the shariah-compliant fintech ecosystem. The purpose of the consortium is hence to launch a company (Algo Bahrain) dedicated and specialized for shariah-compliant fintech R&D.

The EDB and Fintech Consortium "FTC", a Fintech Incubator based in Singapore, had launched in November 2017 the "Bahrain Fintech Bay" "BFB", the largest dedicated Fintech hub in the Middle East and Africa. The new hub aims to further the development and acceleration of Fintech firms as well as the interaction between investors, entrepreneurs, government bodies and financial institutions. BFB will be the ideal hub for local and international corporate innovation labs and Fintech start-ups to base themselves in. They are seeking to become the Gulf region's center for financial technology.[51]

[47] https://www.cbb.gov.bh/fintech/

[48] https://www.cbb.gov.bh/fintech/

[49] CBB (2020). The Arab Region Fintech Guide, June 2020.
[50] https://www.thenational.ae/business/banking/bahrain-banks-launch-r-d-firm-to-drive-growth-of-islamic-fintech-1.681737
https://www.bizbahrain.com/algo-bahrain-worlds-first-fintech-consortium-islamic-banks/
[51] SAMA, 2019. The Regulatory framework for Fintech: Opportunities and Challenges.

Figure 4: Global Fintech Regulations

Source: Bahrain Fintech Regulations Report 2019

iii. Egypt[52]

The Central Banks of Egypt (CBE) have adopted specific initiatives to regulate digital payments services.

The CBE is reportedly planning to launch a $50 million to $100 million fintech fund by 2020 says Egypt's Minister of Communications and Information Technology, Minister Amr Talaat.[53] Through the launch of this Fund, the CBE aims to transform Egypt into a regional centre for electronic financial services. This initiative includes the establishment of an Innovative Financial Technology Applications Lab and a Financial Technology Unit.[54]

In addition, CBE has issued its Fintech and Innovation Strategy in March 2019 based on five main pillars, namely: demand, regulations, governance, talent and funding. This was followed by introducing Sandbox Framework to create a roadmap for the FinTech industry in Egypt with clear milestones to enable the market.[55]

The Central Bank of Egypt has issued several regulations in addition to the less cash law that issued under the umbrella of the national payment council to endorse Fintechs and digital financial services. These regulations are mainly: Mobile Payments Regulations and Simplified KYC and Due Diligence Procedures, Pre-paid Cards regulations and Simplified KYC and Due Diligence Procedures, Standards for Issuance and Acceptance of Contactless Payments, Technical Payment Aggregators and Payment Facilitators Regulations, Unified QR code regulation, Internet Banking regulations.

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52 https://www.cbe.org.eg/en/PaymentSystems/Pages/Overview.aspx

53 https://ventureburn.com/2019/09/central-bank-egypt-fintech-fund/

54 https://ventureburn.com/2019/09/central-bank-egypt-fintech-fund/

55 CBE (2020). The Arab Region Fintech Guide, June 2020. https://fintech.cbe.org.eg/home/index?en

iv. Jordan

The Central Bank of Jordan (CBJ) has adopted specific regulations for digital payments services.[56] JoMoPay is an electronic, mobile payment system, operated and overseen by the central bank, where banks, companies and beneficiaries of the service are able to register for the purposes of exchanging financial transactions. This system enables a Real Time Gross Settlement system (RTGS).

The CBJ had in April 2018 launched its Regulatory Fintech Sandbox [57] to enable qualified firms to pilot innovative Fintech solutions in a controlled environemnt. This was done with the aim to encourage competition and increase effectiveness, efficiency, and security in money transfers, which in return will enhance accessibility to formal financial services without jeopardizing the integrity and stability of the financial system, keeping data of financial consumers protected.

The central bank of Jordan had announced a "Document verification using blockchain and smart contracts" project which will enable banks and customers documents in the most safe and secure way.

v. Lebanon[58]

Lebanon has a well-developed Fintech sector. Due to its advanced fintech ecosystem, 14% of the MENA region's startups are hosted in Lebanon. Lebanon is the 4th most served market by fintech companies.

The Banque du Liban (BdL) has adopted specific initiatives to regulate digital payments services.[59] Online payment platforms, specifically aimed to assist SMEs and startups that wish to process payment transactions via the Internet or mobile networks, are made available through listed and vetted organisations.[60] The BdL supports the startup ecosystem by issuing a Circular No. 331, encouraging banks to invest in startups, incubators and accelerators. These investments are 75% guaranteed by the BdL.

Potential release of a State backed cryptocurrency: Mr. Riad Salameh, the Central Bank's Governor announced that "Lebanon will, in the near future, launch its own digital currency…. Made in Lebanon", which is foreseen to be issued by Banque du Liban (BDL) in Lebanese Pounds and its use is intended to stay strictly national. Further, its goal is to ease payment methods, to implement a technological transformation of financial institutions and to lower the costs borne by consumers"[61].

Fransabank, a very well-established Lebanese bank invested USD 2.5 million in a local fintech startup company, called PinPay, an online payment platform and Lebanon's largest bank, Bank Audi has launched its mobile contactless payment platform, the 'Tap2Pay' to optimise cashless payments in the country.

Lebanon is host to large numbers venture capital firms providing funding to startup companies and small businesses. For example, MEVP (Middle East Venture Partners) invested USD 1.1. Million in PinPay. Lebanon is further host to a large number of venture capital firms providing funding to startup companies and small businesses, in example: MEVP (Middle East Venture Partners) whom had invested USD 1.1. Million in PinPay.

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[56] http://www.cbj.gov.jo/ and http://www.cbj.gov.jo/Pages/viewpage.aspx?pageID=321

[57] http://www.cbj.gov.jo/EchoBusV3.0/SystemAssets/9328fddf-3f3d-40d8-9ed3-d98bbc89db20.pdf

[58] https://cma.gov.lb/wp-content/uploads/2017/03/Decision-No.-3.pdf

[59] https://www.cbb.gov.bh/payment-settlement/

[60] https://www.economy.gov.lb/en/services/support-to-smes/online-payment-platforms-for-smes-and-start-ups

[61] https://www.lecommercedulevant.com/article/28813-the-banque-du-liban-closing-in-on-the-launch-of-its-own-crypto-currency

According the official investment promotion agency of Lebanon" IDAL" there are 8 incubators and accelerators providing mentoring, training, technical and financial assistance to fintech companies in Lebanon.

vi. The Kingdom of Saudi Arabia

The Saudi Arabian Monetary Authority's (SAMA) has appointed partners, Deloitte, for the development of a financial technology, or 'Fintech' ecosystem – a key part to the Financial Sector Development Programme of the Kingdom's Vision 2030 programme. This initiative is aimed to accelerate Riyadh, and the Kingdom of Saudi Arabia's ambition to emerge as a leading Fintech hub in the region.[62]

Vision 2030 recognizes that small and medium-sized businesses are key to the development of the fintech sector. In 2016, the Small and Medium Enterprises Authority (SMEA) was set up with the aim of encouraging young entrepreneurs through business-friendly regulatory framework, easier access to funding, international partnerships and a greater share of national procurement and government bids. Another important element of Saudi Arabia's Fintech ambitions is King Abdullah Financial District as a massive new business area in the heart of Riyadh.[63]

One important element of Saudi Arabia's Fintech ambitions is its willingness to invest in Fintech ventures throughout the world. The principal vehicle for these investments is the Public Investment Fund (PIF), also part of Vision 2030 and being the world's largest sovereign wealth fund. One of the PIF's main investments was its 2017 investment in the US$100 billion "Softbank Vision Fund" established by Softbank. This Fund is likely to be a key investor in the fintech space for the years to come, as typified by Softbank's US$1 billion investment in US financial technology startup *SoFi*[64] in 2015 and its US$1.4 billion investment in Indian fintech company PayTM[65] in 2017.[66]

On 10 January 2018, the CMA issued the *Financial Technology Experimental Permit Instructions* to enable successful applicants to benefit from the *Fintech ExPermit*. Although limited to securities activities rather than a broader range of financial services, this development reiterates the willingness of financial regulators in the region to tacitly accept the challenges that their regimes present for Fintech solution developers currently operating outside the regulated financial services sector. The Fintech ExPermit is a permit to enable applicants to participate in the Fintech Lab to deploy and test their innovative Fintech products related to capital market within specified parameters and timeframes.

In April 2019 during the Financial Sector Conference, the Saudi Arabian Monetary Authority (SAMA) and the Capital Market Authority had signed an agreement to establish the *Fintech Saudi Center*[67] located in King Abdullah Financial District in Riyadh. Under the MoU, The Saudi Fintech center will embrace those of interest and passion in financial technologies industry by providing spaces for the joint work and design of innovative models for innovative solutions, an equipped technical laboratory in partnership with largest active companies in the sector and a business accelerator program. The center aims to support entrepreneurs, small and medium enterprises. The center will embrace events and lectures related to this promising field.

[62] https://www2.deloitte.com/uk/en/pages/financial-services/articles/developing-a-fintech-ecosystem-in-saudi-arabia.html

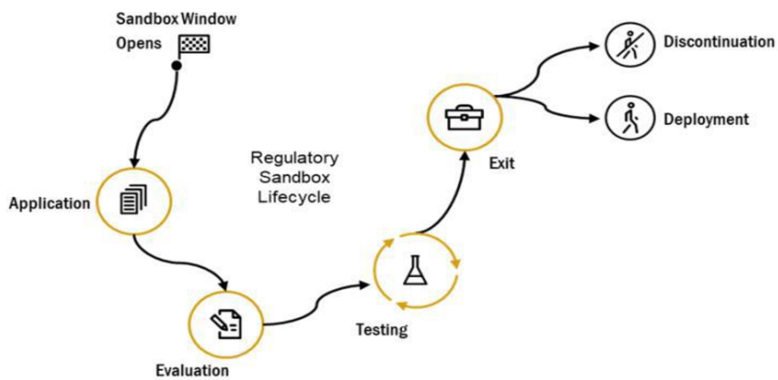
[63] SAMA, 2019. The Regulatory framework for Fintech: Opportunities and Challenges.
[64] https://en.wikipedia.org/wiki/SoFi

[65] https://paytm.com/

[66] Regulatory framework for Fintech: Opportunities and Challenges, Saudi Arabian monetary Authority.
[67] http://www.sama.gov.sa/en-US/News/Pages/news24042019.aspx

SAMA has set up a Regulatory Sandbox to create a 'safe space' in which businesses can test innovative products, services, business models and delivery mechanisms in a live environment without immediately incurring all the existing regulatory consequences related to involvement in business activities. To encourage a thriving environment endowed with innovative ideas, SAMA has made a conscious decision to initiate a Sandbox model in order to promote effective competition, embrace new technology, encourage financial inclusion and improve customer experience. Usage of the Sandbox applies to Non-Regulated Technology: Applicants whose innovation involves technologies, which are currently not covered under existing SAMA regulation, as well as to Disruptive Business Models: Applicants whose innovation involves a disruptive business model that is not currently covered under SAMA regulation.

Figure 5: Saudi Arabian Monetary Authority (SAMA) Sandbox Cycle



1.3. Setting the Strategic Foundations

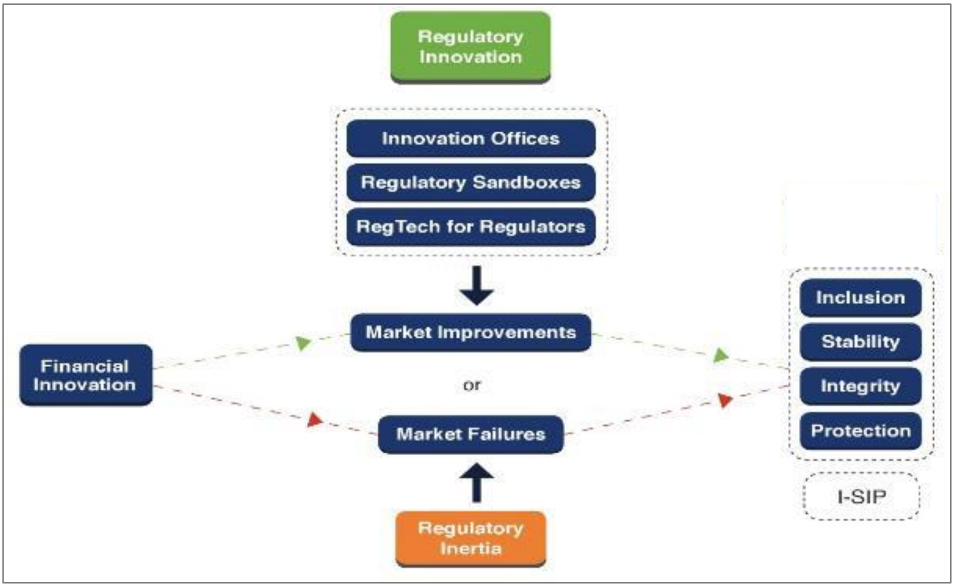
1.3.1. Overarching Policy Objective for Fintech

Fintech is a means to an end. The end itself relates to a specific policy objective. Countries harness Fintech innovation mostly for enhanced competition and financial inclusion (or deepening). Yet, a NFTS can be seen as a policy instrument to actively promote competition or inclusion in the financial system while putting in place the necessary safeguards to ensure financial stability, integrity, and consumer protection, i.e. to balance the range of policy objectives. It may cover both conventional as well as Islamic financial markets, hence taking into consideration the specificities of Islamic finance. Countries may furthermore prefer to aim at (non-financial) policy objectives on an impact level, such as job creation or economic equality, thereby establishing a link with economic development.

The specified policy objective, or the set of policy objectives, has far reaching implications on policies, reforms, and investments concerning the Fintech ecosystem and hence guides the entire development and implementation of the NFTS. The deliberate choice of the guiding policy objective, or the set of objectives, requires a critical debate at the highest possible level within the lead institution and among relevant stakeholders. How to best balance aforementioned financial policy objectives on different levels is a distinct issue with implications on individual policies and regulatory reforms and is best guided by the relevant literature.[68]

[68] Arner, Barberis, Buckley, Zetzsche, 2017b; BFA, 2018; CGAP, 2018; UNSGSA, 2019.

Figure 6: A Framework of Fintech Innovation and Financial Policy Objectives



Source: UNSGSA Fintech Working Group and CCAF, 2019.

1.3.2. Rationale for a Fintech Strategy

The introductory part of the NFTS provides background and context, the rationale for the strategy, the policy objective and vision that guide the development of the Fintech ecosystem, including how it contributes to national development priorities or aligns with other strategies.

Fintech policymaking and a NFTS may be motivated by multiple forces. Fintech innovation not only drives new entrants into finance, which triggers the need for distinct regulatory and supervisory frameworks to safeguard financial integrity, protection, or stability. Governments actively promote Fintech innovation for competition or financial inclusion or deploy technology in public services (e-government); regulatory and monetary authorities actively harness innovative technology in finance as part of their supervisory or monetary policy mandate. Characteristically, policymaking for Fintech tends to span across jurisdictions, including for financial services, competition, ICT and cybersecurity.

Enabling Fintech innovation in the financial system in a safe and secure manner for a defined policy objective requires a deliberate and coordinated approach to identify key opportunities and challenges, strengthen linkages and coordination across several financial and non-financial domains, and align the efforts of a wide range of public, private, and civil society stakeholders.

An NFTS can provide a framework and roadmap for strengthening the Fintech ecosystem, aligned with national development priorities and other strategies. It can be a useful tool to effectively coordinate actions and allocate resources in priority areas to help achieve the set policy objective(s).[69]

[69] World Bank, 2015.

An NFTS, informed by evidence and prepared in consultation with stakeholders, can provide an effective instrument to chart a clear vision for the Fintech ecosystem and to identify the Fintech drivers, opportunities and challenges across the ecosystem pillars.[70] The rational for an NFTS can be multi-fold:

- A strategy helps to define Fintech in the national context, the core problem, the goal of the strategy and vision for the Fintech ecosystem, hence to set the scope for policies and reforms
- A strategy, informed by a diagnostic, can help to identify the specific drivers for Fintech in the country and the challenges the ecosystem faces as well as to provide valuable data for the private sector, which helps to speed up the development of the Fintech ecosystem
- A strategy can help to align policies and reforms for Fintech innovation with other financial (and non-financial) policy objectives concerning integrity, stability, inclusion, protection, competition
- A strategy can help to phase policies, reforms, and investments across different time horizons to focus resources on the building blocks in the digital financial transformation at any point in time
- A strategy can provide the sector with clarity about the initiatives (including regulatory innovations for Suptech, Sandboxes, and Innovation Hubs) and for investments across the Fintech ecosystem pillars (Governance; Policy; Demand; Capital; Talent)
- A strategy can help to coordinate relevant stakeholders across jurisdictions and public-private domains, align efforts, and focus resources on primary challenges for the Fintech ecosystem
- A strategy provides the foundation for planning actions, monitoring progress, and evaluating the impact of policies, reforms, and investments

1.3.3. Vision for Fintech

An NFTS provides an overarching vision for the Fintech ecosystem in reference to a timeframe or different time horizons, thereby corroborating to what its successful execution leads to.[71] "It is typically a concise, inspirational and aspirational statement that defines medium- to long-term goal(s) of the strategy [not to be confused with the overarching policy objective]. Given the importance of a vision statement, most national strategies include one. […] A well-crafted vision statement is power-packed because it can convey a strong and clear message to all stakeholders".[72]

The vision can be considered as the foundation of the strategy. It justifies the strategy and the resources and coordinated efforts required for its implementation by elaborating for which financial and non-financial policy objective(s) Fintech innovation in the country is crucial.[73] It provides a high-level roadmap – for the multi-stakeholder implementation – of phased policies, reforms, and investments in priority areas of the Fintech ecosystem sequenced across multiple time horizons (i.e. two, five, and seven years). The vision is ideally part of consultations with the relevant public, private, and civil society stakeholders.

1.3.4. Definition of Fintech

An NFTS includes a specific definition of Fintech to provide stakeholders with a common understanding of the scope of sectors, business models, or products and services under consideration. In general, Fintech covers a broad subject matter and the term is flexibly used. It can be defined by:

- the underlying technology (such as Artificial Intelligence, Big Data, Cloud Services, and Distributed Ledger or Blockchain Technology),
- the provider type (startups, Bigtech or Techfins, incumbent financial institutions),

[70] EY, 2016; World Bank, 2018b; AFI, 2018c.
[71] World Bank, 2015.
[72] AFI, 2018c.
[73] World Bank, 2018c.

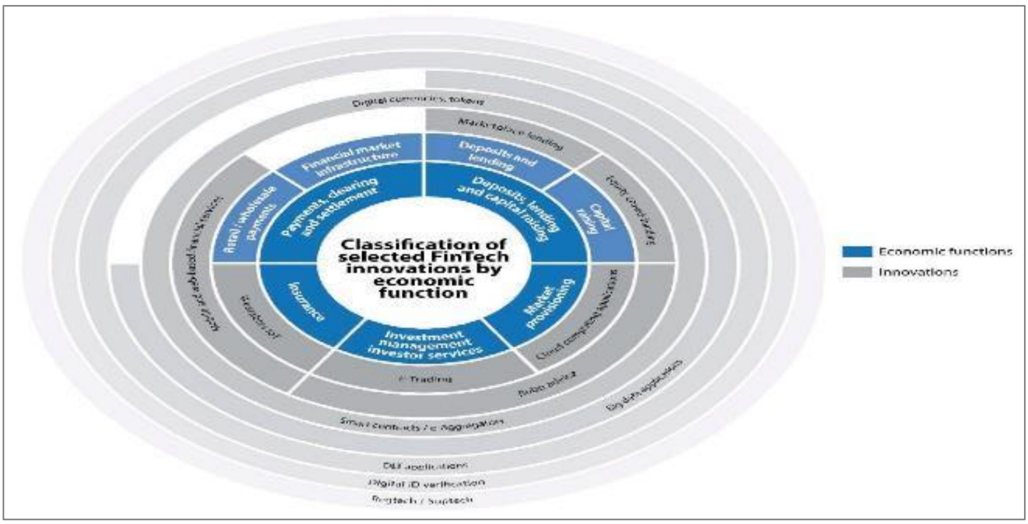
- the economic or financial function (payments and money transfers, lending, capital raising, investments and savings, insurance, market provisioning, etc.)
- the area of innovation or use case (equity crowdfunding, platform lending, digital currencies, regulatory or supervisory technology etc.),
- the target market (business-to-business, business-to-consumers, business-to-government, etc.)

Specifying Fintech in the national context helps to set the relevant scope for prospective policies, reforms, and investments across the range of pillars in the Fintech ecosystem. A definition does not necessarily need to be codified in law. A soft definition such as in an NFTS might be rather helpful as it grants the necessary flexibility for adjustments over time. The Financial Stability Board (FSB) and EY provide generic definitions of Fintech which can serve as examples:

- *"Fintech is defined as technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services."*[74]
- *"In its broadest sense, we define Fintechs as high-growth organisations combining innovative business models and technology to enable, enhance and disrupt financial services. This definition is not restricted to start-ups or new entrants, but includes scale-ups, maturing companies and even non-financial services companies, such as telecommunication providers and e-retailers"*[75]

Country-specific Fintech definitions as part of the NFTS may reasonably go further than these so as to include the specific strategy (or policy) goal as well as the relevant financial functions subject to reforms. The FSB and the World Economic Forum, among others, provide holistic Fintech frameworks or model taxonomies which can provide a starting point for countries to narrow down the relevant scope of Fintech in the national context and to articulate the Fintech definition in the NFTS.

