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FinTech in the Middle East: Regulatory challenges and solutions

By

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FinTech in the Middle East: Regulatory Challenges and solutions

Karim Raja Mouaffak

ABSTRACT

The world is continuously developing, and the financial services industry is following suit.

In this study, we'll look at the difficulties regulators face in adapting to emerging technological innovations, which are often coming from companies that are actually beyond the regulatory perimeter, by studying the products of the FinTech industry and their corresponding regulations in the USA and also providing an overview of regulatory sandboxes as well as RegTech. Furthermore, we argue about the pros and cons of FinTech and give our opinions about its future.

FinTech advancements and the rapid development of innovative technologies in emerging markets such as the Middle East, combined with regulators' proactive role in establishing regulatory sandboxes, are laying the groundwork for a new set of futuristic laws critical for supporting the FinTech revolution.

Therefore, we will closely examine how Middle Eastern countries and their regulatory bodies are responding to FinTech innovation, by illuminating the regulatory challenges they face and also offering some solutions.

Keywords:

FinTech, Blockchain, Peer-to-peer, Payment services, ICOs, Cryptocurrencies, Crowdfunding, E-wallets RegTech, Sandbox, Artificial Intelligence (AI) , AML, CTF, Smart Contracts, Financial services, Banking services , Data protection, Electronic Transactions.

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Chapter One

Introduction

"Ignoring technological change in a financial system based upon technology is like a mouse starving to death because someone moved their cheese" **said Chris Skinner**

The outbreak of new technology has led to the development of financial services around the world. Internet users are becoming more and more aware of the digital transformation happening and are playing a big role in backing it up which led to the use of multiple new technologies meant to ease our daily life.

Following the financial crisis that occurred in 2008, the financial sector became rapidly digitized. Banks developed essential IT infrastructure and ATMs to support their operations, as well as other creative financial products and services. Since stock exchanges and International Correspondent Banking have become more open and used, many regulatory standards have been developed. FinTech innovation primarily occurred during this era, which saw the birth of digital banking and new business models.

Today, a smartphone is an equivalent of a bank in the users pocket .Through phones we are capable of sending or receiving money and also have the ability to buy stocks or other financial instruments.

New company entrepreneurs and innovators have been able to challenge conventional businesses and practices by using alternative financial solutions, optimizing transparency, increasing automation, and the democratization of technology. These

Elements help in transforming the FinTech industry and the overall customer experience, as well as improving the financial system.

Moreover, thanks to developments in the artificial intelligence industry (AI), computerized algorithms will be assisting consumers in planning and spending their money, thus removing the human factor and ending the role of typical brokers.

Trades will be done without any human intervention, costs will decrease and services won't be attached to a certain group of wealthy investors, they will be available to the public.

Mobile payment systems, online banking, machine learning via artificial intelligence, Blockchain and Cryptocurrencies, online trading, peer to peer lending and crowdfunding are only a few examples of today's FinTech developments. In the world of finance, systems that are based on both blockchain and ledger applications are gaining a lot of traction. Furthermore, the advances that the financial industry is witnessing will make personal financial planning intelligent and sound. All of these developments are expected to have an effect on both regulated and unregulated financial markets, thus providing a stable structure for managing and monitoring financial assets. Accordingly, new digital currencies as well as transparent and universal decentralized financial networks will be accessible.

The evolution of FinTech was divided into different stages by Arner, Barberis, and Buckley (2015). According to them, we are living in the FinTech 3.0 era, which includes both digital technology-enabled financial services firms and conventional banking institutions. Consequently, we can witness the drastic evolution of the financial industry over time, from fundament providers to banking institutions, and

eventually to FinTech, by analyzing the positions and value-added of different stakeholders.

However, the FinTech industry is still in its early stages, and as artificial intelligence and big data form the financial environment, further advances are anticipated. Governments and Central Banks can be the catalysts for future developments and regulations.

To sum up, financial regulators around the world are under pressure to consider this emerging technology and how it can fit into the existing regulatory framework. “Due to the current regulatory landscape in the United States, FinTech companies are often faced with ambiguity and confusion as to which laws, regulations, and agencies govern their products and services” [1]

We'll look at the difficulties regulators face in adapting to emerging technological innovations, which are often coming from companies that are actually beyond the regulatory perimeter by studying the components of the FinTech industry, and how the United States of America is handling this matter, as well as how Middle Eastern countries and their regulatory agencies are reacting to FinTech innovation.

Finally, the existing frameworks are essentially based on a banking model that existed before the digital revolution where clients used to balance their checkbook every week and do their banking at their nearest branch. Regulations designed for this kind of banking are clearly not beneficial to the development and promotion of modern financial services and innovations. Therefore, the rapid speed of technological change necessitates a re-evaluation of existing regulatory frameworks.

[1] Thomas Philippon, New York University, The FinTech Opportunity

Chapter Two

Defining FinTech

FinTech is defined as the "portmanteau" of financial technology. It is considered to be "the application of new technological advancements to products and services in the financial industry".[2] However, academic practice and business journals, provide a broad variety of interpretations of the definition.

Arner, Barberis, and Buckley addressed the evolution of FinTech via a large interpretation of the word. They claimed that emerging financial companies and different parties that participated in the market, regardless of scale, business model, or product portfolio, may be considered FinTech.[3]

It can also be referred as a rival of traditional banking and financial institutions that cover a group of financial services such as "cryptocurrencies and blockchain, new digital advisory and trading systems, AI (artificial intelligence) and machine learning, equity crowdfunding, peer-to-peer (P2P) lending and mobile payment systems".[4]

[2] Estevez, E. (2020, August 28). *Financial Technology FintechDefinition*. www.investopedia.com/terms/f/fintech.asp\

[3] Douglas Arner; Jànos Barberis; Rossbuckley , 2016, the Evolution of Fintech : a New Post-crisis Paradigm?

[4] Thomas Philippon, New York University, The FinTech Opportunity

Mcauley defined FinTech as “an economic industry composed of technologically advanced companies to make financial systems more efficient”.[5]

Furthermore, according to Roy Freedman, financial technology is vital for improving systems to model, value, and process financial products such as bonds, stocks, contracts, and money. He also looks at how financial systems, which are related to commercial systems, are involved in the purchasing and selling of products in various markets at various periods through trading systems and trading technologies including several actions such as buying, selling, borrowing, leasing, auctioning, negotiating, brokering and dealing etc.[6]

In fact, FinTech is at the epicenter of the technological transformation happening in our days and is considered a booming industry that is serving both consumers and businesses. It has broad applications from mobile payment solutions, online banking, investment applications, insurance and Cryptocurrencies.

[5] McAuley, D. (2014). What is FinTech . Retrieved from Wharton-FinTech : https://medium.com/whartonFinTech /what-is-FinTech -77d3d5a3e677.

[6] Freedman, R. (2006). Introduction to Financial Technology. In R. Freedman, 1st (Ed.), Introduction to Financial Technology, Academic Press.

Chapter Three

Information about FinTech:

In the earlier FinTech version (before 2008), financial institutions paid an incredible amount of money, approximately 197 billion USD, as an investment in IT in order to retain their non-competitive legacy structures. But today financial intermediaries are not needed anymore and digital assets can be controlled and distributed seamlessly with a press of a button via a sophisticated technological ledger.

According to PwC, Global FinTech Report of 2019, the differences between financial services and technology, and telecom companies have merged to the point where they are all becoming in one basket and sectors that were considered distinct are colliding.[7]

Finovate[8], the largest event and conference organizers for FinTech, showcases different FinTech companies and categorizes them by their value .Categories include unicorns[9] and semi-unicorns[10]

Meanwhile, according to Statista.com, global investments in FinTech firms grew significantly between 2010 and 2019, reaching a total amount of 168 billion US dollars.

[7] https://www.pwc.com/gx/en/industries/financial-services/FinTech -survey html

[8] (n.d.). *Who We Are*. Finovate. finovate.com/who-we-are/

[9] Companies valued at one billion dollars or more.

[10] FinTech companies which are valued at more than 500 million dollars.

In its latest report, CB Insights stated that 66 VC-backed FinTech Unicorns that are worth a combined $248B are in existence.[11] Banking institutions are continuously adopting the happening innovation, putting money into it, working with or even acquiring FinTech startups. Also the fact that non-financial enterprises are incorporating financial products into their service offerings, is considered as a significant change that will help shape the futures of FinTech. Furthermore, the expansion of FinTech can be seen in the number of firms, which began with 168 in 2008 and increased to 668 in 2015.[12]

There are different reasons that led to the emergence of FinTech: (1) financial sector flaws caused by the financial crisis of 2008 and the need of proper regulatory response to that crisis (2) mistrust by the public in the world of financial services, especially in the United States and the European Union; (3) The demand of different sources of financing for SME's; and (4) retired financial experts searching for work. 5) Technology commoditization and the excessive use of smart mobile phones. [13]

Finally the rapid growth of the FinTech industry showcases its strong dynamics. However, it is unclear whether this expansion will be sustainable and if FinTech will be regulated enough.

[11] https://www.cbinsights.com/research/report/FinTech -trends-q2-2020/The State of FinTech Q2'20 Report: Investment & Sector Trends to Watch.