Figure 7: Fintech Model Taxonomy



Source: FSB, 2017.

[74] FSB, 2017.
[75] EY, 2016.

Supervisory technology (Suptech) concerns those use cases that help to ease the practise of financial supervisors mostly based on big data analytics and increasingly combined with AI. Regulatory technology (Regtech) is mostly referred to for the private sector use cases in which regulatory compliance, monitoring, and analytics is digitalized and automated for efficiency gains.[76] Overall, regulatory innovations, including Innovation Hubs, Sandboxes, and Suptech, help regulators to strengthen the environment and infrastructure for Fintech innovation balanced with inclusion, stability, integrity, and consumer protection considerations.[77]

1.3.5. Fintech Strategy Objectives

The NFTS provides the overarching strategy goal and more specific targets, which are aligned with the vision and relate to the opportunities and challenges identified (as the priority policy areas) across the Fintech Ecosystem Pillars presented in subsequent chapters.

Depending on the strategy goal, for example, specific quantitative targets could concern the turnover rate of the innovation office or the number of licensed providers for a particular segment; specific qualitative targets could concern the priority policy area of setting up the regulatory framework for a type of Fintech.

- For example, the challenge could be legacy regulations or the lack of conducive frameworks: Surveyed Fintech startups in the Arab region cite legacy regulations as primary obstacle and more than 80% are ready to move to another country for regulatory reasons.[78] Yet, regulators prefer to avoid an imbalance in regulatory frameworks or potentially arbitrage. An opportunity would be to identify the key regulatory enablers that need to be put in place, such as a tiered or restricted licensing regime.
- Another challenge, for example, could be that technology does not know borders and requires scale effects to be profitable. Multinational or big technology firms have an advantage over home-grown startups that find it difficult to enter a market, let alone expand into new markets across borders. An opportunity would then lie in identifying the formal pathways for Fintech startups to enter, grow, and even expand across borders, which is key for a Fintech ecosystem to flourish and consumers to thrive.

Policymakers “are increasingly recognizing the importance of setting national targets […]. A major reason appears to be the powerful incentives they generate to achieve the stated outcomes. A sense of ownership is vitally important. National targets are not imposed by an external agency or interests, therefore, achieving them is a matter of pride for the country and for the major stakeholders involved. […] Country-led target setting creates real buy-in and increases the likelihood that a […] target will result in concrete action. Thus, it is not surprising to observe the value placed on incorporating national targets in national strategies.”[79]

1.3.6. Additional Considerations for Developing a Fintech Strategy

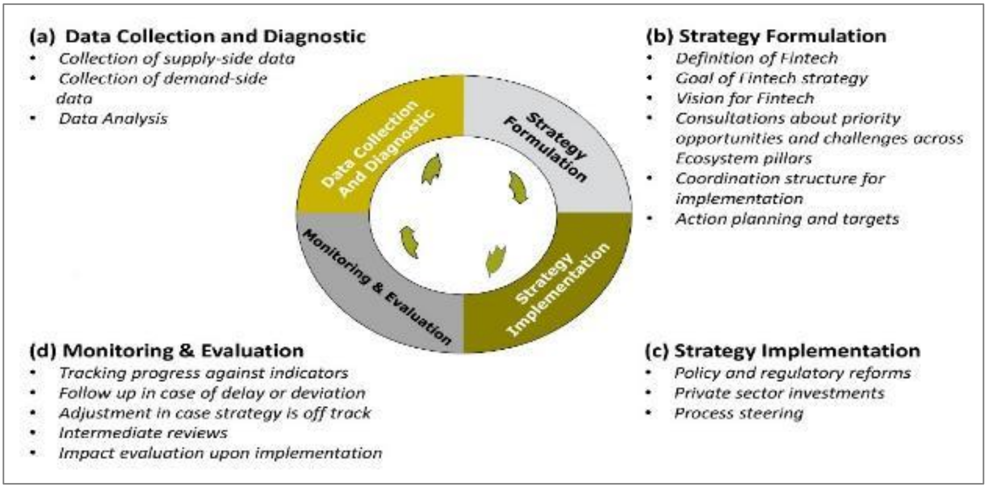
i. Strategy Phases

An NFTS process can encompass several phases, starting with the data collection and diagnostic phase, followed by the formulation and implementation phases, and the monitoring and evaluation phase. These phases need not to be necessarily segregated over time but can be interwoven depending on the context and

[76] BIS, 2019.
[77] UNSGSA Fintech Working Group and CCAF, 2019.
[78] Wamda, 2017.
[79] AFI, 2018c.

circumstances. For example, the data collection and the strategy formulation, especially the stakeholder consultations, can make for a progressively elaborative process in which feedback loops can be helpful. The formulation and the official implementation phases would likely need to be separated, marked by an official launch due to the required approval and clearance processes.

Figure 8: National Fintech Strategy Phases



Source: adapted from Dr. Nimal Fernando.

The time period needed for developing a NFTS would most likely depend, among others, on the high-level commitment for the NFTS, the clarity in the governance and the roles of stakeholders, the availability of data and the scope of diagnostics, the range of stakeholders engaged and the extent of consultations, the efficiency of the coordination structure, the approval processes, and the quantitative and qualitative capacity of the project management unit.

A strategy roadmap, produced by the lead institution at the very beginning, can be a helpful tool to plan for and structure the strategy development process itself (i.e. phases (a) and (b) in the chart). As the name implies, this roadmap provides stakeholders with time-bound steps, their responsibilities, and key milestones (e.g. consultations, diagnostic work, approval).[80]

ii. Data and Diagnostics

Policymakers and regulators as well as financial service providers and other stakeholders require a wide range of reliable, recent market data from thematic or sectoral diagnostics for their policies, strategies, and investments on country or firm level, respectively. "Robust data and diagnostics activities also provide a valuable baseline from which to measure progress over time and structure a robust M&E system".[81]

Data is a key input to inform the development of the NFTS, starting with pinning down the sets of data that are required for identifying (i) the Fintech drivers, opportunities and challenges in the environment as well as (ii) analyzing the relevant market forces on the demand and supply side. Different types of data result from diagnostics in distinct areas:

[80] World Bank, 2018c.
[81] World Bank 2018c.

- *Environmental assessment:* the macro-level context in which Fintech operates reveals the drivers for Fintech and the opportunities and challenges in the ecosystem across political, economic, social, technological, legal, capital, and talent considerations (note that these cover the ecosystem pillars flashed out in subsequent chapters).
- *Market analysis (demand and supply side data):* industry or supply-side data is generally faster accessible (e.g. payments, online/mobile subscriptions, or startup investments), but demand-side data (e.g. smartphone penetration, financial access and usage, informality) can be particularly relevant depending on the strategy goal.[82] Porter's 5 Forces Model helps to frame the analysis of market players (rivalry), new entrants (threat), suppliers / partners and buyers (bargaining power of each), and products (potential substitutes).

iii. Prioritizing Policy Areas (Challenges and Opportunities)

"A national strategy is essentially about making choices about what and what not to do. It is important to be systematic when setting priorities to achieve the desired results within the specified period."[83]

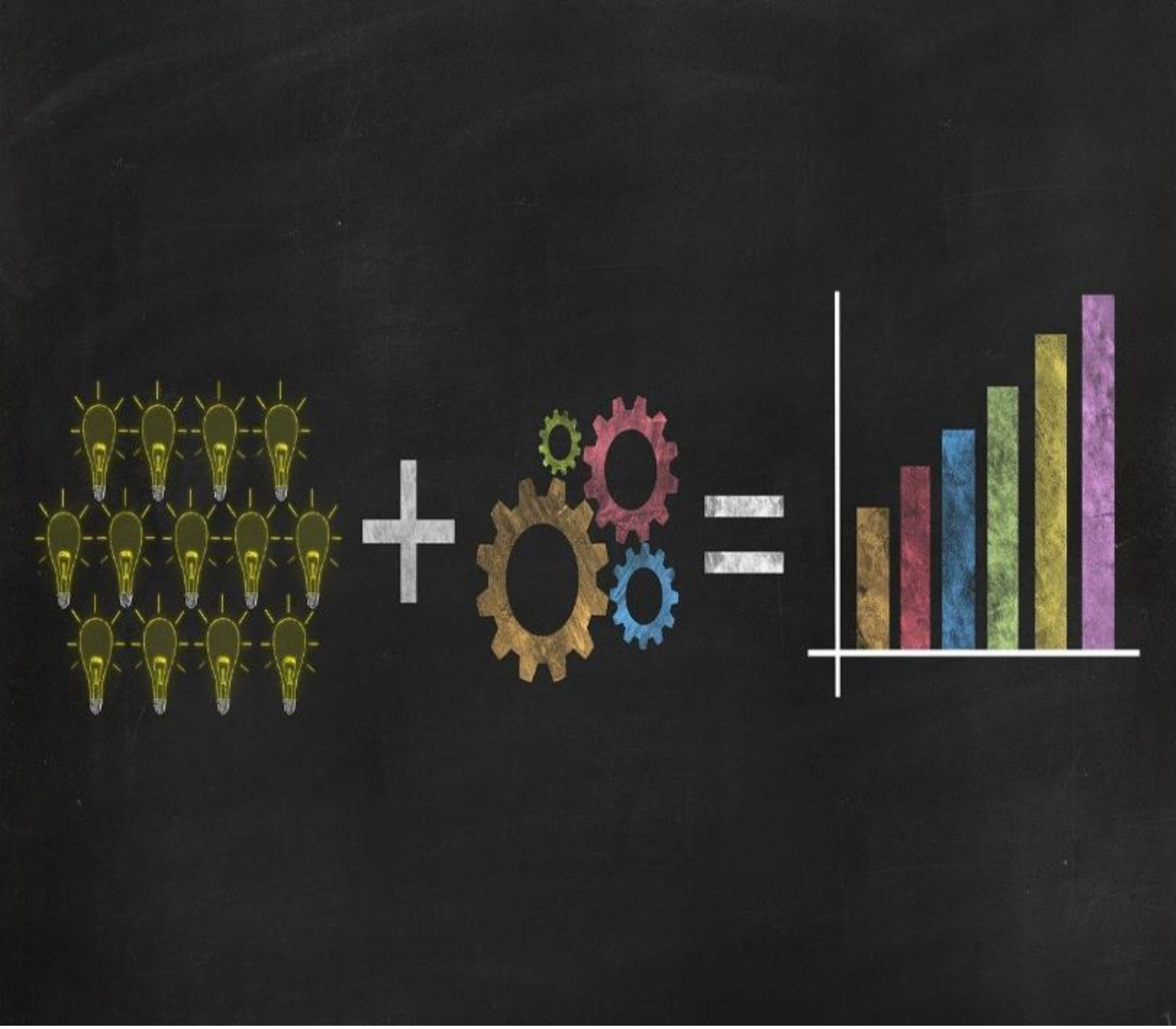
Strategies "generally include a hierarchy of priorities: prioritizing barriers to be addressed; prioritizing policies to address the chosen barriers; prioritizing activities within selected policy areas."[84]

In the context of the NFTS, prioritization takes place for the challenges and opportunities identified across the Fintech ecosystem pillars. These are priority areas "to which relatively high importance needs to be attached in the effort to achieve the goals articulated in the national strategy."[85] This is important because of resource limitations with the stakeholders. Prioritization can follow the Fintech vision outlined in the NFTS.

iv. Governance and inter-agency coordination

With their distinct approaches to fintech, coutnries encourage certain types of technology-enabled financial innovation, establish their market as global hub for Fintech, enhance market infrastructure, facilitate regulatory compliance, or improve consumer outcomes. Such objectives provide a basis for national strategies that, however, in all cases require coordinated approaches across government agencies.

[82] See also World Bank 2018c, p.13.
[83] Dr. Nimal Fernando in AFI, 2018c.
[84] AFI, 2018c.
[85] AFI, 2018c.



Demand Pillar

2. Demand for Fintech

FinTech demand is considered as one of the most important key eco-system attributes that uplifts the success of any FinTech Strategy. Availability of FinTech products and services drives the real demand of consumers and merchants who are underserved by the traditional financial services. To this regard, putting efforts on driving FinTech demand is very critical to the health of the FinTech sector at large. Moreover, health and success of the Talent pillar is greatly dependent on meeting future demand and end-client appetite on using FinTech with the country's infrastructure and resources on place. FinTech end-client are classified into three major segments including:

- ✓ ***Consumer demand:*** *FinTech Adoption by individual consumers, Business-to-Consumer (B2C)*
- ✓ ***Corporate &SMEs demand:*** *FinTech Adoption by corporates and SMEs, Business-to-Business (B2B)*
- ✓ ***Financial Institutions demand:*** *FinTech Adoption by Financial Institutions & Banks*

2.1. Market Study and Research

Conducting market research and surveys are key success tools to develop the national FinTech Strategy based on people's needs as well as countries' current resources and aspirations. To this end, data collection should be inclusive of both the demand and supply side of FinTech services. This will help assess population demand with regards to identified barriers for adoption and implementation. It is nevertheless important to understand the major drivers that uplifts the evolution of FinTech innovation.

Figure 9: Drivers of Fintech Innovation[86]

According to FinTech Adoption Index Report in 2019, reasons that foster demand on FinTech products & services locally are having more attractive rates or fees as their top priority to choose FinTech solution rather than traditional financial institutions. While reasons followed are "Easier to set up an account", "Access to more different & Innovative Products & Services" and "Better experience and features" prospectively. [87] Adding to it, understanding the current and future demand of consumers; including their financial awareness, technological savviness, size of financial services market within the market (employees working in financial entities, percentage of population who are financially included...etc.)

World Economic Forum (WEF) report on "The Future of FinTech", which identified FinTech as a potential game-changer for small businesses particularly those in the credit, lending and payments subsectors. To this regards, corporate & SME's demand for FinTech can be assessed through the size of SME sector and its propensity to embrace FinTech solutions.[88]

- ✓ *UK SMEs are willing to adopt various digital solutions with 27% who have made infrastructure improvements and 26% with improvement plans in the last 12 months of 2018.*
- ✓ *German FinTech is Business-2-Business (B2B) focused, with competitive strength in alternative payment solutions.*

[86] Financial Stability Board (FSB), Financial Stability Implications from FinTech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf
[87] Global FinTech Adoption Index Report 2019 - https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-global-fintech-adoption-index.pdf
[88] https://fintechauscensus.ey.com/2018/Documents/EY-UK-FinTech-On-the-cutting-edge.pdf

2.2. Consumer Education and Digital Literacy Component

Consumer Education and Digital financial literacy are likely to become an increasingly important aspect for the upcoming era to promote financial inclusion. Thus, it is of vital need that end-client users increase their financial sophistication to effectively use FinTech products and services along with ensuring security and privacy.

With regards to measuring consumer education and their level of digital literacy, it is important that surveys tackle behavioral and attitudinal measures so as to capture concrete indicators of individual financial capability, in terms of having knowledge and awareness about FinTech as well as proper usage of digital financial services.

To develop a comprehensive and composite index to measure digital financial literacy and consumer awareness, it is recommended that research is conducted through applying a combination of qualitative research (Focus Groups, In-depth interviews...etc.) and quantitative research (Online and offline surveys, Personal Interviews...etc.) to end up with multi-dimensional data instrument and in order to develop an evidence-based set of strategy key initiatives. This can effectively be done through clustering the population to agreed segments; consumer and corporate & SMEs. Because of the complexity of consumers and their demographic and economic differences, it is preferable to segment consumers according to their socio-demographic differences including vulnerable groups, the elderly, women, illiterate population and small and medium-sized enterprises (SMEs)...etc.

In addition to that, countries should conduct longitudinal surveys to get a better grasp of the evolution of end-client behaviors and attitudes over a long term period. To this end, it is nevertheless important to set up a proper timeline to capture changes in digital and financial behavior. This can be done through using large-scale surveys over the long term, in addition to conducting simpler and more often surveys for a shorter term to closely monitor the impact of initiatives and awareness campaigns conducted within a specific period of time.

2.3. Mapping existing initiatives and resources is another prerequisite to establish the national strategy

It's crucial to understand country's current resources and on ground activities in order to map out market capability and barriers that hinder FinTech adoption. Mapping existing initiatives undertaken to endorse FinTech adoption and solutions is of paramount importance to have a full-fledged diagnosis of what the public, private and non-for-profit stakeholders have contributed in terms of on-going programs and activities. Most commonly used tools in terms of importance are conducting consultation with stakeholders and ensuring that diagnosis is evidence-based. [89] Implementing a desk research devoted to gather and analyze relevant stakeholders and the efficiency of current key initiatives is another important aspect. In addition to that, organizing a number of roundtables, conferences and workshops specified to the whole ecosystem of interest in FinTech can be an important pillar to understand the level of commitment of stakeholders.

Egypt's National FinTech Problem Statements, 2019: *Central Bank of Egypt has recently conducted a roundtable discussion by gathering all FinTech Ecosystem Stakeholders in Egypt for the aim of generating "Egypt's National FinTech Problem Statements" under four major themes including Financial Literacy, Customer Engagement, Financial Inclusion – Consumer Facing Problems, Financial Inclusion – MSMEs Facing Problems and RegTech. Generating Problem Statements will gather the ecosystem stakeholders' voice with regards to current initiatives and problems that hinder FinTech evolution within market. It will also guide FinTech startups work on solutions that help endorse digital and financial solutions to optimally end with increasing rate of FinTech adoption in Egypt. Moreover, it shows the regulator's interest on*

[89] National Strategies for Financial Education Policy Handbook, INFE OECD

enhancing FinTech adoption through raising awareness and providing seamless solutions for consumers to use digital and financial services. [90]

2.4. Global market trends and international benchmarking

Global Trends:

It is nevertheless important to use international trends and regional trends comparison to set up a country's benchmark across the world. This can be beneficial in form of understanding the country's current resources and privileges to leverage on as well as barriers that needs to be tackled.

T20 Japan 2019 -The need to promote digital financial literacy for the digital age: In 2016, G20 Leaders has put high interest on digital financial literacy to develop programs in order to promote digital financial education as well as special programs for vulnerable groups, including the elder population, the less educated, owners of small and medium-sized enterprises (SMEs) and women. To this end, they have endorsed it in the High-Level Principles for Digital Financial Inclusion, stating importance of "Strengthening Digital and Financial Literacy and Awareness". [91]

They have also proposed four main dimensions for Digital Financial Literacy, including:

- ✓ ***Knowledge of digital financial products and services,** that will help population understand basic functions of different types of digital financial services.*
- ✓ ***Awareness of digital financial risks,** which helps in raising awareness of risks and implications of using digital financial services.*
- ✓ ***Knowledge of digital financial risk control,** to help them know how to protect their personal identification details when using digital means.*
- ✓ ***Knowledge of consumer rights and redress procedures,** to make them understand their rights and how they can obtain redress against unauthorized use.*

Digital Literacy Program by Banque Du Liban (BDL)The Central Bank in Lebanon emphasized the importance of aligning Digital Literacy Programs along with education institutions, including schools, community centers and universities. To this regards, they have developed a digital literacy program, with the aim of:

- ✓ *Support young leaders to integrate technology to the educational systems.*
- ✓ *Develop digital entrepreneurship skills of young people, including refugees.*
- ✓ *Support young students and graduates to become "Social Innovators" that apply digital solutions in order to solve community challenges.*[92]

One of the important aspects is identifying the global market trends to create future competitive advantage to the national FinTech industry.

UK FinTech Strategy has mentioned various technology trends and how they can be applied on FinTech[93]

- ✓ ***Blockchain**: Use of distributed electronic ledger to record and confirm transactions and data to be shared between different entities. This is consequently can be applied through "Peer-to-Peer transactions", "Supply chain management", "Identity management", "Trade Finance" ...etc.*
- ✓ ***Internet-of-things (IoT):** Network of devices to collect and exchange data over internet. This can be applied for "Data integration & analytics", "customer self-services", "Real-time asset monitoring" ...etc.*
- ✓ ***Drones:** can operate on "Insurance Claim Validation", "Infrastructure inspections" ...etc.*

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[90] Egypt's National FinTech Problem Statements - https://fintech-egypt.com/problem-statement-financial-literacy.php
[91] The need to promote digital financial literacy for the digital age, T20 Japan 2019 - https://t20japan.org/wp-content/uploads/2019/03/t20-japan-tf7-3-need-promote-digital-financial-literacy.pdf
[92] Banque Du Liban, 2019. Digital Transformation Roadmap.
[93]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/801277/UK-fintech-state-of-the-nation.pdf

- ✓ ***Artificial Intelligence:*** *Perform tasks that usually requires interference of human intelligence, which can be applied on "Managing Personal Finance", "Trading Systems", "Fraud & Risk Management" ...etc.*

2.5. Gap analysis and assessment

Conducting market research as well as mapping and evaluating existing initiatives are key success factors and useful basis to identify gaps and pain points that hinder FinTech adoption. Accordingly, it is important to understand key success factors that drives strength of FinTech Adoption in a country; including level of strength of financial services, the regulatory environment whether it steers or hinders the wheel of FinTech & Innovation.

Thus, this stage is very useful to set up the priorities of strategy initiatives design and highlighting main problems and barriers need to be addressed.

2.6. Initiatives and Roadmap Development

Roadmap design phase is often drawn in collaboration with relevant and potential stakeholders including public authorities, private entities and non-for-profit organizations. The action plan is recommended to include long-term and short-term objectives and goals based on the agreed priorities of the national FinTech strategy.

It is of vital interest to anchor action plans to conductive qualitative and quantitative surveys as well as international measurement tools so as to make it easier to track progress and contribute to the overall demand and talent of the Country's FinTech Strategy. Delivery Channels and Tools are also another important pillars that need to be specified during design phase.

The financial education initiatives that have proven to be most effective as proposed by INFE group work is through following various approaches with the objective of:

- ✓ *Facilitating access to information and education; through multi-channel tools.*
- ✓ *Specify right timing and location and leveraging on existing learning initiatives.*
- ✓ *Supporting individual engagement through e-channels, social media, mobile application and face-to-face engagements with consumers.*

2.7. Monitoring and Evaluation

Another key attribute that ensures effective implementation of strategy initiatives is setting a timeframe, target audience and precise long-term objectives as well as actions needed to reach expected outcomes. In addition to that, it is crucial to specify the Key Performance Indicators (KPIs) and priorities for the initiatives contributing to the implementation of the strategy.

National Strategies are now adding programmes evaluation as an essential element of their strategy implementation. So it is advisable that action plans and road maps should be designed by including a formal time frame for the evaluation and assessment of strategy key initiatives. Assessment is recommended to be done through a combination of quantitative and qualitative analysis based on suggested national and international surveys and databases mentioned above. This can guarantee the acknowledgement of level of effectiveness and the impact of the action plan and thus promote its sustainability. The mechanism is basically through repeating surveys across different time frames to measure the impact prior versus post implementing strategy initiatives and awareness programs.

In New Zealand, the Commission for Financial Capability (CFFC) has conducted both face-to-face and online interviews to derive a "Financial Behaviour Index" to provide feedback and level of responsiveness of targeted segments across each initiative.

International Key Performance Indicators:

The availability cross-country and international measurements and indices for FinTech Adoption and consumer education is still very limited. However, trends have been shifting to conduct baseline surveys in order to develop evidence-based strategy initiatives and programs.

- EY FinTech Adoption Index
  The first international exercise to analyse the FinTech demand and adoption through conducting online interviews in different markets including developed and emerging countries. The FinTech adoption worldwide is on the rise with regards to the consumer and SME segments. [94]

  Consumer FinTech Demand:
  ✓ Global consumer FinTech adoption has dramatically increased *from 16% in 2015, reaching 64% in 2019.*
  ✓ *96%* of Global Consumers are aware of at least one money transfer and payment FinTech service.
  ✓ *3 out of 4* global consumers use a money transfer and payments FinTech service.

  Corporate & SMEs FinTech Demand*:*
  ✓ Global SME adoption is *25% in 2019, in which one in four SMEs* are using FinTech services
  ✓ *1 in 4 SMEs* globally has used services provided by a FinTech.

- Digital Financial Services (DFS) Indicators:
  In 2019, Alliance for Financial Inclusion has recently formulated a set of indicators that reflects adoption of use of technologies in creation and distribution of financial services, by which it can measure the effect of digital financial services evolution on financial inclusion. The DFS set of indicators measures both the supply and demand side through 3 main attributes including: *Access to DFS, Usage of DFS and Quality of DFS*. Accordingly, it is suggested that countries subset the demand set of indicators into 2 categories including Consumer and Corporate & SMEs level of usage to end up with valuable and segmented measures. [95]

- Global Findex Database:
  The world bank has launched a comprehensive database that shows population behavior in using financial services and it has recently added inclusive data on the use of FinTech, which takes account of mobile phones and internet usage to conduct financial transactions. So it's advisable to consider Findex database to set up a benchmark for the population level of usage of digital financial services. The Findex is published on a 3-year basis which can help countries create an inclusive database that provides an actual basis for comparison across countries.

- Other important measures to promote Consumer Education:
  In order to insure an efficient process for FinTech adoption across the country, it is nevertheless important to know that financial literacy is a precondition to endorse digital literacy and consumer education on FinTech. To this regards, it is of paramount importance to put into consideration international measurement tools of financial literacy such as International Network on Financial Education (INFE) Survey, the World Bank Financial Capability Survey and PISA Financial Literacy Survey.

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[94] Global FinTech Adoption Index Report 2019 - https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-global-fintech-adoption-index.pdf
[95] Digital Financial Service Indicators, AFI July 2019 - https://www.afi-global.org/sites/default/files/publications/2019-07/AFI_GN33_DFS_AW_Digital.pdf

Figure 10: Demand Indicators – Comparison Table (1/2)[96]

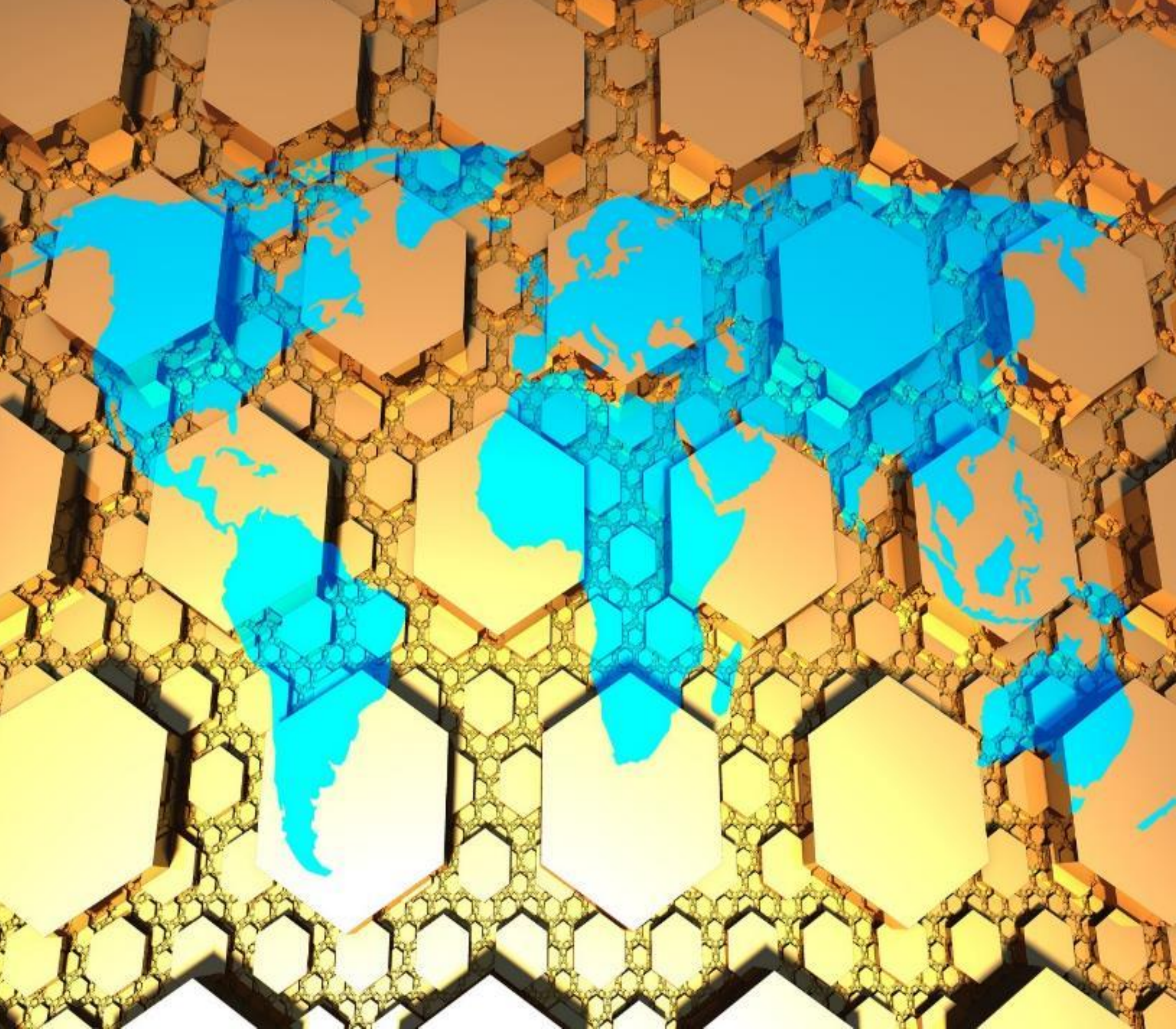
Color Spread	Country	Internet users (%) Weight: 15.4 %	Percentage of households with Internet (%) Weight: 15.4 %	Secure Internet servers per million population Weight: 12.8 %	GDP per capita (current US$) Weight: 15.4 %	Firm-level technology absorption (1 = not at all; 7 = adopt extensively) Weight: 20.5 %	Used internet to pay bills or buy something online (% age 15+) Weight: 20.5 %	Composite Value
	Switzerland	93.71	89.83	2820.43	80875.74	6.05	0.72	94.13
	Netherlands	93.2	96.15	2635.07	52421.88	5.63	0.85	87.5
	Sweden	96.41	94.73	1602.24	52209.28	5.96	0.84	86.74
	United States	75.23	86.95	1548.2	64663.56	6.07	0.77	81.41
	United Kingdom	94.62	93.99	1291.23	41983.46	5.72	0.81	79.16
	Germany	84.4	87.92	1420.02	47255.52	5.74	0.81	77.3
	Australia	86.54	86.11	1348.57	54344.51	5.61	0.76	75.68
	Canada	92.7	91.24	1210	45567.63	5.43	0.80	75.01
	United Arab Emirates	94.82	96.94	294.4	44017.37	6.04	0.60	73.85
	Singapore	84.45	91.06	822.35	64108.68	5.71	0.57	71.98
	Estonia	88.1	88.26	927.19	22242.66	5.39	0.75	65.73
	France	80.5	71.45	683.45	40545.95	5.45	0.67	61.54
	Bahrain	95.88	98.51	176.95	28018.26	5.34	0.44	59.07
	Saudi Arabia	82.12	93.04	45.88	22929.72	5.43	0.39	52.57
	Lithuania	77.62	74.97	206.87	19480.23	5.36	0.56	51.36
	Hungary	76.75	82.35	300.76	16588.04	4.69	0.38	40.77
	Kazakhstan	76.43	84.85	14.46	8808.05	4.36	0.24	31.23
	India	34.45	25.38	5.54	2154.85	4.19	0.04	0
	Hong Kong (SAR)	89.42	80.19	790.56	50392.95	5.64		

[91] Source: EY 2019

Figure 11: Infrastructures Indicators – Comparaison Table(2/2)[97]

Color Spread	Country	Global Cybersecurity Index score Weight: 20 %	Critical information infrastructure breakdown (%) Weight: 20 %	International Internet bandwidth (kb/s per user) Weight: 20 %	E-Participation Index (0 = worst; 1 = best) Weight: 20 %	Operational Digital Identity (0=No; 1=Yes) Weight: 20 %	Composite Value
	France	0.82	1.6	221.66	0.96	1	82
	Singapore	0.93	17.2	616.53	0.9	1	80.75
	United Kingdom	0.78	12.5	429.83	0.96	1	76.21
	Australia	0.82	7.2	75.07	0.94	1	70.79
	United States	0.92	12.4	70.97	0.92	1	68.11
	Netherlands	0.76	20.5	281.06	1	1	63.67
	Canada	0.82	12.6	129.24	0.82	1	63.19
	United Arab Emirates	0.57	7.8	79.64	0.84	1	58.53
	Germany	0.68	10.1	145.99	0.71	1	58
	Sweden	0.73	21	527.45	0.61	1	57.81
	Bahrain	0.47	3.6	49.05	0.82	1	57.78
	Switzerland	0.73	8.3	352.24	0.37	1	57.54
	Estonia	0.85	14.9	28.67	0.76	1	56.66
	Lithuania	0.5	8.8	125.45	0.65	1	50.56
	India	0.68	14.5	5.68	0.63	1	46.33
	Hungary	0.53	14.9	37.03	0.45	1	36.06
	Saudi Arabia	0.57	4.1	34.02	0.57	0	32.28
	Kazakhstan	0.35	7	51.49	0.76	0	28.31
	Hong Kong (SAR)		5.8	3721.8			

[97] Source: EY 2019



Policies, Laws and Regulations Pillar

3. Fintech Oversight, Legislation Gaps and Regulations

3.1. Fintech Oversights[98]

Fintech evidences the global impact on the provision of financial services. Countries seek to provide an enabling environment, including open and affordable access to core digital services and infrastructures. Fintech has and continues to bring significant benefits to organisations, consumers, investors; financial services firms and financial market infrastructure; and supports both financial stability and financial inclusion. It is to be noted, however, that the increased use of fintech solutions and emerging technologies also brings risks, to which regulators, supervisors, overseers and policy makers (together termed "**authorities**" for ease of reference) are responding[99].

Fintech is fundamentally a neutral force; however, its consequences can be clearly positive (i.e. facilitating consumer transactions and the roll out of ATMs in the 1960s) or markedly negative (i.e. mortgage-backed securities helped cause the Great Recession bursting the U.S. housing bubble and catalyst to the global financial crisis from 2007 – 2009).
Fintech has the potential to expose risk to: Consumers and investors, Financial services firms, general Financial stability and cause possible financial exclusion.

3.2. Gap Analysis – Opportunities versus Risks

3.2.1 General Fintech implications for financial policymakers and regulators[100]:

1. **Market growth:** Customers are empowered by fast internet speed connections, wider availability of access thereto, mobile mediums access (such as smartphones) and more direct access to financial products and services. Fintechs have responded with entrepreneurialism and technological product and/or service innovation.
2. **Emerging technology**: Technological innovation has created business models, products and service delivery channels; as well as creative approaches to attracting, interacting with and gaining the loyalty of customers. According to studies[101], authorities have identified risks arising from 3 primary fintech-related drivers, namely: the increasing dependence of financial services firms on technology, the increasing interconnectedness within the financial sector and the prospect of greater concentration and herd-like[102] behaviour. Financial services firms are becoming increasingly reliant on technology and the use of large data sets. Expansion of new technologies have included data collection and analytics, artificial intelligence, automation, roboadvice, cloud computing services, platforms, blockchain and crypto assets. The financial sector is becoming increasingly interconnected and complex. Examples of this include the outsourcing of many fintech-related functions and services, and the increasingly platform-based nature of many financial services.

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[98] https://www.goverticalworkshop.com/ml-2019/vertical-resources-fintech, https://www.americanbanker.com/opinion/state-regulators-are-critical-to-fintech-oversight, https://www.pewtrusts.org/en/research-and-analysis/reports/2018/08/02/how-can-regulators-promote-financial-innovation-while-also-protecting-consumers
[99] http://pubdocs.worldbank.org/en/361051561641115477/pdf/Fintech-executive-summary.pdf
[100] The future of fintechs: Fintech risk management; https://www2.deloitte.com/us/en/pages/regulatory/articles/fintech-risk-management-regulation.html
[101] KPMG Regulation and supervision of fintech, Ever-expanding expectations, March 2019 https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/03/regulation-and-supervision-of-fintech.pdf
[102] Herd Behaviour in Financial Markets: In the aftermath of several widespread financial crises, "herd" has again become a pejorative term in the financial lexicon. Investors and fund managers are portrayed as herds that charge into risky ventures without adequate information and appreciation of the risk-reward trade-offs and, at the first sign of trouble, flee to safer havens. - Herd Behavior in Financial Markets, Sushil Bikhchandani and Sunil Sharma, IMF Staff Papers, Vol. 47, No. 3, 2001, International Monetary Fund.

3. **Partnerships and alliances**: Fintechs have more recently begun collaborating with one another, as well as other organisations (whether through joint ventures, alliances, or acquisitions) and such arrangements are providing additional growth opportunities for fintechs, while too enabling more mature institutions to expand their traditional operations.
4. **Regulatory scrutiny**: previously, fintechs were relatively unhindered by regulatory requirements that bound financial institutions and services / product providers, simply because of the lack of governance thereof, however, authorities have started articulating their expectations of fintechs in terms of their operational, functional, technological and ultimately, their contributory capabilities – being mindful of the aims of ensuring financial inclusion (as opposed to contributing to financial exclusion) and too, ensuring the maintenance or growth of financial stability.

Further to the above, fintech can expose regulatory gaps (situations in which no law applies), ambiguities (where it is not clear whether a law applies), and duplication / overlap (where two or more laws apply to the same situation and more than one authority has jurisdiction over the same type of activity).[103]

3.2.2 Fintech and consumer protection risks[104]

Although fintech should and is aimed to bring many benefits to users and customers, there is also scope for such persons / organisations to be disadvantaged thereby. Examples hereof include: a lack of consumer understanding; misrepresentation of products and services; financial exclusion; data privacy, cybersecurity, security protection; and reduced market competition. This is discussed in greater detail in Annex (2).

3.2.3 Fintech and financial stability implications

Fintech, in theory, yields benefits for economic growth and financial stability through many transmission channels, including by reducing some of the financial frictions, as are summarised below.

Figure 12: Main benefits of fintech concerning financial stability:

Potential benefit	Link to financial stability
Decentralisation and diversification	Decentralisation and diversification in the financial system can dampen the effects of financial shocks in some circumstances.[29] Failure of a single (or type of) institution is less likely to shut down a market as there would be other (types of) providers of financial services.
Efficiency	Efficiency in operations, including through incentives created by contestability,[30] supports stable business models of financial institutions and contributes to overall efficiency gains in the financial system and the real economy.
Transparency	Transparency reduces information asymmetries and enables risks to be more accurately assessed and better priced.[31] It can further foster the creation of financial instruments with exposure to specific risks, completing markets and improving market participants' ability to manage risk.
Access to, and convenience of, financial services	Access to, and convenience of, financial services affects the financial inclusion of households and businesses, including SMEs. This is important for supporting sustainable economic growth and providing a diversification of exposure to investment risk.

[105]

[103] Basel Committee on Banking Supervision, Implications of fintech developments for banks and bank supervisors, Bank for International Settlements 2018, ISBN 978-92-9259-128-1 (online); https://www.bis.org/bcbs/publ/d431.pdf
[104] KPMG Regulation and supervision of fintech, Ever-expanding expectations, March 2019 https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/03/regulation-and-supervision-of-fintech.pdf
[105] William J. Baumol, John C. Panzar and Robert D. Willig (1982), "Contestable markets and the theory of industry structure," Rochester and New York: Saunders College Publishing/Harcourt Brace Jovanovich; Financial Stability Board (FSB), Financial Stability Implications from Fintech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf

Figure 13: Primary micro-financial risks posed by fintech to financial stability:

Potential risk	Link to financial stability
Financial sources	
Maturity mismatch	Occurs when a loan is extended for a longer period than the financing is contracted for, creating rollover risk. Systemic impacts could arise if the sector provides critical functions or services.
Liquidity mismatch	Arises when assets and liabilities have different liquidity characteristics, resulting in "run risk" and the need to liquidate quickly relatively illiquid assets (fire sale), disrupting markets.
Leverage	Higher leverage implies less equity available to absorb any losses materialising from the realisation of market, credit, or other risks. Potentially exposes systemically important counterparties to losses.
Operational sources	
Governance/ process control	Poor governance or process control can lead to increased risk of direct disruption in provision of financial services or critical infrastructure.
Cyber risks	The susceptibility of financial activity to cyber-attack is likely to be higher the more the systems of different institutions are connected.
Third-party reliance	Systemic risks may arise when systemically important institutions or markets are reliant on the same third parties.
Legal/ regulatory risk	Legal/regulatory risk may be greater when activities are evolving, or where regulatory arbitrage is sought. Uncertainty around liability for losses may be particularly damaging to confidence in the system.
Business risk of critical FMIs[32]	FMIs may be vulnerable to external factors that could adversely impact its balance sheet, and, consequently, lead to a withdrawal of financial services, impairing its function as a critical infrastructure.

[106]

Figure 14: Primary macro-financial risks posed by fintech to financial stability:

Potential risk	Link to financial stability
Contagion	Distress experienced by a single financial institution or sector can be transmitted to other institutions or sectors – owing either to direct exposures between them, or commonalities that lead to a general loss of confidence in those institutions or sectors.
Procyclicality	Market participants can act in a way that exacerbates the degree and impact of fluctuations in economic growth and market prices over the short and/or longer term. Examples include: the excess provision of credit by banks during upswings in the economy, and the extreme degree of deleveraging that tends to take place once the economy turns into a downswing and capital positions are threatened; the low pricing of risk in financial markets during good times, and the high risk premia demanded by investors during bad times.
Excess volatility	The financial system can overreact to news. This can lead to adverse outcomes if, for example, any such overreaction creates solvency or liquidity problems that can spiral through the financial system, impairing the functioning of asset and credit markets. This is most likely to occur when there is homogeneity of business models or common exposures.
Systemic importance	Entities that are viewed as being systemically important (or too highly connected to fail) may amplify risks through moral hazard. For example, they may be more inclined to take on excessive risk, given that the downside to doing so may be limited by the implicit guarantee of public support. Predatory pricing of services could also stifle competition ("the winner takes all"), reducing the likelihood of other service providers stepping in when the entity suffers distress.