[12] Deloitte, "FinTech by the numbers Incumbents, startups, investors adapt to maturing ecosystem" https://www2.deloitte.com/content/dam/Deloitte/tr/Documents/financial-services/dcfs-FinTech -by-the-numbers.pdf

[13] Arner, Barberis & Buckley, *supra* note 2

Chapter Four

The different FinTech products

4.1 Mobile Payment Services

Mobile financial services are the first operations in the financial industry to benefit from information and communication technologies. [14] It's important to note that the term "mobile financial services" refers to a broad variety of “financial services, from money transfers and payments to banking-type services (including deposit and borrowing).” [15]

Two types of players include mobile payment services: The existing banking and card payments institutions, and novel entrants such as telecoms operators, big-tech firms and technology innovators.[16] Mobile or digital wallets are used to enable these payment services. A mobile wallet is a transaction-securing device that functions similarly to a modernized version of a conventional payment card. [17]

According to a new study from the United Kingdom, “cash payments have decreased from six out of ten to three out of ten in 2018, and are expected to reach their lowest point in 15 years.”[18] Following that, for the first time in 2017, debit card transactions

[14] Julia S. Cheney, “An Examination Of Mobile Banking And Mobile Payments: Building Adoption As Experience Goods?” FRB of Philadelphia - Payment Cards Center Discussion Paper No. 08-07-2008 .

[15] Ibid

[16] N. Delic and A. Vukasinovic, “Mobile payment solution - symbiosis between banks, application service providers and mobile network operators,” 3rd International Conference on Information Technology: New Generation.

[17] Yonghee Kim and others, “The Adoption of Mobile Payment Services for “FinTech ”, International Journal of Applied Engineering Research Vol. 11, No 2.

[18] UK Payment Markets Summary, https://www.ukfinance.org.uk/system/files/Summary-UK-Payment- Markets-2018.pdf

officially exceeded cash payments, with over three million individuals claiming that they pay in cash for their purchases.

One of the most popular financial technology solutions are payment services. Despite the fact that technological advancement benefits both existing and new entrants, conventional banks offerings and emerging startups' services should be differentiated.

Furthermore, bank-based payment systems, in which a centralized authority verifies operations, doesn't meet with contemporary FinTech objectives.

Big-tech firms have primarily focused on payment services; in reality, that type of services was among the first activities provided by these firms.[19] PayPal and Alipay, are the two main big-tech firms providing assured delivery settlements and e-commerce platforms for buyer reclaims. [20] Furthermore we will discuss other payment services companies in the Middle East later in our study.

[19] Peter Goldfinch, "A global guide to FinTech and future payment trends" (Routledge, 2019)

[20] BIS, "Big tech in finance: Opportunities and Risks BIS Annual Economic Report 2019" (2019) https://www.bis.org/publ/arpdf/ar2019e3.pdf

4.2 CrowdFunding platforms

Among other financial technology services, Crowdfunding has become one of the most common. It is described as a technique for collecting funds through soliciting contributions from numerous individuals online. [21]

Previously, the only sources for borrowing money were banks or people, and both creditors required collateral and also used risk-reducing methods. Despite these market barriers, internet fundraising and lending businesses are growing.

Furthermore, Crowdfunding has become a winning scenario for entrepreneurs and investors. Thus enabling entrepreneurs to reach a large audience via special platforms and allowing investors to make profits. [22]

It can be said that the internet's power is important because big data will assist in attracting the interest of vast groups of people. And though the word "crowdfunding" is relatively recent, large-scale fundraising is not.

[21] FCA, What Is Crowdfunding? https://www.ukcfa.org.uk/what-is-crowdfunding/

[22] Kevin Berg Grell and Others, “Crowdfunding The Corporate Era” (Elliot and Thompson 2015)

Donation, grant, equity, and debt crowdfunding are all options for raising funds. For instance, crowdfunding that is based on **donations**, gives participants no direct benefit, so the main amount of money raised is not returned. A successful crowdfunding campaign is evaluated by the quantity of money collected and the number of contributors. [23] Moreover, in **reward-based crowdfunding,** payments are made by offering future products or services.[24]

Peer to peer lending (P2P lending) refers to loan-based crowdfunding. In essence, the debt/investment will be fully repaid to the lender and it may be subject to a certain interest rate.

Additionally, investing in **equity-based crowdfunding** means receiving stock in return for money which bears similar liabilities to stock investing; investors will lose money if the company in which they have invested does not make a profit.

This paper will concentrate on peer-to-peer lending scenarios.

On the loan-based and investment-based crowdfunding platforms, there are three primary business models:

- **The conduit model**: promotes investment opportunities while ignoring investment options and determining loan prices,
- **Pricing model**: Determines loan prices but allow investors to choose investments,

[23] Andrea S. Funk, Crowdfunding in China A New Institutional Economics Approach.(2th edt. Springer 2019)

[24] ASBA, "An Overview of FinTech s: Their Benefits and Risks Association of Supervisors of Banks of the Americas 2017" http://www.asbasupervision.com/es/bibl/i-publicaciones-asba/i-2-otros- reportes/1603-orep24-1/file

- **Discretionary platform**: Determines the pricing, and the investor has no say in selecting lenders.[25]

4.2.1 Examples of Crowdfunding platforms

Kickstarter, which was founded around 2009, is one of the best renowned crowdfunding sites. In May 2019, the platform received more than "$4 billion in pledges from 16.3 million backers to fund 445,000 projects". [26] Indiegogo is another American crowdfunding site with 15 million monthly visitors.[27]

Another platform in the Middle East is Zoomaal, It is an initiative by four major Arab investors: Wamda (UAE), Middle East Venture Partners (MEVP, MENA), Hivos (Netherlands), Cairo Angels (Egypt), N2V (KSA), and Sawari Ventures (Egypt).

The platform promotes itself to be the ideal location for project funding, with 291 Projects Funded and a total of $3,348,501 raised by 12879 funders.

The earliest campaigns used to raise money started in the entertainment sector with music and films before things like text messaging came around. Three or four players are involved in the initial crowdfunding concept: the project initiator, the investor, and the crowdfunding site. Accordingly, most websites function as intermediaries between project initiators and investors.

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[25]" FCA, Loan-based ('peer-to-peer') and investment-based crowdfunding platforms: Feedback on our post-implementation review and proposed changes to the regulatory framework (CP No.18/20, 2018)"

[26] (2019, July 30). PledgeCamp vs Kickstarter vs Indiegogo. Medium. medium.com/@thecryptohype/pledgecamp-vs-kickstarter-vs-indiegogo-cbc9223ac6bb

[27] IBID

4.2.2 US regulations on Crowdfunding:

In the United States, the regulations surrounding Crowdfunding are somewhat restricted, but the SEC's regulation on Crowdfunding is limited to how firms are exchanging securities via Crowdfunding.

Moreover, the Securities and Exchange Commission states in the "Jumpstart Our Business Startups (JOBS) Act" [28] that all operations should be made "online through an SEC-registered intermediary, either a broker-dealer or a funding portal,"[29] and it also added that this type of Crowdfunding can only raise $1,070,000 per year, and that all transactions must be reported to the SEC.

4.3 P2P lending platforms (Crowdfunding based on loans)

People can lend money to individuals or companies through P2P lending networks and receive a return on investment.[30] This kind of lending is like bank loans.

A borrower that cannot get credit via conventional channels will resort to this alternate method of funding.[31] Also, by storing and analyzing consumer data, that platform will

[28] (n.d.). *Text of H.R. 3606 (112th): Jumpstart Our Business Startups (Passed Congress version)*. GovTrack.us. www.govtrack.us/congress/bills/112/hr3606/text

[29] (n.d.). *SEC.gov*. Registration of Funding Portals. www.sec.gov/divisions/marketreg/tmcompliance/fpregistrationguide htm

[30] Alex Brill, 'Peer-to-Peer Lending: Innovative Access to Credit and The Consequences Of Dodd- Frank' (2010).

[31] "Pavlo Rubanov and others, 2019, 'analysis of development of alternative finance models depending on the regional affiliation of countries', Business & Economic Horizons."

handle the credit scoring procedure.

4.3.1 Examples of peer to peer lending platforms

Wall Street executives launched Peerform, a lending platform, in 2010. It provides good lending terms for customers with no prepayment penalty. [32] Another well-known loan site is, Upstart. The total consumer loans the latter startup has generated so far are about $7.8 billion. [33]

Marketplace lending has reached 490 billion US Dollars by 2020. [34] Nevertheless, lending platforms would provide an efficient, transparent and a lower cost alternative to traditional lending because of new dangers arising and mainly fraud risk. [35]

Accordingly, there are many kinds of lending platforms with varying risk profiles. Thus, the first type is the one similar to conventional banking operations and the second type of platforms will not bear any credit risk or even maintain any loan on records.

4.3.2 US regulations on Peer-to-Peer lending:

Peer-to-peer laws throughout the USA are regarded as "fragile". The platform creates a direct link between the lender and the borrower, enabling the latter to receive funds directly from the platform. [36]

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[32] (n.d.). *About Us*. Peerform . www.peerform.com/about-us/

[33] (n.d.). Upstart. www.upstart.com/about/

[34] Morgan Stanley, “Can P2P Lending Reinvent Banking?”, www morganstanley.com, 2015

[35] Fabio Caldieraro and others, “Strategic Information Transmission in Peer-to-Peer Lending Markets” (2018)

[36] Nemoto, Naoko; Huang, Bihong; Storey, David J. (2019) : Optimal regulation of P2P lending for small and medium-sized enterprises, ADBI Working Paper Series, No. 912, Asian Development Bank Institute (ADBI), Tokyo

According to existing regulations, in order to originate a loan, a bank has to join the lending network and then lenders will get debt securities through the platform, which allows them to become creditors.

However, obtaining licenses from state governments is required and new entrants face major regulatory challenges. Further, P2P networks consider the mentioned approach to be costly.

4.4 Cryptocurrencies /Digital currency

Cryptocurrency is a popular technology that has recently received a lot of attention on social media networks. However, the first cryptocurrency, Bitcoin, was developed in 2009 by Satoshi Nakamoto,whose identity is still unknown.

Accordingly, Cryptocurrency is a technology based on blochchain, which is an online decentralized and distributed public ledger.[37] "Exchange tokens (cryptocurrencies), security tokens, and utility tokens" are three different types of crypto assets.[38]

Utility tokens are used to access an "existing protocol" on the blockchain. It may be utilized inside their own ecosystems. While security tokens are designed specifically for direct investment and function as "on-chain representations of real-world securities or tokens that are on-chain instruments serving a similar purpose for blockchain projects and/or digital assets".[39]

However, the emphasis of this dissertation will be on cryptocurrencies.

Cryptocurrencies operate through an automated peer-to-peer computer network in which all transactions are openly recorded. The transaction's timing, account number,

[37] Reiff, N. (2014, June 13). *Blockchain Explained*. www.investopedia.com/terms/b/blockchain.asp

[38] Chris Burniske and Jack Tatar, "Cryptoassets : the innovative investor's guide to bitcoin and beyond" (McGraw-Hill Education 2018)

[39] (2020, February 11). *The Different Types of Cryptocurrency Tokens Explained*. Maker Blog. blog.makerdao.com/the-different-types-of-cryptocurrency-tokens-explained/

and amount are all secured in a distributed process.

A centralized authority is accountable for guaranteeing that no duplicate spending happens, which means that they are responsible for maintaining the safety and protection of transactions. Moreover, anyone who wishes to participate in the process of validating cryptocurrency is referred to as a "miner"[40]. Accordingly, users have two keys: a public key that everyone may access and a private key that only the holder knows.

Every consumer, in general, "has a public key and a private key: the public key can be accessed by anyone, ensuring transparency; the private key, on the other hand, is a private code that can only be known by the holder." [41]

The payor and the payee, both have the two mentioned keys. First of all the payee secures all of transaction details in the payer's public key and afterwards transmits the information to the payer, which views it using his private key. Once the parties agree on a transaction, it is forwarded to the minors for confirmation.[42]

There is a lot of value in talking about the legal status of crypto currencies, which has become a contentious topic among academics.[43]Accordingly, they can be classified as

[40] Rosario Girasa, "Regulation of Cryptocurrencies and blockchain technologies National and International Perspectives", (Palgrave Macmillan, 2018) pg. 36

[41] Paul Vigna and Michael J. Casey, "Cryptocurrency : the future of money" (Vintage, 2016)

[42] Mark Andreessen, Why Bitcoin Matters, N.Y. TIMES http://dealbook nytimes.com/2014/01/21/why- bitcoin-matters.

[43] David Lee Kuo Chuen Lee, Linda Low, "Inclusive FinTech: blockchain, cryptocurrency and ICO" (World Scientific Publishing Co. 2018)

currency, commodity, commodity money, or security, among other things. [44]

Each country has a different approach regarding crypto currencies as we will witness in the next chapter, but they are mostly classified as "private currency."

4.4.1 US regulations on Digital Tokens/ICOs:

In terms of digital tokens/ICOs, the United States has few rules. Since 2015, the Commodity Futures Trading Commission has started pursuing individuals that violated the legal standards for virtual online currency.

TTA[45] and DTA[46], are two bills submitted by the House of Representatives in 2019 in order to be considered. The Token Taxonomy Act would define exactly what a digital token is, and it would eventually rule digital tokens out as securities.

The Digital Taxonomy Act will give the Federal Trade Commission (FTC) $25 million a year to help them stop unfair and misleading activities in digital token transactions.[47]

Another provision of the DTA is that the Federal Trade Commission will send a report to Congress every year outlining their regulatory measures and proposals for additional legislation related to digital tokens. The law review also explains why the federal

[44] Gareth Pyburn, "Bitcoin Legal: Taxonomy of Regulatory Reactions, APAC's Outlook and Potential for BTC-Linked Derivatives", Lexology (2014)

[45] The Token Taxonomy Act of 2019

[46] Digital Taxonomy Act of 2019

[47] https://cointelegraph.com/news/new-us-digital-taxonomy-bill-to-allocate-25-million-annually-to-prevent-crypto-crime

government is falling behind in FinTech regulations and how state legislation is leading the way.[48]

An initial coin offering (ICO), a digital token that has no formal regulations. Thus, in exchange of cash, businesses are able to generate funds by releasing a unique Cryptocurrency.[49] However, In the United States, the existing Cryptocurrency laws apply to "administrators" & "exchangers" using Cryptocurrency.[50]

4.4.2 US regulations on Cryptocurrencies:

Based on the above-mentioned, only administrators and exchangers of Cryptocurrencies are regulated in the United States. Anti-money laundering guidelines must be followed by these administrators and exchangers. There are some state rules for other uses of Cryptocurrencies, but there is none dictated by the federal government.

[48] (2018, April 23). *Importance of Litigation Strategy*. Lexology. www.lexology.com/library/detail.aspx

[49] (n.d.). *Practice Areas | GLI*. GLI - Global Legal Insights - International legal. www.globallegalinsights.com/practice-areas/FinTech

[50] Designing a BSA/AML Framework for Virtual Currencies, 2018

4.5 Blockchain Technology & Smart Contracts

Blockchain is a method of storing information which cannot be changed, hacked, or cheated. It is "a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain. Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participant's ledger."[51]

While most of the attention was focused on cryptocurrency, smart contracts are also attributed to blockchain technology .They are real contracts that have been coded. [52]

A contract's execution does not necessitate human intervention: the contract's terms would be carried out by the computer system itself. [53]

4.5.1 Blockchain Technology incorporating Smart Contracts

Ethereum, an open-source, public blockchain, is an example of a popular platform that effectively implements smart contracts.[54] However, this innovation would modernize Contracts Laws around the world and give individuals access to new contractual solutions that are more efficient.

In a nutshell, a contract is drafted based on the parties' agreement, signed "cryptographically," and uploaded to the blockchain. Finally, the contract will be

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[51](n.d.). ***Blockchain Explained: What is blockchain?*** **www.euromoney.com/learning/blockchain-explained/what-is-blockchain**

[52] Quinn DuPont, "Cryptocurrencies and Blockchains". (Medford, MA: Polity, 2019) pg.173

[53] Andy Robinson and Tom Hingley, 'Smart Contracts: The Next Frontier?' (Oxford Law Faculty, 2016)

[54] (2021, July 8). *Introduction to smart contracts*. Ethereum.Org. ethereum.org/en/developers/docs/smart-contracts/

executed by the computer automatically when the contract's coding requirements meet. [55]

An illustration of how smart contracts and cryptocurrencies may be used in practice is when two parties have decided to rent an apartment and the contract details are implemented digitally. Payment will be made in virtual money via the blockchain and after receiving payment, the tenant will provide a "digital key" within a limited time to the renter in order to access the apartment.

4.5.2 US regulations on Blockchain and Smart Contracts

There is no specific regulations about the Blockchain, regulatory bodies are focusing more on the products such as cryptocurrencies. (Bitcoin, Ethereum...)

Furthermore, there are a variety of organizations that oversee Cryptocurrency and Blockchain activities including the Securities and Exchange Commission, the CFTC, the U.S. Treasury Department, and the Federal Reserve, which leads to regulatory ambiguity in the industry. However, we will discuss that further in the next chapter.

In addition, smart contracts are evolving slowly and so are the laws surrounding them. But, they face many challenges such as enforceability, third party drafting, the risk of fraud and even adaptability to complicated commercial transactions. However, smart contracts may be very useful and efficient for users but it is yet to be seen if they will be able to survive and overcome all the challenges they might face.

[55] Fenwick, Mark and Vermeulen, Erik P.M., A Primer on Blockchain, Smart Contracts & Crypto- Assets Lex Research Topics in Corporate Law & Economics Working Paper No. 2019-3.

4.6 Quantitative investing via AI and Robo-advisors:

Investment products and services have also changed as a result of new technologies.

Robo-advisors are digital systems that use information technology to help serve clientele by providing them advice based on artificial intelligence which incorporates dynamic and smart customer support features.

Moreover, Human financial advisors are on the verge of being obsolete. For instance, Robo advisory has reached in 2019 more than one and a half trillion USD in assets, with that figure being projected to double in 2020. [56]

Finally, investor profiling has traditionally required in-person interviews and bilateral relationships to determine customers; however, these have been replaced by online questionnaires, and customer investment schemes where risk limits have been established by algorithms. [57]

[56] KPMG, "Robo advising Catching up and getting ahead" https://home.kpmg/content/dam/kpmg/pdf/2016/07/Robo-Advising-Catching-Up-And-Getting- Ahead.pdf

[57] Dominik Jung and others, "Robo-Advisory" (2018) Business & Information Systems Engineering 2018, pge 81–86

Chapter Five

Regulating FinTech

Legislators are now grappling with how to incorporate FinTech into established legal frameworks, which were designed for a world dominated by large, traditional financing and baking institutions.

Overregulation would stifle innovation, whereas little regulation could offer newcomers considerable advantages, owing to reduced administrative and legal expenses, as well as greater societal consequences because of deceptive practices and a lack of customer protection.[58]

5.1 FinTech Regulations in the United States of America

Worldwide, numerous distinct financial ecosystems exist. Thus, an independent legal regime is assigned to each country.

Due to this variation, no single approach would work for every nation and please all parties. And when it comes to innovation, various regulatory bodies can have different point of views which will have a significant impact on how they react to FinTech.