[107]

[106] Financial Stability Board (FSB), Financial Stability Implications from Fintech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf

[107] Financial Stability Board (FSB), Financial Stability Implications from Fintech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf

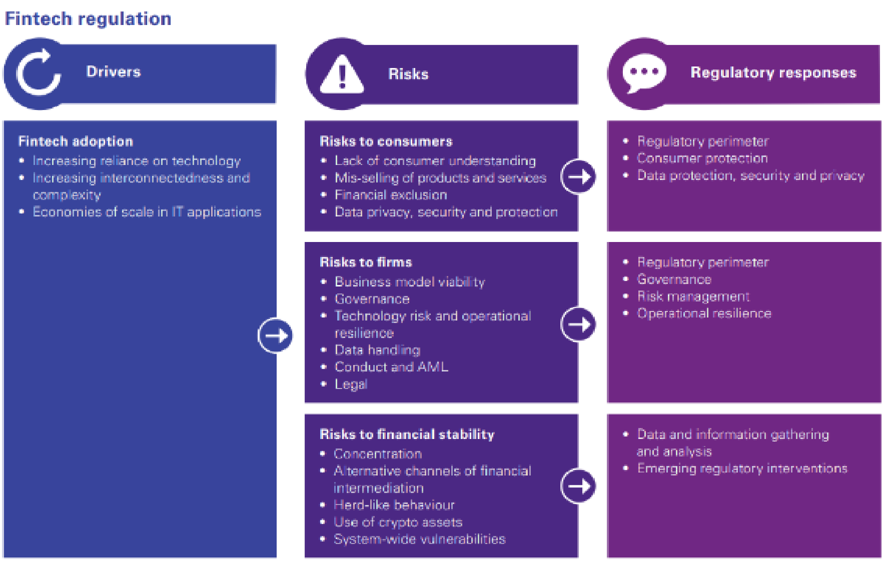
3.3. Balancing risks and opportunities: Initiatives roadmap for the fostering of the further and continuous development of Fintech

Financial Markets are very aware that the speed of innovative change due to fast-moving technology by necessity means that policymakers, regulators, supervisors and overseers must advance at pace with it. As fintech continues to evolve, so should regulation. Law and policy makers are required to catch up with the rapid pace of fintech development and its opportunities, while ensuring that fintech risks are well understood and mitigated. Regulators and relevant authorities whom actively engage in industry participation are leveraging technology and data to create a more networked system of regulation that functions more efficiently, with strong consumer protections. Coordination, communication and interactivity between relevant authorities governing fintech can assist with public policy and financial stability objectives.

The need to balance regulators' concerns and innovators' needs in fintech can be felt throughout the region, through the calling for legislative action (uniform rules and frameworks) needed to reform the laws and remove any gaps, ensuring an even pace of advancement of fintech and the law. In so doing, proper regard is to be had of the primary concerns of regulators and the key concerns of fintechs, including: strong consumer protection, market integrity; financial inclusion, financial safety, financial stability, competition, investor protection, market integrity; in addition to the promotion, continued advancement and innovation of technology.

Regulators must work closely with one-another and together with fintech firms, in order to have a strong network system of regulation that functions efficiently and to allow fintech firms to scale rapidly - thereby not stunting their growth, expansion or ability to function, due to restrictive legislative provisions or legislation gaps. Authorities should ideally harbor the necessary expertise, data and real-time insight into the manner in which fintech companies are interacting with consumers and their manner of operating in the financial marketplace. Authorities will be able to strengthen their oversight of the fintech industry by working together, ensuring transparency, eliminating redundancy and providing support in compliance, to ensure the proper working of the financial system, no matter the type of fintech activity.

Figure 15: Fintech Regulations – Drivers, risks and Regulatory Responses



3.3.1. Regulatory response to Fintech implications

Several governments, regulators and authorities with a notable interest in financial technology, approach emerging business practices, products, and services in three distinct, but complementary ways:[108]

1. Creating outreach programs to bring together regulators and market participants to clarify how innovation fits into the existing regulatory framework. Regulators should gather and collate industry input from fintech firms on how to streamline regulation within a country or territory, whilst maintaining strong consumer protections and accountability;
2. Changing the regulatory framework to encompass new products, practices, and providers; and
3. Suspending regulatory barriers to encourage and not stunt technological (and fintech in particular) innovation and growth.

Authorities have acted in response to the risks posed by and to fintechs in various ways, including: the development of international standards, the implementation of increasingly detailed and prescriptive national rules and regulatory guidelines; and modifications in supervisory priorities and practices. These initiatives cover a wide range of areas, including: technology risk, cyber security and operational resilience (more generally); data privacy; consumer protection; organisations' corporate governance and risk governance; as well as necessary amendments and adaptation of anti-money laundering (AML) and countering of financing of terrorism (CFT) requirements and laws. The emerging international standards have mostly taken the form of high-level principles, leaving national implementation (both regulation and supervision) to deviate considerably across jurisdictions and across different financial services sectors. Effective regulation can promote positive outcomes and maintain a healthy, safe financial market.

Fintech regulation, by its nature, is activities-based. A Regulator is to prudently understand the underlying activity of a fintech entity and its role, with due regard of the prevailing, existing laws and regulations which govern such activity, or the territory in which the fintech is operated.

In guidance to Governments and authorities alike, the International Monetary Fund (IMF) and the World Bank Group (WBG), on 11 October 2018, launched the Bali Fintech Agenda (BFA), documenting a set of twelve (12) policy elements aimed at helping member countries to harness the benefits and opportunities of rapid advances in financial technology that are transforming the provision of banking services, whilst simultaneously managing the inherent risks posed thereby. The Agenda proposes a framework of high-level issues that countries should consider in their own domestic policy discussions"[109] when balancing opportunities and risks, documented hereinunder:

1. Embrace the opportunities of Fintech;
2. Enable New Technologies to Enhance Financial Service Provision;
3. Reinforce Competition and Commitment to Open, Free, and Contestable Markets;
4. Foster Fintech to Promote Financial Inclusion and Develop Financial Markets;
5. Monitor Developments Closely to Deepen Understanding of Evolving Financial Systems;
6. Adapt Regulatory Framework and Supervisory Practices for Orderly Development and Stability of the Financial System;
7. Safeguard the Integrity of Financial Systems;
8. Modernize Legal Frameworks to Provide an Enabling Legal Landscape;
9. Ensure the Stability of Monetary and Financial Systems;
10. Develop Robust Financial and Data Infrastructure to Sustain Fintech Benefits;
11. Encourage International Coordination and Cooperation, and Information Sharing;

[108] https://www.pewtrusts.org/fr/about/news-room/press-releases-and-statements/2018/08/02/pew-report-financial-innovation-calls-for-balanced-regulation

[109] https://www.imf.org/~/media/Files/Publications/PP/2018/pp101118-bali-fintech-agenda.ashx.

12. Enhance Collective Surveillance and Assessment of the Financial Sector[110]

3.3.2. Coordinating authority and regulatory efforts:

A centralized approach to fintech regulatory frameworks of some countries, tend to encourage certain types of financial innovation, such as establishing their financial systems as global hubs for technology, enhancing market infrastructure, facilitating regulatory compliance and improving consumer outcomes. Such goals provide a basis for nationwide regulatory strategy regarding emerging technological products and services of fintechs. The action required to achieve these goals are often coordinated across government agencies in accordance with that strategy.

3.3.3. Guidelines in the fostering of the further and continuous development of Fintech

Areas where international bodies and national authorities should seek to increase their awareness of Fintech when undertaking regular risk assessment and development of regulatory frameworks include:[111]

1. Managing operational risks from third-party service providers.
2. Mitigating cyber risks.
3. Monitoring macro-financial risks.
4. Cross-border legal issues and regulatory arrangements.
5. Governance and disclosure frameworks for big data analytics.
6. Assessing the regulatory perimeter and updating it on a timely basis.
7. Shared learning with a diverse set of public and private sector parties, local or international.
8. Further developing open lines of communication across relevant authorities.
9. Building staff capacity in new areas of required expertise.
10. Ensure that regulations do not create barriers that can unduly prevent or obstruct fintech operation in the general financial sector ecosystem, as well as in an organisation's local eco-system.
11. Studying alternative configurations of digital currencies.
12. Offering supportive programs to fintechs to assist their growth and success in contributing to fintech as a whole, in the aim of supporting the goals discussed in this report.
13. By introducing innovative approaches for regulating fintechs, such as tailored regulation, creating the necessary flexibility for proper and adequate governance, without obstructing such fintech unnecessarily so.
14. Ensure that these regulations, comply with Shariah with regards Islamic digital finance (fintech) businesses and products.

These guidelines are discussed in greater detail in Annex (3).

In furtherance to the above recommendations, depending on the national policy priorities, the fintech vision and strategy objectives, regulators can harness a range of solutions as they deem appropriate depending on the context and available resources on their path to the digital financial transformation, namely:

1. Regulatory Sandboxes (discussed *supra*);
2. Cloud Computing Regulations, allowing remote server storage, processing, and management of data over the internet. This does not only foster innovation, but also allows fintechs that mostly operate in cloud the ability to scale down their operational costs and be more agile in their operations, but always with due regard of customer protection and data protection provisions.

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[110] http://pubdocs.worldbank.org/en/361051561641115477/pdf/Fintech-executive-summary.pdf

[111] Financial Stability Board (FSB), Financial Stability Implications from Fintech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf

3. Issuing Digital KYC (Know Your Customer) regulations, which helps improving customers' onboarding process into fintech solutions by eliminating the paper-based applications and physical, time consuming interactions;
4. In introducing Model Law on Electronic Transferable Records (MLETR), this law allows legal use of electronic transferable records and documents both locally as well as across borders. This gives the Fintech the flexibility in dealing with electronic documents and records;
5. Issuing Personal Data Protection law that protects customers' data in term of how their data can be collected, processed, stored, transferred and destroyed. This imposes various obligations on fintechs to ensure that their customers' personal data is stored securely and processed fairly. Such laws ensure the sustainability and reliability of these innovations as well as avoiding any potential risks.
6. Issuing Crowdfunding regulations, which is a fintech specific regulation tailored for different types of crowdfunding platforms. This regulation should provide a legal framework for the crowd to finance a certain company or buy equity (it differs based on the type of the crowdfunding platform).
7. Introducing Open Banking regulations that allows banks to open their customer data through APIs to third parties, such as fintechs, which eventually embrace innovation and allow Fintechs to create better financial products and services.
8. Allowing Crypto-Asset Platform Operators to operate through fintech specific regulations. This regulation license and supervise crypto-asset services offered by these operators.
9. Issuing Digital Financial Advice (Robo-advice) regulations, which allows the usage of technology to provide digital financial advice. This regulation is also one of fintech specific regulations that regulates WealthTech (Fintechs that provide digital financial advice and wealth management).
10. Harness international partnerships for regulatory and supervisory exchange and cooperation in Fintech-related issues as to enable cross-border expansion of Fintech (e.g. Global Financial Innovation Network; GFIN).[112]

By means of regulation of fintechs, consumers need to know their rights and responsibilities. They need to be alert to the financial risks that they are or may be exposed to; and the legal remedies available to them when transactions go askew. Fintechs need clear rules describing their obligations, rights and liability as they develop new fintech products and contract with consumers for products or services.[113]

Policy and lawmakers need to understand the impact of applicable laws and rules on consumers and mobile payment providers so they can evaluate whether they are adequate, and if not, what new provisions are needed.[114]

Third-party supervision: Where nonbank financial service providers collaborate with a banking institution to offer a new product or service, regulators can bring nonbank financial providers, or third parties (and their innovative products) under the existing regulatory structure for banks through a process called third-party supervision. This system expands regulators' supervisory responsibility and can help control the effects of nonbank innovations by subjecting them to the same scrutiny as bank products.[115] Notably: "*Bank compliance with consumer protection laws is enhanced by the supervisory relationship with regulators, which nonbanks—even though subject to many of the same laws—do not have. Without regular examinations, nonbanks that have consumer protection lapses are usually dealt with only after some harm has already occurred.*" Rob Nichols, president and CEO American Bankers Association, February 18, 2016. This is evident with regard to certain banking agents, where the general powers of such supervisors are usually based on banking or other similar laws and include the prerogative to require regular reporting from banks and impose corrective measures and sanctions on banks that are either financially

[112] http://dfsa.ae/Documents/Fintech/GFIN---Webpage-content---28012019-FINAL.pdf
[113] Financial Stability Board (FSB), Financial Stability Implications from Fintech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf
[114] http://www.pewtrusts.org/~/media/assets/2016/02/legal_framework_of_mobile_payments_white_paper.pdf
[115] http://www.pewtrusts.org/~/media/assets/2016/02/legal_framework_of_mobile_payments_white_paper.pdf

weak or engage in practices that hurt consumers or the integrity or stability of the financial sector. According to well-established international standards (BIS 2005), the supervisor's powers extend to outsourcing arrangements.[116]

In regulating emerging business practices, while enabling market access is to allow companies to experiment with products in a modified regulatory framework, either in a controlled testing environment or through regulatory relief whereby agencies suspend certain regulations for novel business practices, allowing regulators to observe a product's effect on consumers and engage with new market participants regarding products that do not fit neatly into the existing regulatory structure.[117] This can be facilitated through the development and use of regulatory sandboxes. Sandboxes can be highly valuable to financial services institutions in three important ways: they reduce the time and cost of getting innovation to market, they provide innovators with greater access to finance by reducing risks of client adoption and increasing returns on capital investment; and they enable innovators to work with regulators to ensure new development of technologies and business models aligns with regulations.[118] Sandboxes are, however, not intended to circumvent legal and regulatory requirements and as such, regulatory frameworks governing sandboxes should include a "novelty standard" to ensure that tested products do not replicate any already offered in the marketplace, being significantly different to existing offerings – in other words, truly innovative in nature. The sandbox regulations should further require disclosures to alert consumers that they are using a product that operates in a testing environment, with necessary safeguards to protect consumers' funds and information if the company fails, and further include dispute resolution procedures.

To conclude, financial innovation and balancing the regulatory pace-keeping requirement related thereto is attainable in three ways:[119]

1. creating outreach programs to help fintechs navigate the regulatory landscape and support transparency about new products and services;
2. changing the regulatory framework to respond to the effects of emerging technologies; and
3. in suspending the barriers facing firms entering the market to promote innovation.

3.4. Monitoring and evaluation:

Fintech Benchmarking through monitoring and evaluation help fintechs understand how they are performing against their peers (in regional or global markets), and further to help organisations gain understanding of the benefit of fintechs – in example: customer acquisition growth, cost reduction *etcetera*. Notably, it is crucial to work with accurate and comparable data, to make comparisons across organisations, sectors, and markets. The right data standards enable market actors to demonstrate, track, and measure their intent to be inclusive (through business metrics or growing demand)[120] and how that intent translates to positive social and economic impact over time[121]

Performance metrics are suggested to include:

1. At the **top** tier of the scorecard: financial metrics, customer metrics, shareholder value-add, and revenue generation.

[116] https://www.cgap.org/sites/default/files/Working-Paper-Supervision-of-Banks-and-Nonbanks-Operating-through-Agents-August-2015.pdf
[117] http://www.pewtrusts.org/~/media/assets/2016/02/legal_framework_of_mobile_payments_white_paper.pdf
[118] https://www.ey.com/en_gl/financial-services-emeia/regulatory-sandboxes-facilitate-optimal-regulation-in-asia-pacific
[119] http://www.pewtrusts.org/~/media/assets/2016/02/legal_framework_of_mobile_payments_white_paper.pdf
[120] https://nextbillion.net/data-standards-inclusive-fintech/
[121] https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/promise-of-impact-investing

2. At the **middle** part of the scorecard: digital transformation, used to drive compensation for an organisation.
3. At the **bottom** tier: the strategic initiatives.

Also, in the context of measuring Digital Traction: Companies need to measure and monitor a combination of essentially behavioral metrics, such as frequency of use, customer engagement and number of users, through which they can communicate both the popularity and the momentum in market adoption of a product or service. Key actions (indicated in Figure 15 below) are suggested to help organisations to identify and measure the metrics that are most relevant to their business.[122]

Figure 16: Digital Traction Measurement

An evaluation framework for fintechs: Creating and using strong evaluation frameworks are an important part of ensuring that any fintech partnerships are well positioned to achieve specific outcomes. Leading companies use frameworks aligned to their business strategy, specific pain points and desired outcomes, in addition to the specific characteristics of the fintechs being evaluated, in example: the quality of the fintech

[122] http://reports.weforum.org/digital-transformation/how-to-measure-success-in-the-digital-age/

company's management team, the alignment of its strategic objectives with your own, its technology capacity, the scalability of technology solutions, potential integration challenges, and cultural differences.[123]

Data Standards and potential KPIs for benchmarking the performance of inclusive fintechs[124] are discussed in greater detail in Annex (4).

[123] https://assets.kpmg/content/dam/kpmg/ch/pdf/global-fintech-benchmarking-report.pdf
[124] https://www.themix.org/data-standards

Figure 17: Regulation Indicators – Comparison Table (1/2)

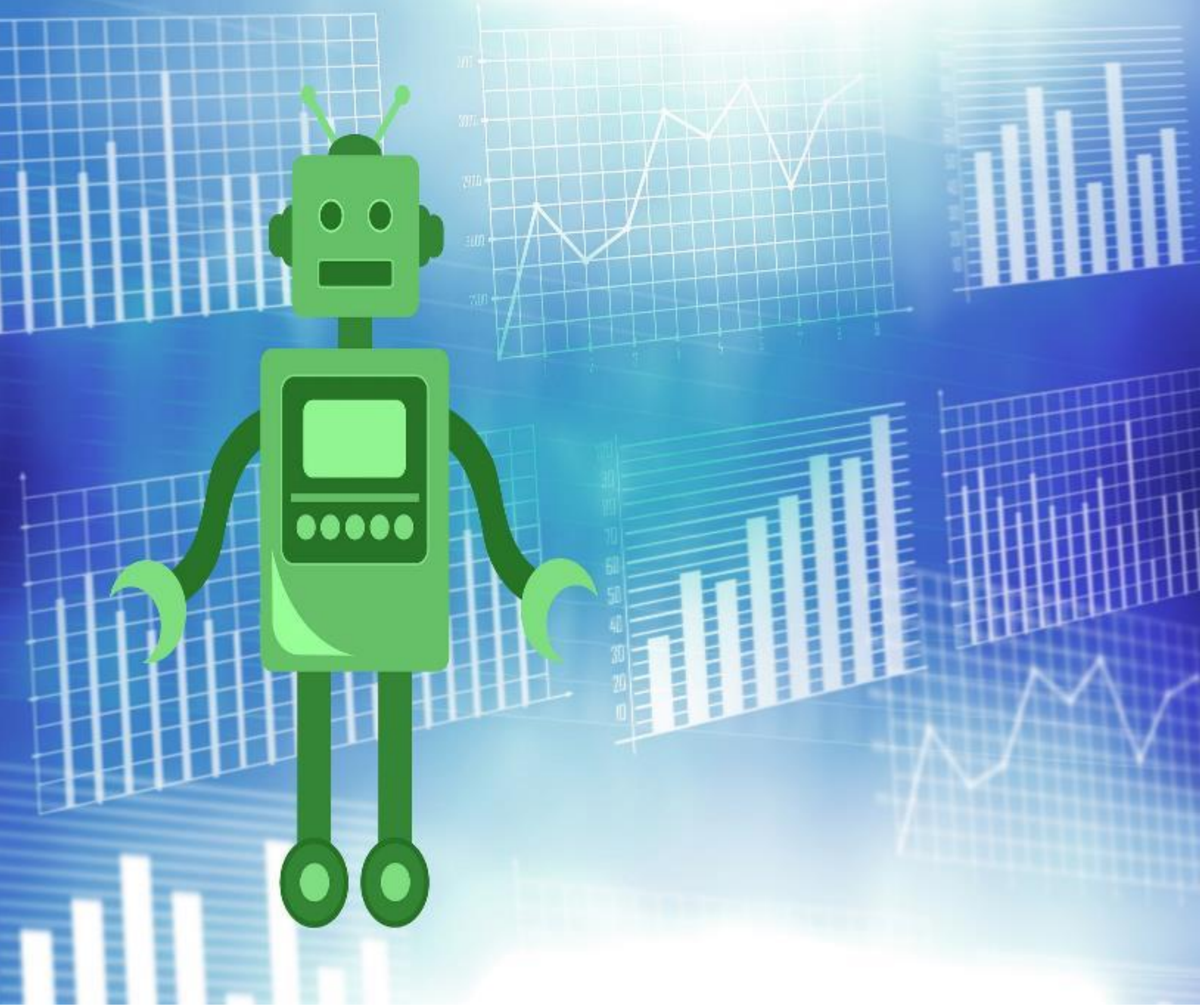
Color Spread	Country	Enforcing contracts - quality of the judicial administration index (0-18 = favorable) Weight: 14.3 %	Quality of judicial processes index (0-18 = favorable) Weight: 14.3 %	Legal and political environment score (0 = worst; 10 = best) Weight: 14.3 %	Laws relating to ICTs (1 = not developed at all; 7 = extremely well developed) Weight: 14.3 %
	Singapore	15.5	15.5	8.44	5.72
	Sweden	12	12	8.55	5.07
	Lithuania	15	15	6.38	4.88
	United Kingdom	15	15	7.98	5.54
	Switzerland	10.5	10.5	8.74	5.12
	Estonia	13.5	13.5	7.34	5.9
	Australia	15.5	15.5	8.23	4.75
	United Arab Emirates	14	14	7.1	5.73
	Netherlands	7	7	8.43	5.17
	Canada	11	11	8.48	5.14
	United States	13.8	13.8	7.36	5.27
	Hungary	12.5	12.5	5.35	4.21
	Kazakhstan	16	16	4.33	4.55
	France	12	12	6.96	5.11
	Bahrain	2.5	3.5	5.32	4.53
	Saudi Arabia	10.5	11.5	5.68	4.71
	Germany	10.5	10.5	7.78	4.85
	India	10.5	10.5	4.58	4.18
	Hong Kong (SAR)	10	10	7.98	5.09

Source: EY (2019).