Regulators in some nations, such as the United Kingdom, have long encouraged FinTech companies to target non-traditional bank customers. In contrary, United

[58]Douglas Arner; Jànos Barberis; Ross Buckley, 2016, The evolution of FinTech : a new post-crisis paradigm?

States Fintech regulations applied to US FinTech companies constrain development and productivity.

As a result, many federal regulatory agencies in the United States have initiated their own initiatives to improve collaboration between FinTech innovators and financial regulators in the absence of a cohesive national FinTech strategy.

Further, regulatory bodies realize that this technology is here to stay, and it is their duty to find new and innovative methods for customers to use financial services. Accordingly, regulators are reacting to inquiries from industry stakeholders which is also helping them figure out what improvements to the existing structures are required. Moreover, this will enable regulatory agencies to meet all the changes in operations in the financial services sector.

The article "FinTech regulation: where do we stand?" in the International Financial Law Review examines US FinTech regulations. In 2019, the SEC released a handbook dubbed the “Framework for Investment Contract Analysis of Digital Assets”, which aids in determining if tokens are securities.

The “third prong of the Howey test” argues that when an investor expects to obtain money from the labor of others, it should be considered as a security. Therefore it must be supervised by the SEC under standard securities laws such as the rules of the “Securities Act of 1933”.

Nevertheless, “price appreciation arising solely from external market forces and affecting the supply and demand for an underlying commodity is not usually

considered profit under the Howey test", therefore under those conditions, tokens won't be recognized as securities.[59]

The Consumer Financial Protection Bureau, or CFPB, for example, has initiated Project Catalysts, a consumer-friendly growth program for consumer financial goods and services.

Also, it tries to learn about the financial decisions that customers make as a result of these programs, as well as provides a better understanding of emerging consumer-friendly developments in the marketplace.

Furthermore, the Commodity Futures Trading Commission established Lab CFTC to serve as a focal point for its involvement in the FinTech industry. The main goal is to make the CFTC more accessible to FinTech entrepreneurs while also providing a platform for the commission to learn about new technology.

One of the Lab CFTC's core components is the guide point, a specific contact point for financial technology developers to connect with the CFTC, understand its regulation regime and gain input as well as updates on the market's application of new technology.

The Office of Innovation was created by the Office of the Comptroller of the Currency (OCC) to serve as a single point of communication as well as a hub for input on technology throughout the United States banking sector. It is made up of four main sections.

[59] Watkins, L. &. (2019, September 2). *Fintech regulation: where do we stand?* International Financial Law Review. www.iflr.com/article/b1lmxbt5dj2xz4/fintech-regulation-where-do-we-stand

The first component focuses on technical assistance and outreach in order to establish a transparent and continuous engagement with banking institutions, FinTech businesses, as well as other stakeholders. The second component is about teamwork and facilitation in order to put in place a mechanism to simplify and manage technological advancement activities, therefore providing clear and fast answers to enquiries.

Thirdly, it is about raising awareness and providing instructions to OCC employees to develop their skills and expertise, and finally the last component is about conducting research to determine the developments in the FinTech ecosystem.

American regulators have developed unique avenues for sharing knowledge in order to adapt to FinTech advances more efficiently. Also the U.S Treasury Department established "the Interagency Working Group on Marketplace Lending" that was held multiple times in 2016.

The objective of “the working group” includes, exchanging knowledge, engaging traders as well as other parties, and determining where increased regulation transparency may benefit individuals that are borrowing or investing.

In addition, the Federal Reserve established an interagency FinTech discussion forum in March 2017, which is a gathering of interagency bank regulatory officials where discussions are organized around shared problems in FinTech consumer protection and regulatory results.

Accordingly, the cooperation projects in financial technology span from regulatory agencies in different countries to domestic interagency working groups.

Finally, sharing knowledge between domestic and international regulatory agencies helps regulators to keep up with the latest FinTech trends and promotes a shared understanding and implementation of laws and regulations.

5.1.1 Anti-Money Laundering/Counter Financing of Terrorism:

Anti-money laundering laws governing FinTech are restricted in scope and apply solely to money laundering using digital currency. Generally, “the Bank Secrecy Act” (BSA) serves as a framework for financial institutions in enforcing anti-money laundering (AML) measures within their businesses.

FinCEN[60] clarified in 2013 that the BSA will apply solely to FinTech businesses who function like "administrators" or "exchangers" of digital currencies.[61]

Due to its clandestine usage in money laundering, virtual currency is under close surveillance. As a result, the “Office of Foreign Assets Control” (OFAC) has compiled a list of companies and individuals who pose a threat to national security or the economy.

Finally, in the United States, there is no official legislations or special regulations governing AI and Robo advising. [62]

[60] The Financial Crimes Enforcement Network

[61] (2018, September 7). Designing a BSA/AML framework for virtual currencies. rsmus.com/what-we-do/services/risk-advisory/designing-a-bsa-aml-framework-for-virtual-currencies.html

[62] Victoria Williams , FinTech Regulations in the United States Compared to Regulations in Europe and Asia, 5-2020

5.2 RegTech

FinTech's rapid evolution and development requires RegTech's rapid evolution and development as well.

5.2.1 Defining RegTech

Regulatory technology, often known as "RegTech", refers to the application of "IT" to regulatory monitoring, reporting, and enforcement.[63] Thus, focusing on current technology to provide regulatory needs more efficiently and effectively than present capabilities makes RegTech a subset of FinTech. [64]

To put it simply, RegTech is presently in a stagnant place. It's more than just an efficiency tool; it's part of a radical revolution in regulations.

It gives regulators the tools they need and empowers them to transition toward a risk-based strategy. This will enable regulatory bodies to monitor business and market participants with more accuracy and specificity while also having access to special data[65]. Nonetheless, there is no better answer to the growing world of technology than doing this to help alleviate the threats of "regulatory capture" which is an "an economic theory that regulatory agencies may come to be dominated by the interests they regulate and not by the public interest" [66].

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[63] FinTech , RegTech and the Reconceptualization of Financial Regulation Douglas W. Arner ,Jànos Barberis , Ross P. Buckley

[64] Feedback Statement, Financial Conduct Authority, Call for Input on Supporting the Development and Adopters of RegTech, (July 2016)

[65] Imran Gulamhuseinwala, Subas Roy & Abigail Viljoen, innovating with RegTech - Turning regulatory compliance into a competitive advantage 10 (2015)

[66] Boyle, M. J. (2021, January 18). *Regulatory Capture Definition*. www.investopedia.com/terms/r/regulatory-capture.asp

As a result of the financial crisis in 2008 and post-crisis regulatory reforms, financial institutions have fundamentally changed their methods, activities, and lines of profitability. [67] In addition, post-crisis regulation has also raised compliance expenses causing the direct monetary costs of penalties to rise. Regulatory reform initiatives triggered these changes. [68]

So, by using software to track and comply with regulations, several Fintech companies would save a lot of money while creating significant potential for new financial technology innovations, Information Technology, and consulting companies. [69]
On the other hand, "Regtech" has the potential to provide, continuous monitoring capability, near-real-time insights regarding the regulation of trade domestically and internationally via machine learning and AI, and also the ability to spot potential conflicts.

An innovative regulating framework is necessary to cope with online identification, personal data and other issues that arise when the finance and banking industry shifts from KYC standards to KYD (know your data) norms.

"RegTech" and "FinTech" should be distinguished. The common connection between them is that both innovations were stimulated by the Great Recession. Accordingly, the rise of "RegTech" can be attributed to:

[67] Ross P. Buckley, *Reconceptualizing the Regulation of Global Finance*, 36 OXFORD J. LEGAL STUD. 242 (2016).

[68]Financial Stability Board, Implementation and Effects of the G20 Financial Regulatory Reforms: Report to the G20 (Aug. 2016). / Buckley & Arner, Supra Note 2; Reconceptualising Global Finance and Its Regulation (Ross P. Buckley, Emilios Avgouleas and Douglas W. Arner (Eds.), 2016.

[69] Adrian Shedden & Gareth Malna, *Supporting the Development and Adoption of RegTech: No Better Time for a Call for Input*, BURGES SALMON 2 (Jan. 2016)

- The implementation of post-crisis regulatory reforms that require huge increases in data sharing by monitored companies,
- Advances in data sciences (machine learning and AI), that enables unstructured data to be structured,
- Financial benefits for participants in order to reduce rapidly rising enforcement expenses,
- Regulatory bodies strive to enhance the effectiveness of their supervisory instruments in order to encourage competition while also maintaining their financial stability and market transparency.[70]

5.2.2 RegTech Revolution:

To fulfill the restrictions imposed by the government, big financial institutions and the finance industry have increased their use of technology, particularly in developed economies. Regulators will be held responsible for both assessing and implementing ever-stricter regulatory standards on evolving and exponentially rising transnational markets.

Furthermore, authorities throughout the world are grappling with the unprecedented rapid multiplication of new FinTech companies and entrants. Therefore, regulators must create regulatory measures which won't hinder growth and development while still assuring a stable financial industry. Also, legislators and policymakers are

[70] Douglas W. Arner, Jànos Barberis, Ross P. Buckley,October 2016, FinTech , RegTech and the Reconceptualization of Financial Regulation, , Forthcoming: Northwestern Journal of International Law and Business

encountering fast changing financial markets, as well as an infrastructure for regulation, demanding a growing usage of, and dependency on RegTech.

The financial services industry has been driving the creation of RegTech so far, mainly due to rising of penalties and settlements[71]. Moreover, regulators that are seeking to expand their supervisory abilities, are likely to push to the next step.

Finally, that regulatory technology is expected to thrive and be used in the business-to-business services sector due to the tools it provides, thus making "RegTech" the inevitable next step in the evolution of financial services regulation.

5.3 Regulatory Sandbox

We will discuss a popular approach to regulating FinTech that is known as a regulatory sandbox, which was released in the United Kingdom, and got adopted by multiple regulatory agencies.

5.3.1 Regulatory Sandbox in the United Kingdom:

Regulators around the world used different approaches to collaborate with other regulators domestically and globally to control the emergence of financial innovation.

They established innovation bureaus and implemented various procedures that allow FinTech companies to conduct trials, including competitions and funding.

[71] "JP Morgan Chase added 13,000 employees at a cost of US$2 billion between 2012-14. Likewise, Deutsche Bank and UBS spent respectively EUR1.2 billion and US$946 million on regulatory demands in 2014. *See* Institute of International Finance."

A common method is the regulatory sandbox, it is a type of secure zone in which businesses use for testing their novel "products, services, business models, and delivery mechanisms" before bearing any of the standard legal implications.

To begin, FinTech firms must submit an application to be considered for participation in the sandbox. Secondly, if the regulatory authority approves, the company commits to the criteria under which services and products should be assessed, including the percentage of users and the number of activities, as well as the testing period. After that, the firm obtains the necessary licenses to start the testing process while coordinating with the regulators. The United Kingdom's Financial Conduct Authority (FCA) was the first regulator to establish a FinTech sandbox.

The FCA is the United Kingdom’s financial services regulatory authority. Its mission is to foster competition while protecting consumers' interests, which eventually led to the founding of the sandbox.

The authority stated that they created a sandbox to reduce the time and expense associated with bringing creative innovations to market, to boost innovators' access to funding, to encourage the testing and implementation of products, to guarantee that adequate customer rights were also incorporated into new technologies, and finally, to assist consumers in achieving better outcomes.

Additionally, the FCA was worried about national competitiveness, which is why it created the sandbox that will assist the United Kingdom to retain its leadership position in the European FinTech sector. To succeed in the sandbox, a firm must demonstrate how their product truly innovates and provides a measurable value to customers. Accepted companies are offered a range of options, mainly limited operating

authorization. Unless specific exemptions apply, every firm intending to offer financial services to users within the UK should get the Financial Conduct Authorities' approval.

The FCA established a bespoke authorization mechanism for businesses allowed into the sandbox, limiting all licensing and even registration until they finish with the testing of their innovations.

Firms admitted into the sandbox were given a unique permission procedure in which they were only allowed to try their concepts. Accordingly, the FCA will make specific recommendations which will aid in the evaluation of products in a sandbox environment. Thus, companies who are concerned that their offering may breach a regulation can request a waiver or amendment to existing regulations.

The Financial Conduct Authority would only amend the regulation if it finds that the provision is too restrictive or ineffective. Accordingly, sandbox firms do not have enforceable action letters that bind enterprises to meet the defined test conditions or even serve users equally, which is quite an advantage for these companies under development.

Finally, the FCA recognizes that unanticipated problems will occur, but it does not anticipate taking disciplinary action.

5.3.2 Regulatory Sandbox in the United States of America:

A sandbox approach in the USA would be practically impossible because of several federal agencies' involvement in the country's FinTech industry. Also, federal and state financial regulatory bodies lack the authority to launch a sandbox program and the

mandate to encourage competition. However, few regulatory agencies have embraced some aspects of the sandbox concept.

In 2017, for example, the Consumer Financial Protection Bureau issued a "no-action letter" to Upstart Network, a company that utilizes alternative data to evaluate creditworthiness and underwrite loans. The CFPB agrees in the letter that they will not pursue supervision or compliance proceedings against Upstart under "the Equal Credit Opportunity Act " if the mentioned company provides the bureau with enough information regarding compliance and loaning activities to reduce customer risks and also advises them on the influence that data solutions have on loan operations. Furthermore, the SEC and the CFTC have given some help to FinTech businesses, granting them "no-action letters".

Nevertheless, despite the obstacles to creating a financial technology sandbox, some states in the country are already considering establishing it. Thus, Arizona was the first state in the United States of America to have its own sandbox. The State Attorney General's office will oversee the sandbox, which is accessible to new market entrants who are pursuing lending activities and money transfers.

Finally, until applying for official licensing, businesses can do preliminary testing and service up to ten thousand users.

Chapter Six

Moving forward with FinTech regulation:

After the surge of Covid-19, people around the world started shifting towards online technology and solutions. As a result, the banking and financial services industry has seen an increase in online users where businesses and individuals now have access to more convenient and accessible FinTech products.

Blockchain technology is paving the way for the FinTech revolution. Thus, the incorporation of smart contracts into the Blockchain using Ethereum, another Cryptocurrency, is just one example of FinTech's potential.

We will explore the benefits and drawbacks of FinTech in the following chapter, but even if significant drawbacks exist, they should not act as a barrier to the industry's growth.

Also, the finance industry is advancing from Know Your Customer towards Know Your Data, therefore regulating and following up on FinTech poses a concern for regulatory bodies around the world.

We'll be entering into an entirely new regulatory regime that will address all online operations, from digitized identification to data governance. However, this will have widespread repercussions outside the financial realm. And regulators will have to guarantee data protection and user privacy. Further, any future regulations should

ensure enforcement of innovative algorithms and maintain a stable and consistent framework.

The rise of FinTech firms and increased use of regulatory sandboxes provides an unprecedented opportunity to test a new set of regulations that are fair, reasonable, effective, and data-driven before they are implemented globally.

We also believe that FinTech and RegTech must co-evolve because regulators are slow to implement regulations for the banking and finance industry.

Finally, FinTech is a futuristic approach that is revolutionizing the financial industry. In other words, individuals and companies will need to learn how to ride the evolutionary train and adapt to the upcoming banking and financial services era.

Chapter Seven

FinTech Pros

FinTech services may benefit the industry in general by providing more effectiveness, lower costs, better accessibility to financial activities and less reliance on a central authority.[72]

7.1 Opportunities

Financial Technology will guarantee that customers around the world will have access to financial services and products.

In other words it provides Financial Inclusion which implies that "individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way"[73].

Financial products are not yet accessible to the general public. In certain cases, it is due to the fact that banks are underdeveloped, and therefore their operation is minimal. [74]Also In some situations, certain people are unable to open a bank account because they do not meet the bank's minimum requirements. Moreover bank customers must contend with exorbitant transaction fees.

[72] Thomas Philippon , 2017, Working Papers No 655, "The FinTech Opportunity"

[73] (n.d.). *Financial Inclusion*. www.worldbank.org/en/topic/financialinclusion

[74] Evans, D. and A. Pirchio (2015) 'An Empirical Examination of Why Mobile Money Schemes Ignite in Some Developing Countries but Flounder in Most', Coase-Sandor Institute for Law and Economics Working Paper no 723

Financial technologies would increase financial inclusion because they remove obstacles, require less regulations, and are not prohibitively costly to operate, as will be addressed further down.

According to statistics, 38% of individuals worldwide are unbanked, whereas around 40% possess access to financial services.[75] These unbanked borrowers will be served by P2P lending platforms, which will collect various but essential information through their systems.

"Alipay", a brand of the Ant financial consumer finance app, is an example of people preferring financial products to banks. As of March 2020, it had 1.3 billion yearly registered customers from different countries around the world.[76]

Although FinTech will increase financial inclusion and contribute to developing new businesses, funding capital for ventures or start-ups is a concern when it comes to lending. Traditionally, fund-raising is conducted by banking institutions or angel investors, but there are some risks as well as some regulatory hurdles to face.[77]

- FinTech will improve accessibility in many ways:

[75] The Economist Corporate Network ,The Future of Digital Finance https://www.corporatenetwork.com/media/1617/the-future-of-digital-finance_web.pdf

[76] Liao, R. (2020, July 15). *Jack Mas fintech giant tops 1.3 billion users globally TechCrunch*. techcrunch.com/2020/07/14/ant-alibaba-1-3-billion-users/

[77] HM Treasury, "Financial inclusion report 2018-19" (2019) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/789070/financial_inclusion_report_2018-19_web.pdf

To begin, funding for new projects may be raised from a range of investors utilizing Crowdfunding networks. Second, because these platforms serve a large number of users, the risk will be dispersed among them. Usually, the risk is generally taken by a single company or person and the investment can be split among multiple projects or can cover only one project.[78]

Traditional banking will be improved thanks to financial inclusion. Long ago, individuals and businesses used to have fewer options when it came to financial services, which led to unnecessary authoritarianism in the banking sector, resulting in poor service quality and high transaction fees. New entrants to the system, on the other hand, would put pressure on banks to provide better service or risk losing customers.

[78] Julapa Jagtian and Catharine Lemieux, "FinTech Lending: Financial Inclusion, Risk Pricing, and Alternative Information" , Working paper, Federal Reserve Bank of Philadelphia.
https://www.fdic.gov/bank/analytical/cfr/bank-research-conference/annual-17th/papers/14-jagtiani.pdf

7.2 Increased Efficiency and low cost solutions

In the past, many businesses spent significant time and resources on customer service. This practice is now being challenged by low-cost services provided by new FinTech firms, which are focused on mass intelligence and advanced data analytics. [79]

The rivalry between traditional banking and FinTech companies is intensifying as innovation grows. Thus Traditional banking systems are directly impacted by FinTech. For example, conventional loan processing time can be weeks or even months long, and so, securing a loan from a bank the same day is difficult.
Banks, as a result, are required to promote sophisticated technology-based services and minimize unnecessary transaction fees. [80]

The introduction of FinTech innovations, including big data, has allowed financial institutions to predict user behavior and create tactics and security policies. This will boost risk management and operational performance in particular.
Accordingly, with the aid of big data, it is possible to quickly observe customer behavior, which will improve service quality. The goods that are introduced to the market would be more suited to the needs of the customers.[81]

[79] "Marko Jakšič and Matej Marinc, "Relationship Banking and Information Technology: The Role of Artificial Intelligence and FinTech " Risk Management,1-18."