Figure 18: Regulation Indicators – Comparison Table (2/2)

Color Spread	Country	Number of local regulators (0 = 1 regulator, 1 = 2+ regulators) Weight: 14.3 %	Starting a business score Weight: 14.3 %	Operational Regulatory Sandbox (0=No; 1=Yes) Weight: 14.3 %	Composite Value
	Singapore	0	98.23	1	96.43
	Sweden	0	94.69	1	80.9
	Lithuania	0	93.18	1	77.71
	United Kingdom	1	94.58	1	75.19
	Switzerland	0	88.41	1	73.69
	Estonia	0	95.25	0	73.33
	Australia	1	96.47	1	72.03
	United Arab Emirates	1	94.06	1	71.31
	Netherlands	0	94.31	1	70.04
	Canada	1	98.23	1	67.55
	United States	1	91.23	1	65.66
	Hungary	0	87.89	1	59.14
	Kazakhstan	1	92.96	1	56.07
	France	1	93.27	0	46.39
	Bahrain	0	89.57	1	42.16
	Saudi Arabia	0	80.07	0	40.67
	Germany	1	83.58	0	35.97
	India	1	80.96	0	17.98
	Hong Kong (SAR)				

Source: EY (2019).



Funding Pillar

4. Funding Fintech Industry

4.1. Fintech attract investment in the region

As mentioned in the introduction, Fintech leads other industries in the region with most deals completed between 2018 until H1 2019, however, Fintech comes fourth in terms of amount invested (USD 74 million) during the same period.

In these stages, mainly from pre-seed until Series A, Fintechs are discovering their go-to-market strategy, finetuning their operation and business model, and putting together the necessary team.

In the coming years, investor focus should shift towards scaling strong Fintechs to establish a regional and global presence through post-Series A investments which are naturally less frequent and larger in investment size. Ultimately this will show up as slowdown in number of deals and growth in total invested capital.

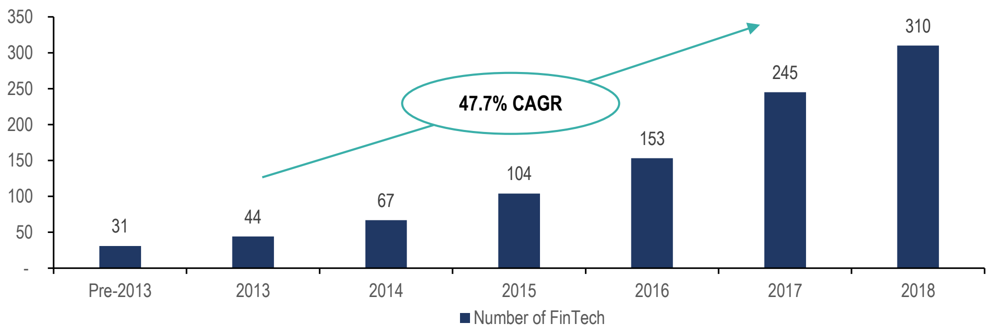
In the long run, the Fintech startups that received early stage investment will mature and require Series A investment rounds. Therefore, it is expected that demand for growth investment will grow in the near future as existing Fintech startups continue to develop across the MENA region.

4.2.Regional investment fuels growth in Fintech

As with global trends, the growth in the number of Fintech startups has been steep in the Arab region. The growth was also stimulated by regional initiatives to support the sector, including introduction of Fintech regulations and establishment of regulatory sandboxes across a number of Arab countries.

The number of Fintech startups in the MENA between 2013 and 2018 grew from 44 to 310 at a CAGR of 47.7%, a faster rate than other industries in the region. Governments and banks understand the importance of Fintech startups and the efficiency of modernization of processes. The ecosystem has improved with the availability of sandboxes and other incentives, which allows Fintech to grow and find success by finding tech solutions to identifiable problems.

Figure 19: Number of Fintech startups in the MENA, pre-2013A – 2018A

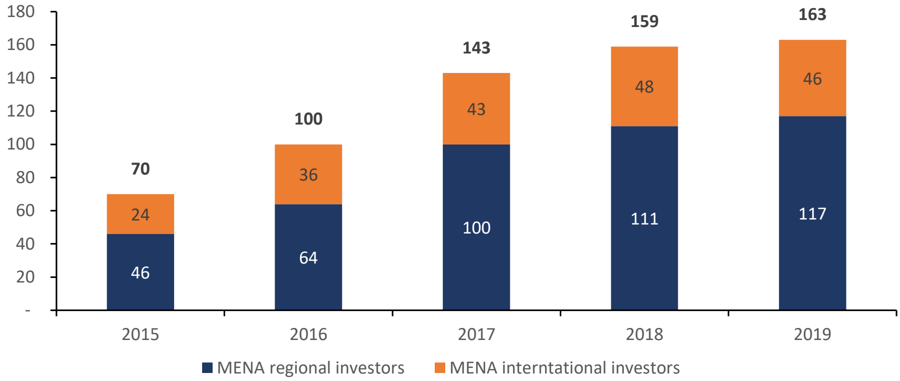


Source: MENA Fintech Venture Report, 2019 Edition, MAGNiTT and Abu Dhabi Global Market (ADGM)

The private sector has raised more capital for Fintech startups as more investors are making investments in startups based in the MENA region. Between 2015 and H1 2019, the number of investors in Fintech startups has increased from 70 to 163.

The supply of funds from regional compared to international investors is higher in Fintech start-ups when compared to other industries. One reason may be that more established global Fintech hubs across the world have produced highly innovative Fintech solutions which are more attractive to international investment funds.

Figure 20: Investor breakdown, 2015A – 2019 YTD



Source: MENA Fintech Venture Report, 2019 Edition, MAGNiTT and Abu Dhabi Global Market (ADGM)

4.3. Global practices in unleashing the investment capital[125]

For Fintechs, access to capital often depends on a number of factors including the stage of product maturity, background of founders, company location, and target customer segment. To ease some of the capital challenges, governments around the globe are supporting start-ups by providing access to risk and growth capital. Funding support options include direct funds, fund-of-funds, or matching schemes.

Moreover, policymakers are also taking different initiatives to improve access to private capital. These come in the form of tax incentives, enhancing collaboration (e.g. regulatory sandboxing), or sponsoring outreach and thought leadership publications to provide investors with context of the ecosystem.

Capital gains tax revision to suit venture capital investments.

- In Montreal, Quebec, investors that realize a capital gain on the sale of shares of a Canadian-controlled private corporation may be entitled to an income tax break.

Income tax exemptions for startups and their employees to reduce running cost.

- As part of Quebec's Tax Credit for the Development of e-Business (TCDE), corporations that integrate into their business processes technologically innovative activities sector receive income and employee salary and wage breaks.

Allowing the carry-forward of tax losses:

- In the U.K., the Seed Enterprise Investment Scheme (SEIS) provides tax relief to investors with accrued losses, up to 50% of the investment amount through income tax relief and others.

Encouraging private investment

- Angel CoFund offers a matching scheme, investing USD 130k-1.3mn alongside business angel investors.
- The government-backed British Business Bank, which provides equity investment and business loans,

Supporting innovation

- In June 2015, MAS committed USD 165mn five years for the Financial Sector and Innovation scheme. In 2017, it announced the launch of a USD 20mn Artificial Intelligence and Data Analytics Grant under this scheme.
- An active and Fintech-focused regulator (MAS) supporting start-ups with a USD 130mn dedicated fund and initiatives, including incubators and funding schemes, such as Startup SG

Encouraging private investment

- Enterprise Singapore, a government agency supporting enterprise development, commits to a 3-1 seed investment fund match as part of the Startup SG Founder scheme.

[125] Source: EY (2019)

Bank-led investing:

- Banks in ASEAN invest in Fintech via specially created funds such as Siam Commercial Bank's Beacon Fund and Mandiri Capital.
- Others such as UOB invest through specially created entities such as UOB Venture Management.

Bank-led venture financing:

- The introduction of venture debt in ASEAN in recent years has helped Fintech start-ups with their financing needs especially considering that venture debt minimizes the dilution of equity.
- InnoVen, a joint venture between UOB and Temasek with a commitment of USD 500 million over five years seeks to venture debt for high growth innovative tech start-ups throughout Asia.

Mitigating regulatory uncertainty (and risk):

- A technology innovation lab, Fintech and Innovation Group (FTIG), tests new solutions and is responsible for creating strategies and regulatory policies regarding technology innovation.

Increasing outreach and provide constant stream of ecosystem updates to attract investors:

- Singapore hosts its Singapore Fintech Festival annually to connect its local innovation firms with investors from around the world
- Contracting with consultants and other publishing entities to provide periodic updates on the Fintech ecosystem, reducing investor informational gap and increasing ecosystem awareness.

Source: EY (2019)

4.4. Arab Countries' initiatives in unleashing investment capital[126]

Egypt's Fintech Fund of Funds (FoF)

- Funding in Egypt is available, yet disbursements remain marginal due to the limited appetite to invest in Fintech Startups. Among other factors, weak business model, lack of affordable skilled talent, and general impatience of capital are the key issues restraining capital release. To address that, a larger pipeline of early stage local Fintechs is required along with an overall tax incentive scheme to help catalyze talent acquisition and retention by Egyptian Fintechs.
- Consequently, as part of the overall Innovation & Fintech Strategy formulated and adopted by the Central Bank of Egypt (CBE), the CBE is supporting a new Investment Platform in collaboration with a number of local and international institutional partners to mobilize funding for VC Funds, incubators and accelerators focusing on Tech and Fintech start-ups.
- The new Investment Platform ("Innovation Fund") shall fund start-ups both directly through co-investments and indirectly through the selected VC funds and other vehicles. The total funding to be mobilized by the new platform is expected to start with USD 50-100 million upon launch, reaching to USD 300-400 million over a period of 5 years.[i] The CBE has committed up to EGP 1 billion (c. USD 62.05 million) towards the Innovation Platform along with major institutions focusing on Fintech investments. [ii]
- The Innovation Fund shall be independently managed under the supervision of its Board of Directors and shall have ongoing collaboration with Egypt's new Fintech Hub as well as regulators to ensure addressing regulation uncertainties facing the ecosystem and promote new developments going forward.

[i] The expected scale of fund mobilized is based on assumptions relating to other co-investors with CBE, capacity of recipient VC Funds & Vehicles as well as market conditions. The potential funding shall not be constructed as an obligation or commitment on CBE.
[ii] An approximated number according to current exchange rates.

[126] Source: EY (2019)

4.5. Potential challenges to Fintech financing and funding

- Scarcity of attractive investment targets with scalability, innovative business models, differentiation of product or service, market size, experience in previous ventures and promising financial situation and performance.
- Lack of sufficient data on the market and unclear regulations, which increase the investment risk.
- Limited experience of Fintechs and investors in business model development, cost-effective testing of the business model, development of the minimum viable product, agile methodologies and financial planning.
- Limited availability of financial resources to fund Fintechs at the different stages of investment (eg. early-stage investors, growth capital / later-stage).
- VC and incubator landscape is at an early stage of development.
- Government and the large established financial institutions lack commitment to provide financial support.
- Government and authorities are not collaborative and do not offer tax incentives and other benefits for startups and innovation / R&D.
- Limited accelerators and incubators that bolster startup landscape through providing financial and non-financial support.
- Lack of mature landscape a/ network of accelerators and business angels.
- Lack of senior entrepreneurs within the financial industry that are able to finance the early stage Fintechs without Government and institutional support.
- Limited activity in the financial services market through large financial corporations and Fintech conferences, associations and initiatives.
- High costs of starting a venture and limited entrepreneurial spirit.
- Reputation regarding legal, financial and political stability, and changes in labor laws restricting employment condition for foreigners.
- High rent, insurance, salaries and cost of living leading to disadvantageous funding burn-rate.

Source: EY (2019)

4.6. Building cross border partnerships to access capital

UK – China case study

- As per EY and HM Government report "China and UK Fintech, Unlocking opportunity":
  - Access to capital in the UK appears to be strongest for early-stage investment, where later-stage growth capital appears constrained. As per EY and HM Treasury's report "On the cutting edge", the UK has weaker growth financing partly due to the generally low risk appetite exhibited by the UK venture funds, which tend to represent institutional money rather than the reinvested proceeds of successful entrepreneurs.
  - In China, private funding has also substantially supported early-stage and growth investments, with a large number of funds competing to invest in a limited pool of financially viable ideas.
- As per EY, there is opportunity and appetite for Chinese foreign investment to bolster access to capital for UK Fintechs, particularly at growth (i.e., £5m-£100m) and pre-IPO stages (i.e., £100m+) where current access to capital appears limited relative to early-stage investment. This is expected to have a potentially strong benefit to the UK Fintech ecosystem, whereby further growth capital could assist UK-based Fintechs to more successfully scale-up.
  - Moreover, Chinese Fintechs that are seeking to diversify their revenue streams and reduce their country risk could provide Fintech solutions (primarily payments) to Chinese visitors coming to the UK, leveraging the UK's supportive regulatory environment, and participating in the UK's Open Banking.
  - On the other hand, China presents a market opportunity for UK Fintechs who have strong capabilities in blockchain, RegTech and Foreign Exchange, areas that are still relatively nascent in China.

Source: EY (2019)

4.7. How startups raise investment

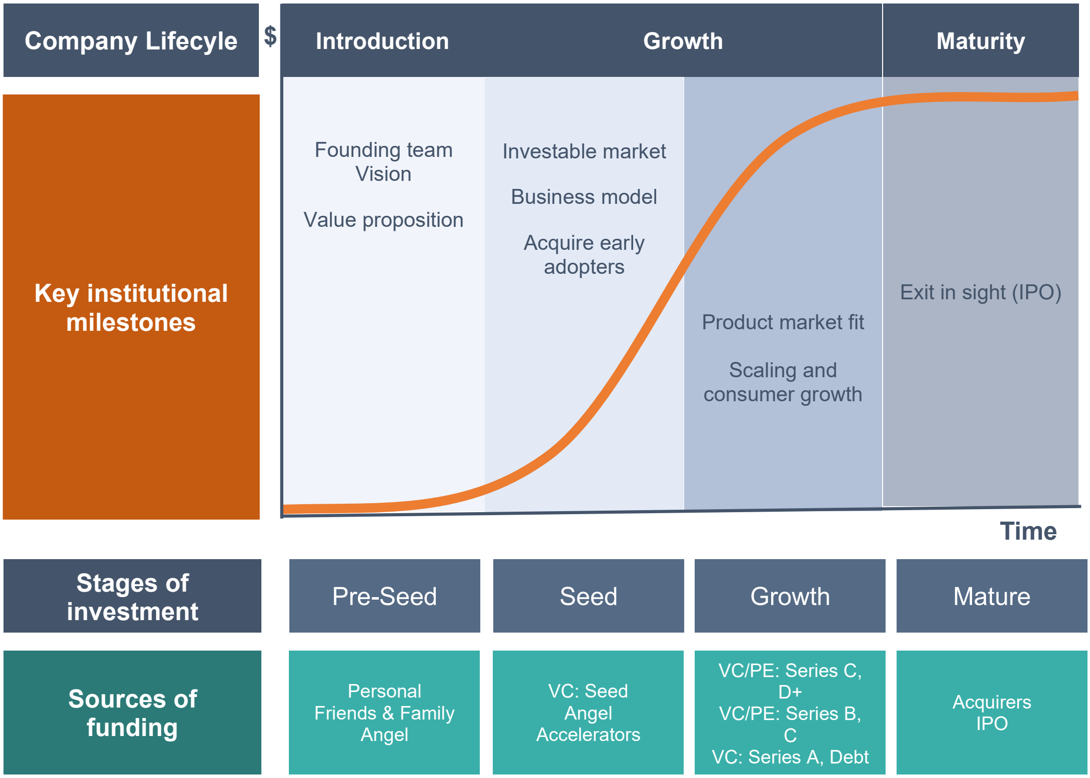
Startups have been witnessing a massive year-on-year increase in investment. Nevertheless, throughout the years, persistent trends in the market reshaped the way startups raise investment. The continuous increase in investment and the competitive nature of the marketplace resulted in a fundraising inflation, which introduced the pre-seed round.

Figure 21: Stages of Investment

Pre-seed	At pre-seed, startups raise a limited amount of funding to achieve early milestones such as hiring key technology recruits and develop a prototype both of which are necessary for Fintech startups to attract seed investments
Seed	Seed investments are essentially the go-to-market funds with which the founding team formulate a strategy to attract customers and aim to prove a product-market fit. In the region, VCs and angel investors typically occupy this investment round hoping to secure a sizeable share in startups and in the case of VCs assist in insuring its growth.
Growth	Growth stages are typically signified in Series A and Series B investments where revenues are growing, and the startup team is expected to showcase a sustainable path to growth in the business both from a usership and a revenue perspective. This would require startups to access new channels to target potential users, new sales and marketing approaches, and a strong understanding of their typical user. VCs and angel investors also occupy this space in the Arab World, however Series B is relatively lacking compared to Series A.
Mature	Investments at this stage are focused on expansion plans such as moving to new markets. Typically, at this stage, the startup has grown to a sustainable size and can constantly generate revenues, essentially de-risked. This allows new types of investors such as financial institutions to enter the investor pool.

Source: EY (2019)

Figure 22: Sources and uses of funds through the company lifecycle



Source: EY (2019)

4.8. Health of a Fintech

Figure 23: Key metrics for main building blocks of a fintech company health

Perspective	Key metrics
Financial: Fintech financial performance and the use of financial resources.	• NPV - Are you generating enough revenue on a per account basis? • CAC - How much does it cost you to acquire new customers? • Operating Profit - Simple really, is your Fintech profitable / sustainable? • NY - Is capital invested generating enough returns (Net Yield)? • Money in the bank (cashflow) - How much capital have you left to stay open for business?
Customer: Customer engagement metrics are critical for investment (and success).	• Customer satisfaction with your product • Positive ratings on third party sites • What is the activation rate of new customers? • Are you keeping your customers? • Active users (metrics to show customer engagement frequency) • Does your Fintech improve the financial health of your
Internal processes: There is always room for more efficient process improvement.	• Is your Fintech maintaining quality as your business scales? • Can your business scale with current operations team? How many new FTEs required? • Red projects - how long have issues been labeled critical? Recurring? Plan of action? • Compliance - Have you established a compliance unit and working closely with regulator? This is critical to reducing risk
Learning and growth	• Voice of the employee? Your team satisfaction. Are they on board with the vision? • Talent retention - Are employees staying or going? • Do your teams refer new employees to your Fintech? • Open roles - Can you attract the right talent in a swift manner?

Source: Token Inc. (2019)

Figure 24: Funding Indicators – Comparison Table (1/2)

Color Spread	Country	Depth of capital market score Weight: 10 %	M&A market score Weight: 10 %	IPOs and public issuing activity score Weight: 10 %	Debt and credit market score Weight: 10 %	Taxation score Weight: 10 %	Quality of legal enforcement score Weight: 10 %	VC and PE Innovation score Weight: 10 %
	United States	100	100	100	100	100	100	100
	Germany	84.4	71.7	71	97	108.7	100.8	93.5
	United Kingdom	91.7	85.4	87.1	90	116.8	103.7	92.9
	Singapore	84.2	68.2	70.6	95	108.4	102.3	85.1
	Hong Kong (SAR)	90.5	75.3	86.1	92	105.3	105.9	76.4
	Canada	92.7	77.9	94.5	94.8	106.3	104.1	78.4
	Sweden	79.7	65.2	70.6	82.5	124.1	107.3	100
	Australia	88.8	78.3	89.7	91.3	109.6	100.8	76.1
	Netherlands	79.2	65.8	64.2	84.7	116.5	111.6	98
	Switzerland	79.5	55.5	56.5	86.5	108.7	109.2	109.4
	France	82	81.1	73.9	78.6	108.4	89.9	84.9
	India	78.1	71.2	80.2	85.3	101.3	68	47.5
	Estonia	45	32.7	5.9	88.2	104	90.5	73.4
	Bahrain	55.4	24.3	23.6	92.2	100.9	82	42.8
	United Arab Emirates	66.6	48.9	29.4	96.3	27.5	88.4	68.2
	Saudi Arabia	69.7	42.8	53.4	84.1	92.1	77.3	45.3
	Lithuania	44.7	34.3	5.6	86.5	101.2	69.7	59.5
	Hungary	46.6	34.5	9	75.6	101.5	54.8	47.1
	Kazakhstan	46.6	36	8.8	74.4	95.7	55.9	35.5

Source: EY (2019)

Figure 25: Funding Indicators – Comparison Table (2/2)

Color Spread	Country	Simplicity of closing a business score Weight: 10 %	Ease of access to loans (1 = very difficult; 7 = very easy) Weight: 10 %	Venture capital availability (1 = very difficult; 7 = very easy) Weight: 10 %	Composite Value
	United States	100	5.54	5.6	91.65
	Germany	99.3	5.15	5.01	79.19
	United Kingdom	103.8	4.43	4.41	78.47
	Singapore	107.9	5.45	4.68	78.27
	Hong Kong (SAR)	106.6	5.08	4.34	76.71
	Canada	105.5	4.92	3.69	76.49
	Sweden	92	5.08	4.51	74.58
	Australia	101.5	5.01	3.55	73.55
	Netherlands	106.5	4.27	4.08	70.36
	Switzerland	72.7	4.94	4.15	68.32
	France	90.9	4.08	3.71	61.25
	India	48.9	4.45	4.32	52.24
	Estonia	67.6	4.66	3.81	44.54
	Bahrain	71.6	4.7	3.83	43.3
	United Arab Emirates	54.5	5.17	4.42	42.6
	Saudi Arabia	17.9	3.93	3.78	36.85
	Lithuania	74.5	4.09	3.03	34.27
	Hungary	73.2	4.28	3.33	28.84
	Kazakhstan	72.7	3.44	2.7	20.57

Source: EY (2019)

Collaboration and Governance Pillar

5. Collaboration and Governance

5.1. Rationale for Collaboration

The surge of Fintech has disrupted the financial services and banking industry during recent years. Considering the fintech high adoption rate mentioned earlier, regulators try to balance between governing the industry while supporting market innovation and collaboration.