[80] Pizalla Webster, FinTech : Are banks responding appropriately? 2015 http://www.ey.com/Publication/vwLUAssets/EY-FinTech -are-banks-responding- appropriately/$FILE/EY-FinTech -are-banks-responding-appropriately.pdf.

[81] Andriy Feschyn, "The Impact Of Big Data On Banking And Financial Systems" https://dataconomy.com/2017/07/big-data-banking-financial-systems/ 2017

The use of smart contracts would improve productivity while lowering costs. For example, in trade, banks act as intermediaries in the execution of letters of credit, which necessitates human-driven processing and verification, resulting in unnecessary time and expense.[82]

Smart contracts, on the other hand, function automatically based on pre-determined terms, resulting in faster contract execution and lower costs. However, it is argued that in reality, the costs would not decrease because smart contracts come with other costs.

When it comes to Crowdfunding services, major tech firms have a significant advantage over banks. To price loans in the traditional banking system, banks evaluate the risk exposure of the borrower by collecting data from different sources. Also they usually ensure that their loans are repaid by actively monitoring customers or requiring collateral from them.

This traditional approach is costly and time-consuming, and banks compensate for these costs by charging fees or increasing interest rates to their customers. However, using big data to monitor customer behavior lowers costs and increases productivity.

FinTech services have a huge advantage over conventional banking in that they reduce regional barriers. In general, regardless of the gap between consumers and entrepreneurs, all FinTech products provide service. In terms of payment facilities, e-wallets have removed the need for cross-border transactions or the presence of a bank.

[82] Luiz A. P. da Silva, "FinTech in EMEs: blessing or curse?", https://www.bis.org/speeches/sp180620.pdf pg. 6

7.3 Implementing Transparency

Usually, banking institutions provide only a limited amount of information. FinTech systems, on the other hand, increase transparency, which helps regulators do their jobs better because they have a clearer picture of financial stability. In addition, an open and transparent environment benefits FinTech by letting regulators follow operations, and therefore helps various regulatory bodies to assess whether or not FinTech company activities present a threat to the finance sector.[83]

Cryptocurrencies that use Blockchain technology to track transaction information also make transactions more transparent. For instance, every single transaction completed in a Blockchain service can be tracked.[84] As a result, Blockchain technology's transparency could have a significant effect on our everyday lives by ensuring supply chain transparency.

[83] Broll, Udo; Eckwert, Bernhard; Eickhoff, Andreas, Transparency in the banking sector, Dresden discussion paper series in economics, (2011) No. 05/11, Techn. Univ., Fac. of Business and Economics, Dresden

[84] Kristoffer Francisco and David Swanson, the Supply Chain Has No Clothes: Technology Adoption of Blockchain for Supply Chain Transparency Logistics 2018.

Chapter Eight

FinTech Cons

FinTech helps the industry by cutting costs, improving transparency, and minimizing inefficiency. Nevertheless, those positive benefits are balanced by new threats and concerns that must be dealt with first.

It may be claimed that the number of FinTech-based services are just a small fraction of the overall finance sector, but this is a false assumption, especially in light of how recent the financial crisis of 2008 was.

The argument was that the finance sector is interconnected, and a failure in one area could jeopardize the credibility of the entire system.

As a result, the risks and disadvantages of FinTech should be thoroughly examined because it could represent a major financial risk due to a number of issues.

When determining whether the benefits of FinTech outweigh the dangers, it is critical to recognize these risks, which include regulatory concerns, data privacy, fraud, malware, 3rd party dependency, and financial vulnerability. This chapter will examine these dangers and make recommendations about how to avoid them.

8.1 Regulatory threats

One of the major difficulties that has developed as a result of digital financial services' fast expansion is their legality. The use of new technologies is increasing rapidly, putting the financial sector at risk as more people and companies profit from it.

Consumer protection, financial stability, and financial integrity can all be affected by regulatory uncertainty in the areas of Crowdfunding, peer-to-peer lending, and mobile payment services.

Accordingly, uncertainty in the regulatory environment may be viewed as an opportunity for people or firms chasing huge gains in the near term, thus jeopardizing stability in the finance sector. [85]

It is called profiting from the lack of worldwide regulatory standards. A financial technology company would be established in a less regulated jurisdiction and subsequently offer products in a highly regulated jurisdiction. [86]

[85] UNSGSA FinTech Working Group and CCAF. (2019). Early Lessons on Regulatory Innovations to Enable Inclusive FinTech : Innovation Offices, Regulatory Sandboxes, and RegTech. Office of the UNSGSA and CCAF: New York, NY and Cambridge, UK. Pg.15

[86] Amit Seru and co-authors "FinTech , Regulatory Arbitrage, and the Rise of Shadow Banks," 2017

As a result, financial stability is put at risk. The answer is found by consolidating regulations globally under a single framework.

- Smart contract example:

The problem with smart contracts is the volatility of the contract's applicable law. [87]A contract may be concluded in a variety of jurisdictions thanks to Blockchain technology.

In the event of a disagreement over a smart contract's interpretation, we should know which legislation applies to the agreement so we can know if it's legal.

To address this question, the usual contract law approach can be utilized: First, the concern is about party autonomy. If there is no express choice of law, the safety of the weak is prioritized.[88]

Smart contracts are written in code and that is considered to be problematic. Due to the fact that the majority of attorneys lack programming skills, such documents will be drafted by coders.

Furthermore, it's worth considering the following legal issues: first, should a non-law graduate be allowed to create a contract?

Also, whether programmers would be held liable if there is a dispute with the algorithms.

Finally, smart contracts are touted as a way to save money on things like legal fees but in reality customers would have to pay for drafting the contract since every contract is unique.

[87] "Institute of International Finance, 2016 , Getting Smart: Contracts on the Blockchain"

[88] "Reggie O'Shields, 'Smart Contracts: Legal Arrangements For the Blockchain', 21 North Carolina Banking Institute"

8.2 Data Security

More data has been digitized, owing to new banking technology and the rise of new FinTech businesses. Furthermore, digitization allows you to monitor and gather all kinds of data, and that data is utilized to predict user behavior.

Data has surpassed the value of money to become the most valuable asset.[89] It is critical in the financial industry since it directly affects the profitability of operations like lending, insurance, and money transactions.[90]

In more depth, sophisticated algorithms are used to process or analyze consumer data and translate them into customized goods.

To support that, data collection on Facebook is an important example that can be provided. Users must authorize the unlimited processing of private data by external parties or affiliates of the tech giant, which also controls Instagram and WhatsApp. This data was either marketed to others or utilized for marketing purposes.

Following that, the Cambridge Analytica scandal raised severe allegations regarding the manipulation of personal data. It reportedly bought personal data from Facebook, then used it to interfere in elections. The data of about 50 million Facebook users was

[89] David Nersessian "The law and ethics of big data analytics: A new role for international human rights in the search for global standards" 2018,: Business Horizons. 845-854.

[90] GDDFI Discussion paper, Digital Financial Services: Regulating For Financial Inclusion An Ict Perspective https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2016/Digital_financial_inclusion_GDDFI.pdf

used to improperly place political ads on them with the intention of confusing or changing their personal viewpoints.[91]

Nevertheless, government officials are becoming more and more aware of the dangers, and a special regulation has been implemented in the UK, the "General Data Protection Regulation", which safeguards the privacy of personal data.

Further, every data pertaining to an identifiable or known natural person is described as personal data. Also, according to this regulation, data subjects must be fully informed about the aim of the data collection and must agree to the processing of their personal information.[92]

Finally, FinTech and BigTech firms will be fined if they do not meet proper regulatory standards and measurements. The European Commission, for example, fined Google €4.34 billion, and Facebook has been fined by various authorities on many occasions. [93] However, the question that must be addressed is whether these monetary fines are sufficient to prevent these firms from acquiring data illegally.

[91] Kuhn Mckenzie, “147 Million Social Security Numbers for Sale: Developing Data Protection Legislation After Mass Cybersecurity Breaches”, 2018

[92] Maria Kutar and Maria Addis, "The General Data Protection Regulation (GDPR), Emerging Technologies and UK Organisations: Awareness, Implementation and Readiness" (2018). UK Academy for Information Systems Conference Proceedings.

[93] EU General Data Protection Regulation (GDPR): Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016

8.3 Fraudulent activities

Financial technologies are a frequent target for fraud, as they may be used to make unfair and unlawful gains.[94] Individuals are frequently deceived through sophisticated scams such as "Ponzi schemes, identity fraud, and phishing schemes".

Reports and studies show how easily a scammer or fraudster can open bank accounts in the names of innocent people.[95]

By creating fake websites that look just like legitimate bank or payment services applications or websites. Thus, individuals will fill in their personal information, thinking that they are complying with the bank or the company's request. Nowadays, it is harder and harder to track down scammers, since they are based in other countries and because they cover their tracks very sophistically.