Developing a proper Fintech ecosystem requires mutual cooperation among stakeholders, including customers, financial institutions, Fintech start-ups, investors, regulators and educational institutions, which will in turn enhance better delivery of financial services. The heart of this collaboration should exist among regulators, banks & financial institutions and fintech companies and start-ups.

Since financial technology (Fintech) is transforming the financial services industry. This has been enabled through Distributed Ledger Technology (DLT) techniques, the potential of open Application Programming Interfaces (APIs), combined with the ability to process and analyze increasing amounts of consumer data with big data analysis, artificial intelligence, machine learning, the automation benefits of robotic process automation (RPA), as well as chatbots. Which all created greater potential for agility, efficiency, and accuracy. Then, both traditional financial institutions and fintech companies reached a conclusion that collaboration may be the best track to growth.

5.2. The Banks Fintechs Partnership:

Banks as traditional institutions are licensed, highly regulated and play significant role in the economy. While Fintech companies, which are focusing on some of the banks' functionalities such as mobile payments, digital wallet services, peer to peer lending, as well as robo-advisory, have much freedom to grow and innovate. Then, the functionality gap between banks and fintech companies is narrowing and traditional banks have started to collaborate with fintech companies.

This would imply creating greater value for both type of organizations, from one hand, banks provide their customers with innovation, customised and convenient product /services. From the other hand, fintech companies are exposed to more customers, better established processes including the regulatory and compliance aspects, as well as larger opportunities for financing capital[127].

The rationale for any strong collaboration is to establish a synergy that can creates stronger entity than each individual organization could bring on their own. Fintech companies features different mindset based on innovation, agility (speed to adjust), consumer-centric perspective and an infrastructure built for digital. These are competitive advantages that most traditional organizations don't possess.

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[127] AMEX (2019). Regulatory Oversight Uncertain Amid Growing Fintech Partnerships with Banks.

On the other hand, most fintech firms lack the ability to scale adequately due to brand recognition and trust. They also usually have challenges to access capital, lack knowledge of compliance and regulations and a well-established distribution network. Which all are strengths that traditional banking organizations are already mastering128.

According to the World Fintech Report in 2019, "Most successful fintech firms have focused on narrow functions or segments with high friction levels or those underserved by traditional financial institutions, but have struggled to profitably scale on their own. Traditional financial institutions have a vast customer base and deep pockets, but with legacy systems holding them back."

This would imply that fintech companies and traditional financial institutions (conventional and Islamic) complement each other, in a way that expand business opportunities which in turn creates greater growth for both types of organizations.

5.2.1. Role of strategic partnerships in accelerating growth

The number of incumbents willing to partner with Fintechs is rapidly increasing, with a clear emphasis on how to partner. From venture investing to corporate-startup engagement programs, the mandate has become: make the incumbent more interoperable.

Partnerships between incumbent institutions and Fintechs are mutually beneficial. Whereby Fintechs get to scale their technology, increase their outreach and access capital to grow, while incumbent institutions gain assistance in their efforts to digitize and improve product offerings, increase operational efficiency, and lower costs.

The global Fintech adoption rate has surged between 2015 and 2019 driven by, inter alia, the availability of Fintech services offered by banks, insurers, telcos, post, and other incumbent financial and non-financial institutions. It is noted that 81% of banking executives surveyed by Finextra and the Euro Banking Association cited working with partners as the best strategy for achieving digital transformation goals.

[128] The financial Brand (2019). Banking and Fintech Collaboration: More Important Than Ever. https://thefinancialbrand.com/71050/banking-fintech-collaboration-bigtech-trends/

Figure 26: Mobile Money

MVNP's

Shaka Mobile launched a Mobile Money Transfer in partnership with Mfunds Global Payments Solutions in 2010. In addition to international remittance, Shaka Mobile customers can transfer money from a bank.

Philippine Long-Distance Telephone Company (PLDT) has launched a number of MVNOs in overseas markets via its subsidiary, PLDT Global, targeting 8.6m overseas Filipinos with telecommunications and mobile financial services.

Banks

Credit Mutuel – CIC (French banking provider) launched an MVNO NRJ Mobile in 2005 in partnership with NRJ Group, a leading entertainment company in France.

Polkomtel is the number three mobile operator in Poland, operating the Plus brand. In November 2011, it launched a mobile banking service in conjunction with WBK Bank, acquiring 81,000 clients in the twelve months following launch.

Postal services

Posteitaliane, the Italian postal service, launched the Poste mobile service in November 2007 (MNO: Vodafone) and has grown into the biggest MVNO in Italy with over 50% of the MVNO market share.

Source: EY (2019)

5.2.2. Potential of partnerships in the Arab region

Banking in emerging markets

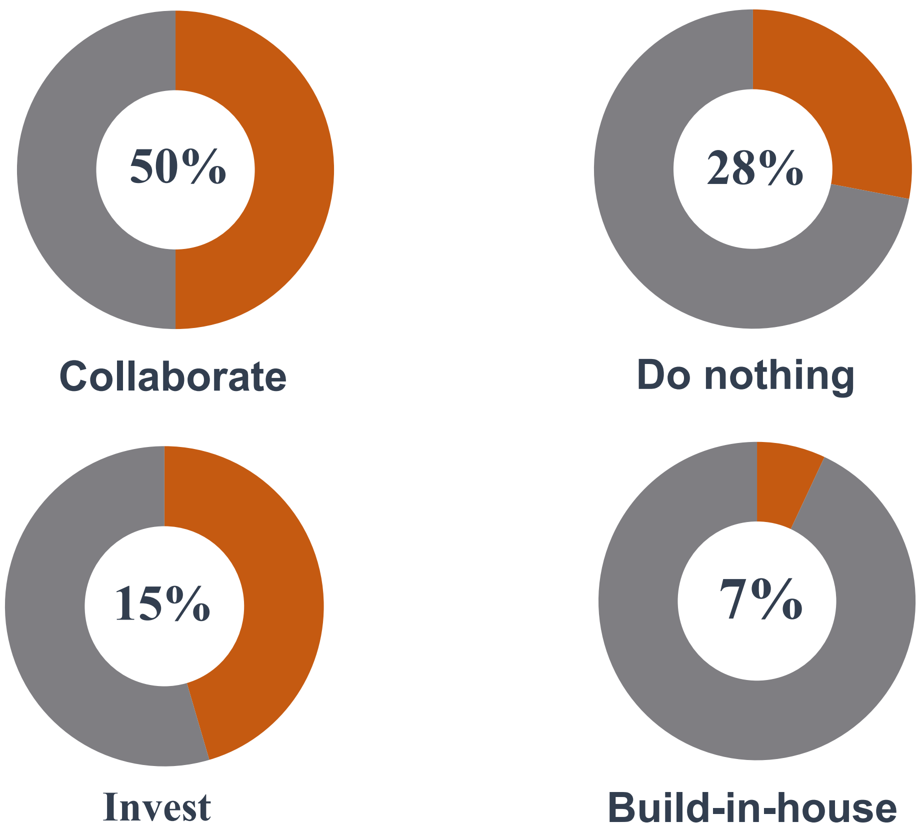
An EY survey indicates that due to the high degree of fragmentation in the GCC banking sector, the majority of the survey participant banks stated that they view Fintech firms as a potential partner in delivering an enhanced business proposition to end consumers.

Accordingly, a clear majority amounting to 65% suggest that the GCC banking sector is likely to collaborate with, or invest in, Fintech firms.

Survey participants believe that the GCC banks should collaborate to build "shared-cost Fintech solutions" that can serve the entire banking sector to enhance sector-level cost effectiveness and reduce time-to-market.

Figure 27: Fintech in Emerging Markets

How are you likely to view Fintech firms targeting your business through innovative propositions?
What is the likely strategy of your bank for competing with Fintech firms?



5.3. Collaboration via win -win situation

From a business prospective, banks enter into various types of arrangements with Fintech companies, such as utilizing products or platforms developed by Fintech companies (e.g., a bank teaming up with a robo-advice Fintech to offer investment management services), collaborating as a network to develop and test new technologies and solutions, or referral arrangements, primarily in the peer to-peer (P2P) lending space where a bank might refer a small business that falls outside the bank's risk appetite to a P2P Fintech. And the joint ventures or co-created services (e.g., a bank partnering with a Fintech firm to launch a digital marketplace).

Success factors stem mainly from building the synergy between the old, well established organizations, i.e. traditional financial institutions, and the innovative new fintech companies. So that the partnership benefits from the combination of a fully fledge institutional environment (rules, compliance, regulations …etc.) and the innovative customer-based solution that can prosper customer experience. This is particularly catering for the small business aspect, such as P2P and all alternative lending schemes. Where using the new financial technologies, can enhance the credit information on small business, then fostering the credit assessment process and prospering lending activities to small businesses by using new lending platforms. Then, this synergy can enhance customer experience by adding new technological solutions. Which will in turn lead to an increase in revenues for both organizations. Similarly, promoting the working experience for Fintechs by confronting the well-established rule based and compliance environment that an old financial institution like banks are mastering. Moreover, this opportunity to giving them access to broad range of customers who Scotiabank is serving.

The partnership success factors should stem mainly from the believe that the two organizations are not competing each other, on the contrary, they are reaping the benefits of completing each other. This is in addition to the management willingness and buy in to conduct the partnership considering the alignment in strategic goals and models between two organizations. This happens only when both partners are keen to balance each other and to build a synergy between their competencies.

5.4. Barriers & Gaps in Fintech Collaboration

However, this complementing counterpart's model will not work when there are no more mutual benefits for both entities leading to diminished synergy on both sides: know-how and different resources. For instance, Fintech startups lack experience related to the financial services industry, which challenge their credibility. This implies that Fintech companies need more familiarity with the business of financial services not only the technical know-how. Or, whenever there is no more drive or buy in from any of both firms' top management. Also, if any conflict between the two financial institutions that may arise regarding the control of the technological solution.

Moreover, real challenges may emerge and raise conflicts between banks and/ or traditional financial institutions and technology providers which is sharing customer data. As from a technology solution provider perspective, the fintech company needs to access the customer data, however, this is challenging for banks.

5.5. Successful partnerships put the customer first

Successful partnerships put the customer first, as nowadays, customers' expectations have significantly changed and are much related to digital financial services which pushed traditional institutions to react to these developments in customers 'mood, culture and behavior. However, it isn't about a simple move to online services, or creating basic mobile applications. Customers are demanding more affordable, secure reliable and customized digital financial services that are delivered online, in apps, and in-store in a sustainable means. Fintech innovators are meeting these customer expectations using lower-cost operating models that identify and solve customer issues in a more cost-efficient manner. fintech companies can support traditional financial institutions in developing new models to create and deliver digital experiences that better engage and retain their customer bases129.

Accordingly, customer must be at the centre and customer satisfaction and engagement must be the key principle that guide business, partners relationships and decision-making process.

Based on a customer-centric approach, this will first create a harmonization among partners, second, all partners make decisions upon the best interest of the customer, and prioritize customer benefits over all other considerations[130].

5.6. Structured Collaboration to mitigate challenges

Although Fintech firms and financial institutions moved from the competition era to the collaboration, yet both types of organizations are struggling to scale up innovation efficiency.

To reach an efficient collaboration, these well-established entities, such as banks, and fintech firms, need to consider main building blocks to optimise their partnership, namely people, finance, business and technology.[131]

People are the elements that give value in a services firm, which implies having the right people in the right places to boost innovation and growth. Since both patterning entities have different organizational structures, a heavy hierarchical bank and a horizontally managed startup, they need to reach a middle ground.

Regarding the finance aspect, there should be a well-defined investment and revenue model to derive and maintain future cash flow in the near future.

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[129]/ WeForum (2019). How collaboration in the fintech industry can unlock digital growth, World Economic Forum, January 2017, https://www.weforum.org/agenda/2017/01/how-collaboration-in-the-fintech-industry-can-unlock-digital-growth/.

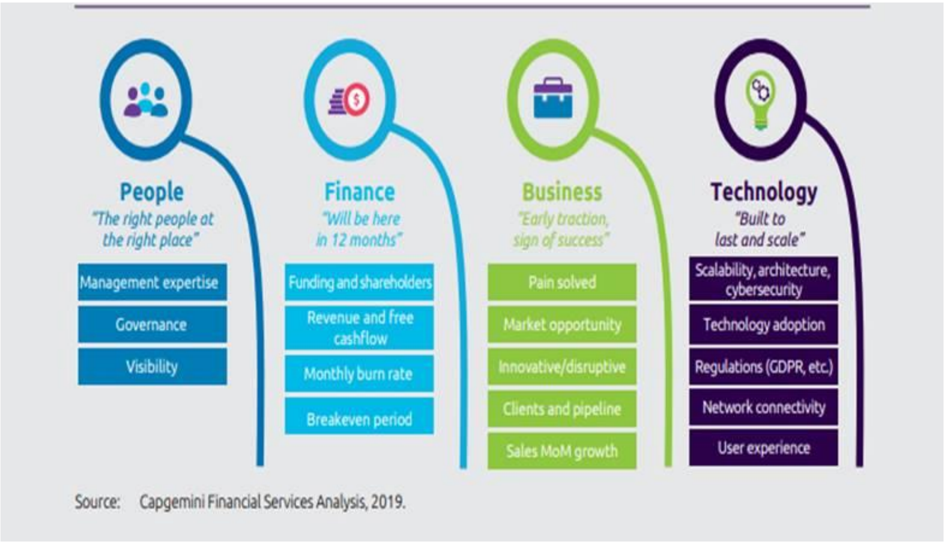
[130]/ WeForum (2019). How collaboration in the fintech industry can unlock digital growth, World Economic Forum, January 2017, https://www.weforum.org/agenda/2017/01/how-collaboration-in-the-fintech-industry-can-unlock-digital-growth/

[131]/ EFMA (2019). World Fintech Report 2019.

Moreover, the prospective collaboration should be based on various business pillars such as proven business model, customer adoption, as well as value creation as a proper collaboration should derive a value proposition with quantifiable results.

Also, technologies tools should be secure and enable a smooth collaboration. This would imply a secure systems integration between partners, which in turn lead to an accurate, timely accessible information that are at the same time regulatory compliant.

Figure 28: Structured Technological Collaboration



5.7. Examples of Collaboration

5.7.1. Regulators Collaborations

5.7.1.1. CFTC and FCA Collaborate on Fintech Development for Regulatory Best Practice

The US Commodity Futures Trading Commission (CFTC) and the UK Financial Conduct Authority (FCA) have agreed to collaborate and support innovative firms through their respective fintech initiatives, LabCFTC and FCA Innovate.

This Cooperation Arrangement on Financial Technology Innovation (Fintech Arrangement) supports both regulators' efforts to facilitate responsible fintech innovation and ensure international collaboration on emerging regulatory best practices. It also shares information on fintech market trends and developments, and facilitates referrals of US and UK Fintechs interested in accessing each other's markets.

Management of both organizations valued the mutual forthcoming benefits of such collaboration by announcing that "this is the first fintech arrangement the CFTC has made with a non-US counterpart, which will contribute to the growing awareness of the critical role of regulators in digital markets" (CFTC chairman, J. Christopher Giancarlo). While the chief executive of the FCA highlighted that international borders shouldn't act as a barrier to innovation and competition in financial services. And this is the reason behind such an agreement looking forward to collaborating with LabCFTC in supporting fintech firms, both in the UK and in the US, that want to scale and expand internationally in both respective markets.[132]

5.7.1.2. Central Bank of Bahrain and Monetary Authority of Singapore (MAS)

Central Bank of Bahrain Signed an MOU with MAS in November 2018 to strengthen cooperation between the two countries in Fintech. According to the two organization, the MOU will support the sharing of information on emerging Fintech trends and developments and facilitate co-operation on innovation projects in Bahrain and Singapore. In addition, the memorandum initiates a common framework to support fintech companies to comply with regulatory requirements in both countries. Which and marks an important milestone in the mutual efforts undertaken by both authorities in enhancing the Fintech ecosystem in both countries. This collaboration will strengthen the fintech linkages and create greater opportunities for Fintech firms in Bahrain and Singapore.

5.7.1.3. DFSA with MAS and others

The Dubai Financial Services Authority (DFSA) and the Monetary Authority of Singapore (MAS) signed an agreement in late August 2019, which frames the cooperation and referrals between the innovation teams of both authorities. The agreement reflects the commitment of both organisations to develop an environment that supports the sustainable development of financial services through emerging technology and growth of innovation.

"The Cooperation between MAS and the DFSA will help create synergies and greater understanding between our two markets and will enable Fintech firms to extend their reach globally." (DFSA's Chief Executive, Ian Johnston)[133].

The agreement focuses on a transfer mechanism which will enable the authorities to raise innovator businesses between their respective innovation functions. It also sets out a process to share and use information on innovation in their respective markets. Moreover, it validates the joint work on innovation projects on the application of key technologies such as digital and mobile payments, blockchain and distributed ledgers, big data, flexible platforms (API), and other areas of new technologies.

It worth also mentioning that the DFSA has bilateral Fintech cooperation agreements in place with the Australian Securities and Investment Commission, the Hong Kong Monetary Authority,

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[132] Regulator Watch (2018). RegTech Insight, Regulator Watch, February 2018. https://a-teaminsight.com/category/regtech-insight/regulator-watch/

[133] DFSA (2018). DFSA and Monetary Authority of Singapore Sign Fintech Agreement. Media release, August 29, 2019. https://www.dfsa.ae/MediaRelease/News/DFSA-and-Monetary-Authority-of-Singapore-Sign-FinT

the Hong Kong Securities and Futures Commission, the Hong Kong Insurance Authority, and the Malaysian Securities Commission.

Case study: Hong Kong Monetary Authority's (HKMA) and the Fintech Facilitation Office (FFO)[134]

in April 2015, Hong Kong's government established a steering group (chaired by the secretary of finance and treasury, included representatives from all relevant regulatory agencies and industry) to advise on the development and promotion of the region as an Asian financial technology hub. In 2016, Hong Kong's central bank established the Fintech Facilitation Office (FFO)[135] which aims to facilitate the healthy development of the fintech ecosystem in Hong Kong and further, promotes Hong Kong as a fintech hub in Asia. Among other things, the FFO acts as:

1. a platform for exchanging ideas of innovative fintech initiatives among key stakeholders and conducting outreaching activities;

2. an interface between market participants and regulators within the HKMA to help improve the industry's understanding about the parts of the regulatory landscape which are relevant to them;

3. an initiator of industry research in potential application and risks of fintech solutions; and

4. a facilitator to nurture talents to meet the growing needs of the fintech industry in Hong Kong.

Case study: The Monetary Authority of Singapore (MAS)[136]

Singapore's central bank (MAS) established a Fintech and Innovation Group in May 2015 to develop policies that facilitate technology in the financial sector. In 2016 the Group created a Fintech Office to align financial technology programs across the government and propose cross-agency strategies and policies that could position Singapore as a hub for innovation. The technologies regulated thereunder include: Artificial Intelligence, APIs, Blockchain/Distributed Ledger Technology (DLT), Cloud, Cybersecurity, Digital ID & e-KYC and RegTech. Their focused sectors include: Banking, Insurance, Capital Markets and Payments. Their collaboration efforts include: various Fintech Co-operation Agreements, Global Financial Innovation Network (GFIN), ASEAN Financial Innovation Network (AFIN), MAS-UNCDF Partnerships for Financial Inclusion and the International Technology Advisory Panel (ITAP).

[134] https://www.hkma.gov.hk/eng/key-functions/international-financial-centre/fintech/
[135] https://www.hkma.gov.hk/eng/key-functions/international-financial-centre/fintech/

[136] https://www.mas.gov.sg/development/fintech

Fintech Collaboration in the US Market (Perkins, 2019)

(i) SEC FinHub and LabCFTC

The Securities and Exchange Commission (SEC) created FinHub and the Commodity Futures Trading Commission (CFTC) established LabCFTC aiming at establishing an outreach programs These portals are the agencies' efforts to engage with the fintech industry, consolidate and clarify communications, and inform policy. Since their inception in 2018 and 2017, respectively, neither FinHub nor LabCFTC have announced new fintech rules.

(ii) CFPB Office of Innovation

The office of innovation was originally launched in 2012 within the Consumer Financial Protection Bureau (CFPB), and was re-established and renamed in 2018. The office's mission is to promote innovation, competition, and consumer access within financial services through regulatory relief, engagement with the fintech community, and collaboration with other regulators. The office allows fintech firms to apply for research pilot projects, issues No Action letters. The CFPB also has the statutory authority to waive consumer disclosure requirements for companies that apply to test and improve consumer disclosures. Lastly, the office coordinates with other consumer regulators abroad.