[94] Se-Hak Chun, "E-Commerce Liability and Security Breaches in Mobile Payment for e-Business Sustainability" (2019)

[95] FCA, Money transfer scams https://www fca.org.uk/consumers/money-transfer-scams

Additionally, it is estimated that 1.2 billion dollars in Cryptocurrencies were robbed at the beginning of 2019.[96]

The majority of crypto-related threats occur at the location of the private key, namely in e-wallets or transaction platforms. [97] The Blockchain, which increases transparency, is the main component of Cryptocurrencies. [98]Yet neither law enforcement nor civilians managed to trace the crypto and locate any thieves.

Most of the latest fraud incidents have occurred on lending-based Crowdfunding websites.[99] Moreover platform administrators can embezzle the raised funds and the borrowers, on the other hand, have the option of concealing their identity. Also there is the risk of promoting fake projects.

The $7.6 Billion Ezubao Scam is an example that should be looked at. The company was China's largest peer-to-peer lending platform until it was discovered to be a Ponzi scheme that raised "59.8 billion Yuan equivalent to $9.14 billion" from over 900,000 investors through deceptive marketing.[100]

[96] Q1 2019 Cryptocurrency Anti-Money Laundering Report https://ciphertrace.com/articles/q1-2019-cryptocurrency-anti-money-laundering-report/

[97] Cryptocurrency thefts, scams hit $1.7 billion in 2018: report https://www reuters.com/article/us- crypto-currency-crime/cryptocurrency-thefts-scams-hit-1-7-billion-in-2018-report-idUSKCN1PN1SQ

[98] Fangfang Dai and others, "From Bitcoin to Cybersecurity: a Comparative Study of Blockchain Application and Security Issues, Proceedings of the 2017 4th International Conference on Systems and Informatics (ICSAI 2017).

[99] Fraud in FinTech,https://www.taylorwessing.com/download/article-fraud-in-FinTech .html

[100] Gough, N. (2016, February 1). *Online Lender Ezubao Took $7.6 Billion in Ponzi Scheme, China Says*. The New York Times. www nytimes.com/2016/02/02/business/dealbook/ezubao-china-fraud html

8.4 Increased risk of Money Laundering and Terrorist Funding

FinTech firms' services have increased the risk of money laundering and counter-terrorist financing operations.[101] Moreover, platform administrators can embezzle the funds raised and the borrowers, on the other hand, have the option of concealing their identity. Also, there is the risk of promoting fake projects.

Anonymous networks may be used to execute transactions. As a result, some digital finance platform services may fall outside of the existing AML and CTF regulatory scheme. [102]

Finally, money laundering is difficult to prevent since, even when officials identify a suspect account, the possibility of creating new accounts, regularly persists.[103]

8.5 Third party intervention

The supply of essential operational services such as data storage, cloud computing, and analytics is reliant on external suppliers. However, working using new entrants or 3rd-party outsourcing providers exposes consumers' information.[104]

[101] Rebecca L Stanley And Ross P Buckley, "Protecting The West, Excluding The Rest: The Impact Of The Aml/Ctf Regime On Financial Inclusion In The Pacific And Potential Responses" Melb. J. Int'l L.

[102] M, Swan 2015. Blockchain: Blueprint For A New Economy

[103] Izabella Kaminska, Why money laundering risk is very real with crypto cardshttps://ftalphaville.ft.com/2019/05/31/1559275247000/Why-money-laundering-risk-is-very-real- with-crypto-cards/

[104] Stephanie Sebring Ss, 2018.Third-Party and Cybersecurity Risk Management. Credit Union Management.

For financial payment service platforms, Apple Pay and Google Pay are considered to have "front to back" service offerings. Thus, this mode of business requires the financial online platforms to interact exclusively with users, delegating the bulk of the process to third-party service providers. As a result, the danger of possible fraud will never cease to exist.

8.6 Business risks:

Decentralization, increased intermediation by non-financial institutions, performance, openness, and competitiveness are all potential FinTech benefits, but the sector is also exposed to a number of financial and operational risks that could be compounded by FinTech business models and jeopardize the provision of essential financial services.

If a FinTech lending platform encounters substantial and unforeseen losses, this would lead to contagion across the industry, and many businesses are susceptible to pro-cyclicality.[105]

8.6.1 "Contagion"

"Contagion is characterized as a state of distress encountered by a single entity or sector that can spread to others due to their interconnectedness".[106]

8.6.2 Pro-Cyclicality

Due to the involvement of retail investors on lending platforms, broad sentiment swings can be exacerbated, and social trading and robot-advice may lead to herding behavior.

8.7 Financial stability threats

FinTech has a great impact on financial stability, therefore national authorities and international organizations must take into consideration when conducting regulatory risk assessments and developing a regulatory framework.

[105] Bartholomew, H. (2017, June 27). *FSB warns on macro risks posed by fintech*. Reuters. www reuters.com/article/fsb-warns-on-macro-risks-posed-by-fintec-idUSL8N1JN2MP

[106] Estevez, E. (2021, January 14). *Contagion Definition*. www.investopedia.com/terms/c/contagion.asp

Higher customer expectations, emerging technology, and changes in financial regulation and market structure, according to the financial stability board, have fueled rapid growth in the FinTech industry, leading some companies to evolve without the requisite risk management skills, while others may underestimate the degree of risk they are taking on.[107]

Finally, regulators should keep track of FinTech advances because of the rapid pace of innovation in this field

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

Chapter Nine

The Middle Eastern FinTech Revolution

The Middle East region accounts for less than 1% of overall FinTech venture capital investments. [108]

Nevertheless, venture capital figures don't provide an overall picture of the situation. Other factors, such as demographic and business developments, which are extremely supportive of FinTech growth in the region, are being hidden by the amount of funding that this area receives.

We have 450 million people who live in the MENA region. About half of the population is under the age of 25 years old. And with a large and young population, the demand for early technology adopters is attractive and increasing. [109] Also, owing to its geographical position, the area offers various opportunities.

The authorities in Bahrain and the United Arab Emirates have said that their countries serve as a portal to the rest of the country. By establishing a foothold in powerhouse countries, the FinTech industry is reaching out to emerging markets all over the world.

With an increasing population and 70% of them having little or no access to financial services, the growing region is an $8 trillion industry. [110]

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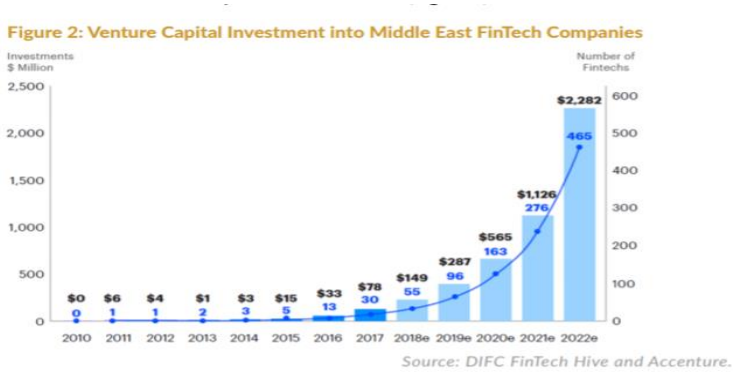
[108] Nada Al Rifai, "Middle East FinTech investments make up just 1% of global total - Bahrain FinTech Bay CEO," Zawya, (March 3, 2019), https://www.zawya.com/mena/en/business/story/Middle_East_FinTech _ investments_make_up_just_1_of_global_total__Bahrain_FinTech _Bay_CEO-ZAWYA20190304025937/

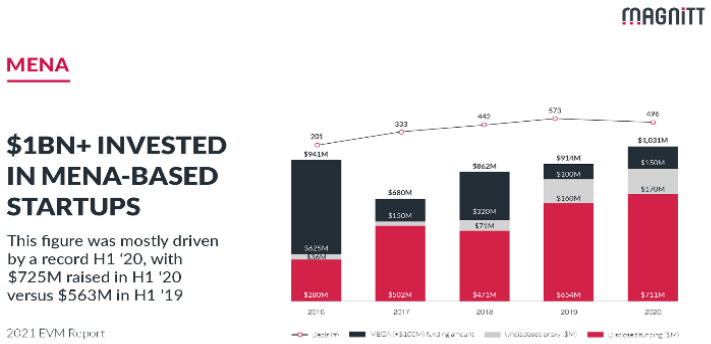
[109] Veera Mendonca, et al., "MENA Generation 2030: Investing in children and youth today to secure a prosperous region tomorrow," UNICEF, (April 1, 2019), https://www.unicef.org/mena/media/4141/file

[110] "DIFC home to first, innovative Equity Crowdfunding platform in the region, as Eureeca.com begins DFSA regulated activity," Dubai International Financial Centre, (November 6, 2016),

The Middle East's FinTech industry is growing at a "30 percent compound annual growth rate while accounting for just 1% of worldwide FinTech investment (CAGR)". "By 2022, 465 Middle Eastern FinTech businesses are expected to receive more than $2 billion in venture capital investment, compared to 30 FinTech businesses that received almost $80 million in 2017."[111]

- **Investments in venture capital in the Middle East between 2017 and 2021**





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https://www.difc.ae/newsroom/news/difc-home-first-innovative-equity-crowdfunding-platform-region-eureecacombegins-dfsa-regulated-activity/.

"A Roadmap for FinTech Firms Entering Fast-Growing Emerging Markets: Featuring case studies and market analysis," LendIt FinTech , (2019), http://pages.lendit.com/2019-roadmap-for-FinTech -firms-difcwhite-paper.html.