5.7.2. Collaboration between financial institutions and Fintechs

5.7.2.1. PayPal as a Global case:

PayPal is an American company, established in March 2000, operating a worldwide online payments system that supports online money transfers and serves as an electronic alternative to traditional paper methods like checks and money orders. The company operates as a payment processor for online vendors, auction sites, and many other commercial users, for which it charges a fee in exchange for benefits such as one-click transactions and password memory.[137]

PayPal, on the other hand, relied on existing, universally accepted institutions. The U.S. dollar was PayPal's medium of exchange; email, which virtually everyone shopping online used, along with banking networks, comprised its medium of transfer. The PayPal system was launched quickly online. Potential buyers opened PayPal accounts which were linked to a credit card or a bank account; alternatively, money could be deposited in the account, where it earned interest until it was needed for a purchase.[138]

PayPal has established partnerships in 2017 with card networks and issuers, such as Citi, to embrace a fundamentally different operating model that allows them to exploit each other's strengths to meet the shifting needs of a larger customer base. Similarly, they are partnering with leading telecommunications companies, such as Vodafone and América Movíl, to reach ever-larger groups of customers.[139]

5.7.2.2. Cases from the Arab Countries: Norbloc

There is an example of a strategic alliance from the Arab region between the regulator "Dubai International Financial Centre" (DIFC), Mashreq's Corporate and Investment Banking Group (Mashreq Bank-UAE), and the fintech firm "Norbloc", the leading Know Your Customer and client onboarding Fintech headquartered in the DIFC. [140]

The strategic alliance targets to launch the region's first production-ready blockchain KYC data sharing consortium in Q1 2020 to support businesses and corporates in Dubai. Which is in line with the goals of the UAE Blockchain Strategy 2021.

Norbloc builds secure platforms for digital Know Your Customer (KYC) onboarding and compliant KYC data sharing. Its flagship product, FIDES, utilizes advanced distributed technologies (such as

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[137]/ WIKIPEDIA, PayPal Holdings Inc., https://en.wikipedia.org/wiki/PayPal

138/ ENCYCLOPAEDIA BRITANNICA. PAYPAL COMPANY. HTTPS://WWW.BRITANNICA.COM/TOPIC/PAYPAL.

[139]/ WeForum (2019). How collaboration in the fintech industry can unlock digital growth, World Economic Forum, January 2017, https://www.weforum.org/agenda/2017/01/how-collaboration-in-the-fintech-industry-can-unlock-digital-growth/.Reference of Business. Encyclopedia, Paybal Inc. https://www.referenceforbusiness.com/history2/86/PayPal-Inc.html.

140/ DIFC (2019). "DIFC Mashreq Bank and norbloc to launch the region's first production Blockchain Know Your Customer (KYC) data sharing consortium", Dubai International Financial Centre, Press Release, (July 31, 2019).

blockchain) to allow Customers, Organizations and Regulators to securely share verified data and effectively collaborate on a comprehensive and compliant Single Version of Truth.

5.7.2.3. National Debit Card Meeza "Cashless" – Egypt

Meeza card, as a financial inclusion initiative from Egypt's central bank under the national payment scheme, has been introduced for people to make and receive payments, pay bills and to reduce its reliance on cash. Meeza card is one of the ways in which the Egyptian government is helping to reduce dependency on cash, opening up the country's electronic payments infrastructure to millions of citizens throughout the country. Moreover, it will increase participation in the government's electronic payment systems[141].

The card allows the customers to withdraw cash from ATMs to conduct purchases, e-commerce and online transactions in Egypt.

Amazon company, PayFort -based in UAE- and in partnership with Commercial International Bank (CIB), has announced the integration of its payment gateway with Central Bank of Egypt's new national debit card Meeza. In addition, five banks were integrated in the national card, namely: National Bank of Egypt (NBE), al-Qahira bank, Bank Misr, the Commercial International Bank (CIB), and the Agricultural Bank of Egypt (ABE)[142].

5.7.2.4. UAE Banks Federation launch ISAC platform

The UAE Banks Federation (UBF), the representative body of banking industry comprising 48-member banks operating in the UAE, has launched its first Information Sharing and Analysis Centre (ISAC) in the UAE.[143] The center is powered by Anomali, provider of threat intelligence platforms. It will initially bring together 13 banks cybersecurity data in Anomali's ThreatStream platform to share cybersecurity intelligence. This will aggregate, correlate, and analyze threat data from multiple sources in real-time to support defensive actions. Abdul Aziz Al Ghurair, Chairman of UBF, said the organization is bringing the 2017 Cyber Threat Intelligence Initiative into implementation and the partnership with Anomali to build this platform will allow banks to get equipped with the tools and intelligence to better identify, protect, detect and respond to cyber-attacks. The launch of ISAC comes at a time when financial institutions around are facing cybersecurity threats. The UAE is the second most targeted country in the Middle East for 'ransomware' attacks, in which cyber criminals steal and encrypt files until a ransom is paid, according to internet Security Threat Report from Symantec.[144]

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[141]/ Egypt Independent (2019). Meeza cards free in several banks, October 2019, https://egyptindependent.com/customers-able-to-obtain-meeza-cards-for-free-till-november-1-ministry/.

[142]/ CIB Meeza Cards (2019). Commercial International Bank, https://www.cibeg.com/English/Personal/Cards/Pages/CIB-Meeza-Cards.aspx.

[143]/Babu Augustine (2017). Gulf news, https://gulfnews.com/business/banking/ubf-launches-first-cyber-threat-sharing-platform-for-uae-banks-1.2090165. Anomali (2017). ThreatStream, https://www.anomali.com/files/data-sheets/ThreatStream-Datasheet.pdf.

[144]/ Banking Frontiers (2017). https://bankingfrontiers.com/uae-banks-launch-isac/

5.8. Closing Fintech Collaboration gap

Fintech is about a whole ecosystem not only fintech companies or startups. As the ecosystem has evolved, it's become clear that the answer lies in collaboration among all stakeholders. In addition, the relationship between fintech firms and traditional financial institutions (conventional and Islamic) should be based on collaboration and partnership and move on from competition.

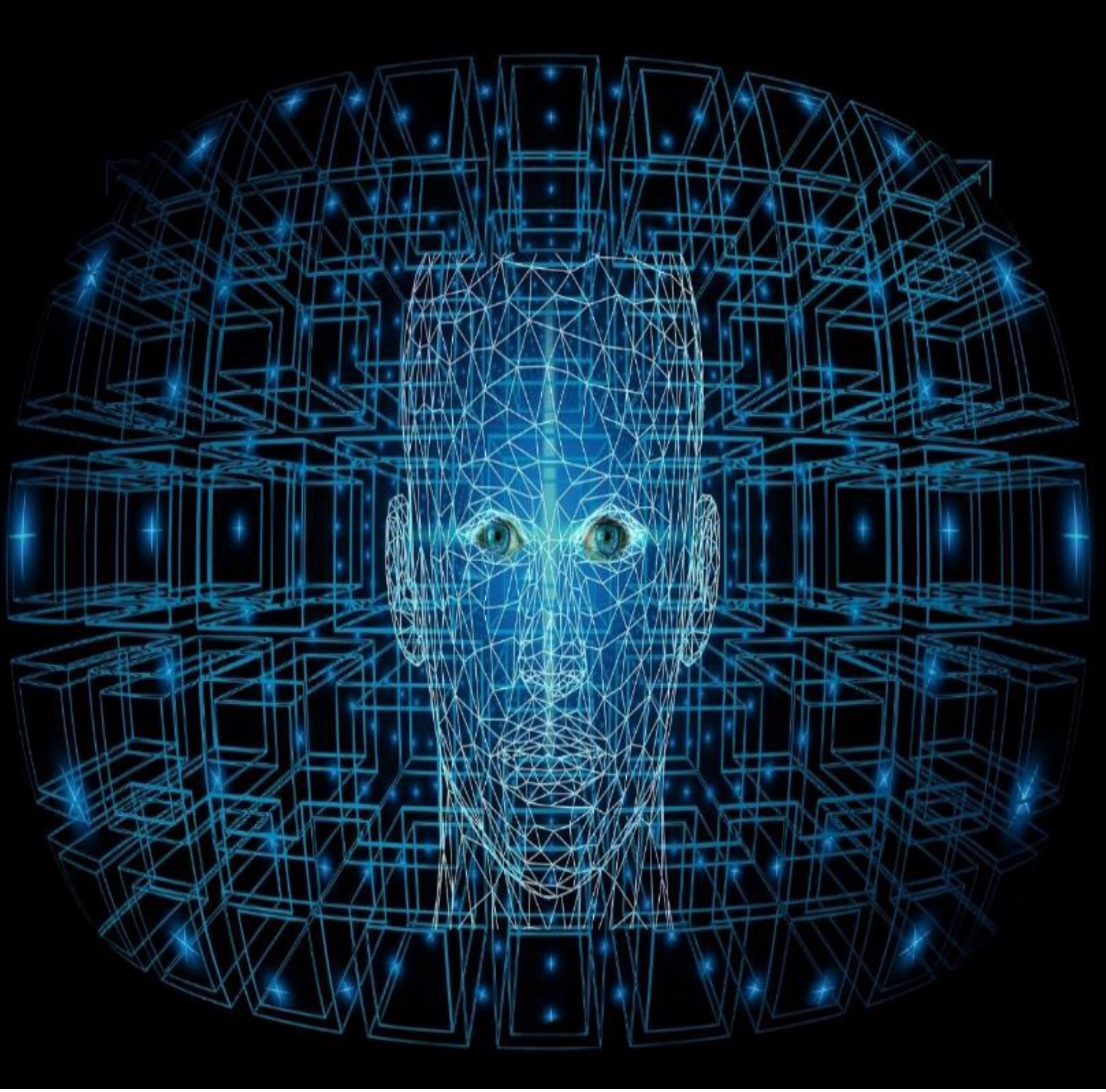
Each of both types of organizations, traditional financial institutions and Fintech firms, is mastering a set of opportunities and strengths that complete each other. So that traditional financial institutions have better opportunities of funding, branding economies of scale, trust, well-established infrastructure, as well as proper frameworks for risk management and compliance. While Fintech companies are more skilled in innovation, initiating new products, agility, customer centricity for a better experience, and handling data.

For instance, due to many limitations (additional Shariah regulatory controls and risk-averse culture), traditional Islamic Financial Institutions are considered slow in reaction to changes. However, they do have some pivotal advantages (built customers' trust, a vast network of involved individuals, ethical businesses and financing resources…). Hence, these institutions would need to overcome their old business models to adapt and remain competitive in the market. As such, one of the quickest ways to evolve is to embrace partnership and collaboration with fresher and forward-looking start-ups and fintechs that provide the technological skillsets to reinvent the future of financial services.

The collaboration between the two sides of the story, will create synergy for both type of organisations. Then, to have this collaboration ongoing, all fintech ecosystem stakeholders should stand side by side and collaborate hand in hand on all aspects, sharing information and expertise, building capacity, raising awareness, as well as adapting proper regulatory framework that supports innovation.

When strategic partnerships are done in a proper way, this can pave the way to reap benefits and opportunities of the increasing potential inherent in the digital transformation facing the financial sector. As the number of digitally connected and engaged people grows globally, the more potential customers there are for all of us to serve and empower.

By consistently focusing on how to create value for customers, that are digitally connected and engaged, all financial institutions can increase their capabilities to achieve sustainable results for all our stakeholders.



Talents Pillar

6. Talents For Fintech

6.1. Objective

The need for defining the talents enablers in the fintech market is to provide an insight for the upcoming initiatives to benefit the utmost from their effort and have a direction that will pave the way for their success.

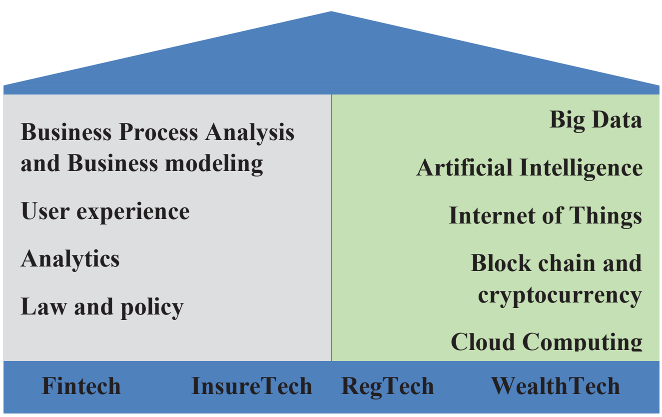
6.2. Market needs and gaps

The following section highlights the market direction for addressing the gaps in the educational aspects to support the development of the fintech market.

The fintech industry is categorized into multiple key concepts Fintech, InsurTech, RegTech, and WealthTech. These constitute the main topics addressed by the fintech market each with a different bundle of deliverables to target. Hence having those concepts tutored is a key component of the educational foundation of the delivered framework. It is not enough to have the business idea; you need to be able to define and run it. This is where concepts like user experience, law and policy, and management are essential. On the other side, technology enablers also play a critical role in defining the delivered product to the market. Artificial intelligence and blockchain are founding blocks in the fintech industry and having a high-level understanding of the different technologies is paramount.

Based on the above it is intuitive that the curriculum for a fintech delivery constitutes of three pillars: core concepts, business planning, and technology enablers.

Figure 29: Fintech delivery tools



6.3. Talent Pillar scope and segmentation

The provision for the fintech talent pillar caters for addressing 3 segments in the market; Students, professionals, and entrepreneurs. The need for addressing the three segments is to cater for current and future sustainability of the market demand. It is customarily assumed that the entrepreneurs is the main target for such education as they will be in the essential need for it, but to achieve an ongoing market sustainability students need to be exposed to the principle to encourage them to pursue it. Also, professionals will need to be addressed to enable future support in different areas.

The coming section will discuss different methods of delivery as well as the road to develop such principles.

6.4. Roadmap development

6.4.1. Fintech Curricula

Universities worldwide have begun offering courses and even majors regarding Financial Technologies by providing courses across all areas of financial technology innovation. In order to successfully introduce Fintech to the Arab region, the base would be creating university courses; or online courses (E-Learning) that teach youngsters or anyone interested in Fintech – apart from professionals - the following key aspects:

a. Learn about block chain, its uses, design, governance, limitations and potential. Learn about major technologies of Fintech (Blockchain and Its Applications - Cloud Computing - Big Data Analysis - Internet of Things - Robo-Advisors - Artificial Intelligence - Machine Learning and Deep Learning)

b. Get exclusive trainings by industry experts

c. Learn more about the latest trends in technology, finance and regulation

d. Learn about big data analytics: encryption and identity/privacy technologies

e. Learn how to devise a digital transformation strategy for financial service company

f. Get a great insight on how digitalization works with finance

It may be reminded that the evolution and regional spread of the new technologies (industry 4.0,…), will set to serve in the financial system that caters to financial environments with both natures; conventional and those compliant with Shariah Laws.

Thus, the development of the talent pool to serve in this industry would also need to comprehend the basics of Shariah rules. This is imperative because the operational aspects and the deployments of these services may require additional layers/steps to ensure the Shariah Compliance of the developed solutions. As such, for markets that opt to apply shariah Compliant services, the above list of crucial aspects would need to include full understanding of the basic concepts of Shariah-Compliant Finance and Banking, the difference between conventional and Shariah-Compliant Finance and Banking, the key components and processes of shariah-compliant products, and the ability to translate the shariah concepts into digitally transformed processes. This includes the implementation of contractual agreements between parties.

The intended learning outcomes covering those concepts should address the introduction to the nature of the concept, survey of the current market and key players, Useful applications, use cases, market study, defining components and enabling technology, and implications and challenges.

6.4.2. Competitions & Hackathons

Most central banks have introduced competitions and hackathons in order to encourage open innovation in Fintech. Through working together, they improve services and enhance the banking experience of their customers. For example, competitions where students can create ideas for business startups, and the best idea and runner-up would be rewarded money as a push to start up their ideas. Other competitions where students can also participate where open innovation is favored all come under the competitions and hackathons tree. A simple common hackathon can be a weekend-long competition open to students and young professionals where the participants have to pick one of the sponsoring companies and a problem it posed, build a solution, and then present it exclusively to said company's representatives. The top teams would be competing for a prize, be it money, an object, or even a job post. A simple idea can go a long way in such a competition; many groups who enter hackathons come out with company offering to study and execute their projects.

"One of the workshops offered at the Hackathon was about the digitalization of paper invoices. As I often forget to pay my invoices and I was convinced that we have the technology to digitalize the invoicing process, this challenge appealed to me. My teammates and I came up with a good idea that the jury liked too. After the Hackathon, I was approached by SIX to develop the solution further." (*Andrea Girasole for F10 Fintech)*

6.4.3. Vocational Trainings

As technology is playing an increasing role in the banking and financial world, businesses, universities and organizations have started offering seminars, masterclasses, and courses covering the emerging fintech ecosystem. Oxford Said Business School has been hosting a series of Fintech-focused lectures since the beginning of the month. The lecture series has been curated by Huy Nguyen Trieu, a Resident Expert and friend of the Entrepreneurship Centre at Oxford. (i)The first lecture provided an introduction to the Fintech ecosystem and aimed at understanding how financial technology is impacting traditional finance. (ii) The second lecture, featured Fintech entrepreneurs and founders who shared their experiences building a Fintech startup. (iii) The third and final lecture in the series featured market leading financial services firms BlackRock and Lloyd’s Bank which will discuss how digitalization is impacting traditional financial services businesses.

Similarly, LBS (London Business School) offers conferences that bring together key stakeholders who have important roles to play in shaping new research findings, paving new policy directions, and initiating innovative practices in the areas of Fintech, financial inclusion and sustainable economic development. Specifically, participants from the banking industry, private sector practitioners, financial sector regulators and fellow researchers will question new research findings in the light of the main pressing issues in Africa and globally.

6.4.4. Building the business

The next step would be the engagement to build a working business model to develop a product to the market. It is essential for new entrepreneurs to have an understanding of tools listed below, and how they can utilize them for the success of their business:

- Business Process Analysis , Business modeling, and value proposition (Business process identification - Process mapping and available tools - Process improvement and digitization
- User experience (Importance of digital user experience - Use cases - Available tools in the market - How to build customer loyalty)

- Analytics (Available tools in the market - How to build an analytics model to help derive your product
- Law and policy (Relevant law and policy regulations)

6.4.5. Technology enablers

In this section we shed light on current technology tools that are big players in the fintech ecosystem. It is of great benefit that candidates are exposed to such concepts and are aware of the differences between them as well as how to use them for their business:

Big Data - Artificial Intelligence - Internet of Things - Block chain and cryptocurrency -Cloud Computing - Cyber Security

For the above technology trends many elements should be considered such as a definition of each one and how it works , available models and tools, advantages and risks, possible applications and value proposition, current use cases and implementations, Ethical implications, and Security concerns.

6.4.6. Digital Training & Development

The Future of Learning and development is being digitalized; in order to become a part of this digital revolution, we should consider including the use of mobile technology, adoption of social learning tools, alignment with corporate objectives, use of adaptive learning principles, and the ability to measure effectiveness as necessary objectives. leading companies are abandoning traditional methods of learning in favor of more effective solutions—often involving technology innovation—that engage talent and improve performance. Five key trends and best practices could be taken into consideration include the use of mobile technology, adoption of social learning tools, alignment with corporate objectives, use of adaptive learning principles, and the ability to measure effectiveness.[145] The below findings tackle main trends affecting the future of enterprise learning:

- One-third of companies are increasing their budget for learning and development.

[145] David Wentworth, 2018. Five TRENDS FOR THE FUTURE OF LEARNING AND DEVELOPMENT, Training, August, 2014.

- 41 percent of companies describe their culture as "Controlling."
- Only 10 percent of companies are leveraging mobile learning solutions.
- 59 percent of companies are leveraging social learning activities[146].

Companies are increasing their budgets in Learning and Development; Brandon Hall Group research indicates that the top areas of learning investment include internal learning and development (L&D) staff and external consultants. Across all job roles, individuals would be required to take on new or expanded tasks that have a higher element of judgement and creativity, while tasks of a more repetitive and rules-based nature are automated. The IBF-MAS study identified emerging job roles that would grow in demand with the adoption of data analytics and automation in the sector. A total of 121 job roles across banking, capital markets, asset management and insurance sectors were mapped out, representing most jobs in the financial services industry.

For instance, Banque Du France has created an online platform for its university with 7.6% of its payroll invested in training, 75% rate of access to training, 5000 number of sessions organized, and a direct training educational expense around 8000 EUR. The objectives of the BDF University are supporting change, simplifying access, improving contents, innovating, and bringing business areas closer. The long – term benefits of this platform are having a more global analysis of the articulation between classroom and web-based training, providing more modular courses, adjusting the courses to fit the demographics of BDF when needed and staying up to date with hot topics in education taking into account the legislative developments regarding training, creating and developing on-demand training opportunities, reducing the number of classroom sessions and modernizing them by using mobile devices. Today's digital economy requires all kinds of business and workforce transformations; Technology is the future, and we must be prepared for the Fintech inclusion in order to be able to seek every opportunity and make the financial sector much more competitive.

Bahrain FinTech Bay has developed local talent survey to cover major key subjects by tackling both demand and supply side[147]:

[146] Brandon Hall Group 2014. Learning and Development Benchmarking Study.
[147] Bahrain FinTech Talent Report, 2018 - https://www.bahrainfintechbay.com/talent-report

- ✓ **Country's current FinTech talent state:** to understand the existing demand of relevant industry stakeholders on hiring FinTech talent.
- ✓ **Demand for skills relevant to FinTech:** to understand the skills and roles required for FinTech related jobs to support the FinTech industry.
- ✓ **Qualifications required by the FinTech Industry:** to ensure availability of related courses, workshops and other educational programmes to align with the FinTech talent requirem ents.
- ✓ **FinTech Talent Recruitment Methods:** to ensure an easier access to FinTech related jobs and opportunities.

Figure 30: Talent Indicators – Comparison Table (1/2)

Color Spread	Country	Global Entrepreneurship Index Weight: 11.1 %	Human capital score Weight: 11.1 %	Networking score Weight: 11.1 %	Opportunity startup score Weight: 11.1 %	Start-up skills score Weight: 11.1 %	Skillset of university graduates (1-7 = best) Weight: 11.1 %
	United States	0.84	1	0.57	0.85	1	5.99
	Switzerland	0.8	0.79	0.53	0.97	0.72	6.11
	Sweden	0.73	0.64	0.74	0.98	0.47	5.53
	Canada	0.79	0.91	0.63	1	0.79	5.3
	Netherlands	0.68	0.37	0.8	0.93	0.89	5.66
	United Kingdom	0.78	0.74	0.62	0.93	0.57	5.22
	Australia	0.75	0.95	0.7	0.87	1	5.28
	Singapore	0.53	1	0.45	1	0.03	5.66
	Germany	0.66	0.48	0.38	0.76	0.63	5.41
	United Arab Emirates	0.53	0.87	1	0.6	0.29	5.2
	France	0.69	0.63	0.67	0.68	0.56	4.98
	Saudi Arabia	0.4	0.36	1	0.8	0.93	4.7
	Bahrain	0.45	0.87	0.56	0.59	0.54	5.19
	Estonia	0.55	0.54	0.49	0.64	0.8	4.95
	Lithuania	0.51	0.75	0.39	0.55	0.57	4.05
	Kazakhstan	0.3	0.76	0.53	0.37	0.44	3.74
	India	0.28	0.29	0.14	0.33	0.22	4.76
	Hungary	0.36	0.48	0.31	0.48	0.34	3.96
	Hong Kong (SAR)	0.67	0.89	1	0.8	0.58	5.38

Source: EY (2019).

Figure 31: Talent Indicators – Comparison Table (2/2)

Color Spread	Country	University-industry collaboration in R&D (1 = worst; 7 = best) Weight: 11.1 %	Country capacity to retain talent (1 = low retention; 7 = high retention) Weight: 11.1 %	ICT PCT patents (applications per m population) Weight: 11.1 %	Composite Value
	United States	5.85	5.74	69.78	84.65
	Switzerland	5.75	5.96	74.56	79.98
	Sweden	5.31	4.94	153.1	74.01
	Canada	4.78	5	38.21	70.33
	Netherlands	5.53	5.25	59.08	69.32
	United Kingdom	5.36	5.34	31.1	66.51
	Australia	4.19	4.62	24.04	66.29
	Singapore	5.2	5.46	55.85	61.9
	Germany	5.37	5.07	52.28	56.45
	United Arab Emirates	4.34	5.85	2.43	54.55
	France	4.28	3.27	33.5	46.96
	Saudi Arabia	3.88	4.53	1.55	45.97
	Bahrain	3.73	4.43	0.19	42.5
	Estonia	3.79	3.42	9.84	38.9
	Lithuania	4.08	2.73	3.77	30.47
	Kazakhstan	3.43	3.24	0.25	20.7
	India	4.61	4.59	0.52	19.2
	Hungary	3.67	2.43	8.2	15.51
	Hong Kong (SAR)	4.98	5.15		

Source: EY (2019).

Annexes:

Annex (1): Banks in the Arab region and Fintechs

Key areas for banks to keep pace with Fintech include:

1. A joint effort is to be made to fill the Arab region funding gap: - Access to capital is a challenge for Gulf start-ups. In doing so, banks could set up innovation funds to help start-ups grow from the seed stage to the scaling stage and align strategic interest. The venture capital arms of large Corporate banks, as well as insurers can set up special funds to invest minority stakes in Fintech companies.

2. Digital savvy banks need to gain market share or consolidate: - Banks need to innovate and build flexible operations to create conditions for fintech growth. This entails high spending which may lead smaller lenders to consolidate as larger peers invest in revamping their legacy systems.

3. Digitization of core processes facilitates fintech: - digital transformation is largely focused on enhancing the customer experience. Lenders need to digitize their core processes as legacy IT systems are a hurdle to connecting platforms and creating an open banking framework. This will avail a potential large revenue pool and could make business to business (B2B) solutions a target for start-ups.

4. No passporting challenges consumer solutions to scale: - The need for passporting across Gulf countries is key for fintech business to consumer (B2C) oriented solutions to achieve scale and attract private investors' interest.

5. Guidance is needed on fintech engagement: - A set of industry standards and collaboration toolkits that help fintech firms reach a successful engagement with banks, while banks providing a clear definition of what's required is advisable. This could be developed in line with the United Kingdom's onboarding guidance PAS 201:2018 - Supporting fintechs in engaging with financial institutions Guide.

Annex (2): Fintech and consumer protection implications

Although fintech should and is aimed to bring many benefits to users and customers, there is also scope for such persons / organisations to be disadvantaged thereby. Examples hereof include:

1. Lack of consumer understanding: consumers may not fully understand the nature and risks of the fintech-related products and services they are offered;

2. Misrepresentation of products and services: the adoption of new fintech solutions could inadvertently, or intentionally, provide new or different ways for manufacturers and distributors of financial products and services to mislead consumers, or to expose consumers to fraudulent activities. More complex value chains may also complicate the responsibilities and accountabilities for redress and remediation when misconduct occurs.

3. Financial exclusion: the increasing use of big data analytics offers scope for greater price and availability discrimination amongst a certain populous, while increasing digitalisation may exclude older and other vulnerable consumers.

4. Data privacy, cyber security and security protection: consumers are vulnerable to the loss of data and may not understand the ways in which their data are being used, shared, stored, transferred, have availability thereto to ensure its accuracy, erasure (deletion) of their personal data, as well as have no right to exercise their fundamental privacy rights in the context of data protection.

5. Reduced competition: although the initial influx of new entrants has increased competition and niche players are likely to continue to provide competition in some parts of the value chain, natural economies of scale in technology and data handling may eventually result in some markets being dominated by a small number of large financial services firms.

Annex (3): Guidelines in the fostering of the further and continuous development of Fintech

Areas where international bodies and national authorities should seek to increase their awareness of Fintech when undertaking regular risk assessment and development of regulatory frameworks include:[148]

1. Managing operational risks from third-party service providers: Authorities should determine if current oversight frameworks for important third-party service providers to financial institutions are appropriate (i.e. in cloud computing and data services, particularly where financial institutions rely on the same third-party service providers). This may entail greater coordination globally across financial authorities, and with non-traditional partners such as authorities responsible for information technology (IT) safety and security.

2. Mitigating cyber risks: Recent reports of significant and successful cyber-attacks underscore the difficulties of mitigating cyber risk. Ex ante contingency plans for cyber-attacks, information sharing, monitoring, a focus on incorporating cyber-security in the early design of systems, and financial and technology literacy could help to lower the probability of cyber events that have adverse effects on financial stability.

3. Monitoring macro-financial risks: While there are currently no compelling signs of these risks materialising, experience shows that they can emerge quickly if left unchecked. Systemic importance and procyclicality could emerge from a number of sources, including from greater concentration in some market segments and if funding flows on Fintech lending platforms were to become large and unstable. Any assessment of the implications of Fintech for financial stability is challenged by the limited availability of both official and privately disclosed data in the Fintech area. Authorities should consider developing their own capacity to access existing and new sources of information.

4. Cross-border legal issues and regulatory arrangements: Innovations in cross-border lending, trading and payment transactions, including via smart contracts, raise questions about the cross-jurisdictional compatibility of national legal frameworks. The legal validity and enforceability of smart contracts and other applications of distributed ledger technology (DLT) are in some cases uncertain; and should be discussed further.

5. Governance and disclosure frameworks for big data analytics: Big data analytics are driving transformation across industries with the ability to conduct extensive analytics rapidly and enhance risk identification and assessment. Similar to the use of algorithms in other domains, such as securities trading, the complexity and opacity of some big data analytics models makes it difficult for authorities to assess the robustness of the models or new unforeseen

[148] / Financial Stability Board (FSB), Financial Stability Implications from Fintech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017, https://www.fsb.org/wp-content/uploads/R270617.pdf

risks in market behavior and to determine whether market participants are fully in control of their systems.

6. Assessing the regulatory perimeter and updating it on a timely basis: Regulators should be agile when there is a need to respond to fast changes in the fintech space, and to implement or contribute to a process to review the regulatory perimeter regularly. This may be more easily and efficiently achieved with an approach that is neutral with regard to technologies and based on financial service activities.

7. Shared learning with a diverse set of public and private sector parties, local or international: In order to support the benefits of innovation through shared learning and through greater access to information on developments, authorities should continue to improve communication channels with the private sector and to share their experiences with regulatory sandboxes, accelerators and innovation hubs, as well as other forms of interaction. Successes and challenges derived from such approaches may provide fruitful insights into new emerging regulatory engagement models. Engaging with various ecosystem stakeholders which can contribute to the development of the fintech industry, such as financial institutions, accelerators and research institutions.

8. Further developing open lines of communication across relevant authorities: Due to the potentially growing importance of fintech activities and the interconnections across the financial system, authorities may wish to develop further their lines of communication to ensure preparedness.

9. Building staff capacity in new areas of required expertise: Supervisors and regulators should consider placing greater emphasis on ensuring they have the adequate resources and skill-sets to deal with Fintech.

10. Studying alternative configurations of digital currencies: The implications of alternative configurations of digital currencies for national financial systems, and the global monetary framework should be studied. In addition to monitoring developments, relevant authorities should analyse the potential implications of digital currencies for monetary policy, financial stability and the global monetary system. One issue is the use of some virtual currencies for illegal activities (including cyber-attacks).

11. Ensure that regulations do not create barriers that can unduly prevent or obstruct fintech operation in the general financial sector ecosystem, as well as in an organisation's local eco-system.

12. Offering supportive programs to fintechs to assist their growth and success in contributing to fintech as a whole, in the aim of supporting the goals discussed in this report. Also, by introducing innovative approaches for regulating fintechs, such as tailored regulation,

creating the necessary flexibility for proper and adequate governance, without obstructing such fintech unnecessarily so.

13. Ensure that these regulations, comply with Shariah with regards Islamic digital finance (fintech) businesses and products.

Annex (4): Data Standards and potential KPIs for benchmarking the performance of inclusive fintechs[149]

Potential KPIs for benchmarking the performance of inclusive fintechs				
KPIs have been tiered based on likelihood that: 1) A fintech will have the data 2) The data is considered confidential. Tier 1 tracks basic data, that is maintained by most fintechs, even those in the early stage; whereas Tier 3 seeks increasingly complex data which be also be more sensitive. Tiers are designed to help fintechs have more control over who sees their data: fintechs will be able to approve/deny requests to see Tier 2 and Tier 3 data.				
	KPI	**Unit***	**Definition**	**Level of disaggregation to collect data**
Tier 1 - Tier 1 records less complex, and less sensitive KPIs that may be easily reported by early stage companies				
Customers and Growth				
	Total users	Number	The number of registered users of the fintech's offering. For B2C fintechs, this is the number of users who have successfully registered for an account that would allow them to transact (savings, payments, credit) or receive benefits (insurance). For B2B and B2B2C fintechs, this is the number of institutional clients who have registered or signed a contract.	By product and geography
	Active users	Number	The number of active users of the fintech's offering. For B2C fintechs, active users are the number of users who have made a transaction in the last 30 days for transactional products (savings, payments, credit) or who have an open account in good standing (insurance, credit). For B2B and B2B2C fintechs, this is the number of institutional clients who have used the product in the last 30 days.	By product and geography

149 https://www.themix.org/data-standards.

	If different than active users, please specify number of active revenue-generating customers	Number	The number of users who are directly paying to access the fintech's offering. For B2C fintechs, this is the number of customers who have paid for a service in the last 30 days, for instance, to transact (savings, payments, credit) or to make a premium payment (insurance). For B2B fintechs, this is the number of institutional clients who have a contract in place and are paying to use the service. Customers do not include users who are indirectly generating revenue by providing data.	By product and geography
	If your working definition of active user is different than the above (1 transaction in past 30 days), please specify how you define it and the percentage.			
	Investment to date	USD	Total value of all investments including debt, equity, and friends/family funds	None
	List of all investments by investor name and type of investment	USD	List of all investments by name of investor and type and amount of investment	None
	Number of Employees	Number	Number of salaried employees (not including the founders) to indicate the size and make-up of the team, and its growth trajectory	None
Profitability				
	No Tier 1 data points on profitability			
Potential to scale				
	Documented demand-side research is available	Y/N	The company has funded and documented qualitative or quantative research with potential customers in the primary geography (ies).	None
	MOUs in place with relevant partners (FSPs, distribution partners, etc.)	Y/N/NA	The company has signed documentation, albeit non-contractual, that documents partners' intention to work together.	None
	Regulatory approval secured	Y/N/NA	Do you agree with this statement: "We understand applicable	None

			regulations and are fully compliant."	
	Have received an award or recognition	Y/N	Company can provide documentation showing that they have received one or more relevant awards or recognitions	None
	Have particatipated in an incubation hub or accelerator program	Y/N	Company can provide documentation showing that they have participated in one or more relevant incubation hubs or accelerator programs	None
	1 or more members of the leadership team are female	Y/N	There is at least one female member in the company's management team	None
	1 or more members of the leadership team with experience in primary geography(ies) of operation	Y/N	There is at least one member of the country's management team that has worked in, or can claim as their country of origin, at least one country in which the company operates	None
	1 or more members of the leadership team has experienced the problem you are trying to solve	Y/N	There is at least one member of the company's management team who has experienced the problem that you are trying to solve through your solution.	None
	1 or more members of the leadership team with previous fintech experience	Y/N	There is at least one member of the company's management team who has worked in a technology-led company offering financial services in the past	None
	1 or more members of the leadership team with previous start-up management experience	Y/N	There is at least one member of the company's management team who has worked in a start-up in a management position in the past	None
	1 or more members of the leadership team with previous financial services experience	Y/N	There is at at least one member of the company's management team who has worked in a traditional financial institution in the past	None
Risk Management and Consumer Protection				
	Mechanisms for informed consent are in place	Y/N	Informed consent is the process by which users understand the implications of the use of their personal data and document their approval	None
	Terms are communicated in language which is clear to all users	Y/N	Of particular relevance to inclusion, terms should be communicated in a language that users understand (not only the official language of the country)	None

	Mechanisms are in place for redressal and grievance	Y/N	Mechanism would refer to a customer care team and/or a grievance redressal cell, with documented Standard Operating Processes to address different customer queries and grievances	None
	Documented strategy to reach clients through relevant non-digital financial literacy training or other education	Y/N	Non-digital financial literacy training or education in place and designed to meet the specific needs of (potential) clients who may need additional support to apprporiately manage financial services with which they are less familiar.	None
Tier 2 - Tier 2 records marginally more complex KPIs, that require a deeper collection and recording mechanism from companies. These KPIs also require slightly more sensitive information from companies especially on profitability.				
Customers and Growth: Please note 'users' refers to all users, while 'customers' refers to revenue-generating users only.				
	Compounded Monthly Growth Rate	Percentage	((Customers at the end of the last quarter)/(customers at the beginning of the last quarter))^(1/3)-1	By product and geography
	Fee structure relative to competitors (next best alternative for customers). Choose a scenario (typical tranaction at a typical transaction amount) and then provide your fees and competitor fees for the same scenario.	USD	Competitors refer to the next best alternative for customers. It may be a formal player in some cases, and informal player in some. The data point will be calculated as (Fintech fee/Competitor fee)-1 based on your answers to the following two questions.	By product and geography
	Your fee	USD	Your fee for the selected transaction.	By product and geography
	Competitor fee	USD	The fee for your competitor (next best alternative) for the selected transaction and amount.	By product and geography
	Transaction time - Definition		Time it takes to complete a typical transaction as defined by product: loan approval for credit, claims processing for insurance, deposit for savings, payment completion for payments. It may be defined differently by different companies. Please provide the definition of Turnaround Time that you use.	None
	Transaction time - Unit		Please select a unit for transaction time (seconds; minutes; days)	None
	Transaction time - Value		Please provide the transaction time per the selected definition and unit	None

	Average account size per user	USD	For B2C fintech, this is average loan size, average savings balance, average insurance premium, or average payment. For B2B fintechs, this is the average value of a contract with each institutional user.	By product and geography
	% of total users in underserved target segment	Percentage	Number of total users who self-identify as part of the underserved target which the company aims to reach, per defined target market as listed in 'Categories' sheet.	None
	% of total users accessing the financial service for the first time from a legally compliant institution	Percentage	Number of total users who are accessing this product from a formal financial institution for the first time	None
	% of total users who are female	Percentage	Number of total users who are female	None
	% of total users who have been rejected from a formal financial institution for this product	Percentage	Number of total users who have been rejected from a formal institution for the financial product or service that they are receiving from your fintech	None
	% of total users who are poor	Percentage	Number of total users who earn less than the official poverty line in the country	None
Profitability				
	Cash burn rate	USD/month	Rate at which a new company is spending its equity to finance overheads before generating positive cash flow from operations. Calculated as : Equity/Monthly Operating Losses	None
	Is the company revenue generating?	Y/N	The company is bringing in revenue through their product offering	None
	If yes, since when?	Month and year	If companies are generating revenue, then the time since they have been doing so	None
Potential to scale				
	Penetration of Addressable Market: Definition of addressable market		Please provide the definition for your addressable market, in terms of potential customers.	None
	Penetration of Addressable Market: Size of addressable market		Please provide your estimate of the size of the addressable market, in terms of number of potential customers in the market.	None

	Number of secured partnerships	Number	The company has signed documentation and a transaction history to show number of relevant partnerships as an indicator of traction. For B2B and B2B2C players, this would include the FSP or client partnerships that they have. For B2C players, this would include any product partnerships core to the business model.	None
Risk Management and Consumer Protection				
	Methods are in place to systematically collect and use customer feedback	Y/N	Company can provide documentation that shows regular (ie, monthly or quarterly) communication with users through methods such as surveys, call centers, interviews, SMS, or ratings	None
	Documented secure data storage and transfer practices internal to the company	Y/N	Company can provide documentation showing how they store and transfer customers' personal and transaction data within the organization in a secure manner	None
	Demonstrated due diligence of data sharing partners	Y/N	Company can provide documentation showing how they assess any partners with whom they share customers' personal data	None
	Documented complaints and grievances from customers	Y/N	Company can provide documentation about nature of complaints received and actions taken	None
	Documented response rates to customer complaints	Y/N	Company can provide documentation about turnaround time on handling customer complaints and/or grievance redressal requests	None
Tier 3 - Tier 3 requires complex, and sensitive information from companies. This tier deals with details on profitability, and customer growth, in particular. Mature companies, with the resources to track these KPIs are most likely to address these.				
Customers and Growth: Please note 'users' refers to all users, while 'customers' refers to revenue-generating users only.				
	Customer retention rates	Percentage	Percentage of customers the company has retained over the last quarter. It is calculated as (1-churn rate), where churn rate is calculated as "Users lost during the quarter /	By product and geography

			Users at the beginning of the quarter"	
	Referral Rates	Percentage	Volume of referred acquisitions as a % of your total acquisitions	By product and geography
	Net Promoter Score (NPS)	Number	Index ranging from -100 to 100 that measures the willingness of users to recommend a company's products or services to others. It is used as a proxy for gauging the user's overall satisfaction with a company's product or service and the customer's loyalty to the brand.	By product and geography
	What cost and time do you influence for your B2B customers? - Acquiring customers - Onboarding customers - Servicing customers	Multiple choice selection	Acquiring customers: you reduce cost and time associated with customer acquisition for your B2B customers. This includes marketing and promotion related costs. Onboarding customers: Customer Onboarding is an umbrella term that's often used to describe the entire process that users go through when they start their journey as a customer. You reduce cost and time associated with customer on-boarding for your B2B customers. This includes post acquisition sign up for the product/service. Servicing customers: you reduce cost and time associated with customer servicing for your B2B customers. This includes post onboarding relationship management, e.g. customer query resolution, ongoing transaction support, etc.	None
	For each of the options selected above, the following 2 sets of questions would be asked: Decrease in cost of acquiring/onboarding/servicing customers for B2B partners	Percentage	Percentage reduction in cost of acquiring/onboarding/servicing customers, as reported by your B2B customers.	By geography
	Decrease in time of acquiring/onboarding/servicing customers for B2B partners	Percentage	Percentage reduction in time of acquiring/onboarding/servicing customers, as reported by your B2B customers.	By geography
Profitability: Please note 'users' refers to all users, while 'customers' refers to revenue-generating users only.				
	Average revenue per customer	USD/month	Total revenue in a month/average number of total customers in the month	By product and geography

	Average cost per customer	USD/month	Total costs in a month/average number of total customers in the month	By product and geography
	Cost per acquisition (CPA)	USD	Sales and marketing costs in a period / new user in the period	By product and geography
	Life Time Value of a Customer (LTV)	USD	Lifetime Value is the term used to determine the value that a customer contributes to a business throughout the life of the customer. It is calculated as (average revenue generated from customer per year*number of years customer is expected to stay with the company)	By product and geography
Potential to scale				
Risk Management and Consumer Protection				
	Is your fintech GDPR-compliant?	Y/N	Company can provide documentation showing how they have designed or updated their services to ensure alignment with the European Data Protection standard (GDPR)	None
	Is the documented risk penetration test completed?	Y/N	Company can provide documentation showing that they have successfully completed a penetration test to expose any technical vulnerabilities	None
	If no, are you willing to undergo risk penetration testing?	Y/N	Company is willing to undergo testing if an investor request this during the due diligence process	None
		**All metrics reported in USD can later be weighted using GNI per capita*		

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