[111] DIFC FinTech Hive and Accenture,2017

[112] 2021 MENA Venture Investment Report,January 2021,https://magnitt.com/research/2021-mena-venture investment-report-50736

However, the payments industry is receiving the vast majority of funding: nearly 85 % of FinTech companies in the Middle East and North Africa region work in the sector of payment services, money transfers[113] such as Payments and remittances startups, as well as Insurance Technology, online financing, RegTech, online banking, crowdfunding, blockchain, and Cryptocurrency companies. These companies are all gaining traction throughout the area.

The bulk of investment in the area has migrated to the payments sector, which is understandable given the region's status as a hotbed for payments-related activity. Because of its expatriate workforce, which accounts for nearly 90% of the country's overall population, the UAE is a driving force in remittances.[114]

In 2017, the UAE's expat remittances reached $44.5 billion, with 75% flowing to money exchange businesses and one-quarter to banks. The top three receiving countries were India, Pakistan, and the Philippines. [115]

[113] “Bahrain FinTech Ecosystem Report 2018,” Bahrain FinTech Bay, (July 2018), https://www. bahrainFinTech bay.com/FinTech -ecosystem-report.

[114] The vast majority of the expat population are contracted workers from overseas including laborers and domestic staff.

[115] "Expat remittances in UAE surge to $44.5bn in 2017," TradeArabia, (March 12, 2018), http://www. tradearabia.com/news/BANK_337764 html.

Chapter Ten

FinTech Regulations in the Middle East

10.1 United Arab Emirates

FinTech is regarded as a prominent subject in the United Arab Emirates.

The Dubai International Finance Centre (DIFC) is the domicile to an internationally renowned, independent regulation authority and a well-established judicial system based on English common law, and also the area's biggest financial ecosystem, with over 24,000 individuals actively working across 2,200 corporate entities. It has one of the most sophisticated FinTech and venture capital ecosystems in the area, with low-cost licenses, appropriate legislation, unique accelerator programs, and investment schemes attributing to the growth of start-ups. [116]

The Dubai International Finance Centre (DIFC) established FinTech Hive that offers an opportunity to FinTech, InsurTech, RegTech, Islamic FinTech startups to capitalise on unlimited opportunities and get their product or solution before some of the region's most well-known financial services firms. They offer accelerator programs, licenses, group work spaces, a network of professionals with the same mentality, and a supportive regulatory environment.

[116] https://FinTech hive.difc.ae/about

The Abu Dhabi Global Market (known as ADGM) has established the FinTech Regulatory Lab (RegLab), which is a custom made legal framework that allows FinTech players to mature and experiment novel FinTech products in a regulated setting. [117]

The RegLab is the first in the area and the second most successful FinTech sandbox in the world. Its goal is to promote competition through the Emirates financial services industry for financial institutions that are new to the market and those that have been there for a long time. FinTech participants will be able to discover and build FinTech technologies in a risk-free and cost-efficient atmosphere due to the given setup.

The UAE is likely to foster the upcoming wave of FinTech technologies established in the area, with innovation and entrepreneurship taking center stage and major investments already taking place. In this respect, the Emirates will be regarded as a center for the Middle East as well as an active FinTech jurisdiction.

FinTech companies in the UAE started in the payments and crowdfunding markets, but have since expanded to serve the Middle East's diverse entrepreneurial and SME community, which is seeking to connect with a population that is becoming more mobile.

Government-led projects such as the Dubai Blockchain Strategy, are aiming to leverage technology to lay the foundation for contemporary E-networks to improve efficiency throughout the city.

[117] (2020, November 24). *The ADGM RegLab*. Abu Dhabi Global Market (ADGM). www.adgm.com/setting-up/reglab/overview

Numerous banks also launched online platforms and novel digital services, like the UAE Banks Federation's Emirates Digital Wallet, which is intended to transform payments throughout the Emirates.

The RegLab, which was established in 2016, provides each candidate with a customized legal framework that has been accepted by the ADGM's Financial Services Regulatory Authority (FSRA).The latter evaluates proposals and decides, after consulting with the candidate , what laws are applicable and also which rules are disregarded or amended.

The Financial Services Regulatory Authority (FSRA) also implements a series of restrictions or requirements that are unique for the intended activity of the applicant.

FinTech companies can get a 'Developing Financial Technology Services' (DFTS) license from the RegLab for a limited period of time, and then upgrade to a complete license or halt their operations. The licensing period can go up to two extendable years.

In January 2017, the Dubai International Financial Centre (DIFC) revealed their FinTech Hive project. The DFSA will provide an "Innovation testing license" (ITL), which is comparable to the Abu Dhabi global Market's RegLab because it enables license holders to evaluate their FinTech services for six to twelve month in a sandbox environment under a bespoke regulatory regime.

Following an incubator model embraced by the FinTech Hive and the Abu Dhabi Global Market RegLab, FinTech companies are capable of developing and validating products while also minimizing the danger they cause to the financing system.

In addition the applicants will be provided more support in the form of training and discussion panels, mentorship and a possibility to meet new investors.

The FinTech Hive and The ADGM RegLab are both incubator-style institutions that provide FinTech innovators considerable latitude in developing and testing FinTech concepts while minimizing the risk to the financial sector. Moreover, FinTech entrepreneurs would benefit from a network of professionals, special mentoring and support, expert opinions, training and workshops.

Licensing period is from six to 12 months and can be extended.

Deloitte produced a research on global FinTech hubs, and the ADGM RegLab was named as the world's finest FinTech hub, as well as the top hub in MENA.[118]

The ADGM has a significant number of linkages to other ecosystems such as a bridge with the Monetary Authority of Singapore. It also provides additional advantages for those participating in the sandbox due to a flexible free zone regulating authority. However, the DIFC is home to several global and regional financial firms in the free zone as well as through the DFSA, and also is the first to develop a regulatory framework for crowdfunding past the testing licenses of a sandbox.

Institutions founded in free zones, like the ADGM and the DIFC, should also be regulated in the countries where their products and services will be provided. At this time, the free zones do not grant passports to nationals of other countries.

This means that FinTech business owners would have to follow by a variety of rules imposed by; the Central Bank of the United Arab Emirates for conventional finance and banking operations, the United Arab Emirates Insurance Authority for insurance activities and the country's Securities and Commodities Authority (SCA) for securities and investing activities. Moreover, the Central Bank of the UAE has enacted

[118] https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/Innovation/deloitte-uk-connecting-global-FinTech -hub-federation-innotribe-innovate-finance.pdf.

legislation governing a particular area of the FinTech sector, particularly services related to payments. This new licensing framework was implemented in 2018.

It was uncertain if these laws extend to all suppliers of payment services, like payment gateways on websites (which just act as a conduit connecting retailers with credit or debit card holders,) and providers of stored value services, like e-credit issuers. Nevertheless, the Central Bank is actively working with a range of payment market participants in order to provide an understanding of its regulations and take into consideration any new initiatives.

In January 2017, the Securities and Commodities Authority of the UAE announced that it will introduce a regulatory sandbox that will compete with the already established Free Zone Initiative. This initiative intends to support the FinTech Industry and to "bring together FinTech companies, companies that offer innovative financial services, financial institutions, and telecommunications and internet companies to test and launch modern technological initiatives in the securities sector."

10.1.1 Crowdfunding

The DFSA recently published innovative guidelines governing Crowdfunding platforms based in or operating out of the DIFC. The regulations seem to be extremely thorough, because they impose a lot of requirements on DIFC-based Crowdfunding companies.

According to the new Conduct of Business Module Rules, the operators should offer thorough information about risks on the platform, including possible failures,

investment performance, and proprietary evaluations, in addition to providing analysis about their business plans for investment opportunities.[119]

Also Operators should monitor the different stages of the fundraising and halt any company trying to acquire funding from its counterparts.[120]

In addition, each Crowdfunding service must be operated by different entities. Therefore, operators must guarantee, on the debt side, that loan commitments are enforceable by law. A separate authorization is also required to accept non-institutional participants and comprehensive regulations on corporate funding transparency are to be implemented.

So, it stays unclear whether smaller enterprises with less resources but a rising target market can meet these terms in an economical method.

Abu Dhabi's first FinTech pioneer, Beehive, is the first in the Middle East to get DFSA authorization to provide crowd-funding while maintaining its P2P lending activities. [121]

The regulation of operators such as "Beehive" will enable these firms to enhance their profiles, attracting fundraisers and investors.

A lot of firms operating onshore are still unregulated, therefore a special licensing scheme should be established.

Crowdfunding issuers are highly regulated by the Central Bank and/or the Securities and Exchange Commission.

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[119] (n.d.). dfsaen.thomsonreuters.com/sites/default/files/net_file_store/DFSA_COB_VER22_amended.pdf

[120] (n.d.). *Crowdfunding*. The Official Portal of the UAE Government. u.ae/en/information-and-services/business/crowdfunding

[121] (n.d.). *About*. Beehive. www.beehive.ae/about/

For instance, the UAE LLCs are prohibited from offering securities to the public. Regulations put in place by the SCA in 2017 would significantly limit promotions and activities related to securities. Yet, we still haven't seen notable crowdfunding initiatives licensed by the Central Bank or SCA.

Experts believe that certain legislation and policies are missing, which gives rise to loopholes in the regulatory system, like the Central Bank's reluctance to regulate certain lending operations. Moreover, some consider that stricter rules might be taken in the future.

10.1.2 Payments

FinTech companies in the Gulf Region, particularly in the United Arab Emirates are establishing partnerships with local banks regarding payment gateway because of the local banks desires to digitize and reach their customers more easily.

Regulating online payment relies on the bank’s license for the payment transaction chain and gives the responsibility to FinTech firms regarding other aspects.

For example, a company called Emirates Digital Wallet LLC (EDW) owns and operates “klip”, which is the United Arab Emirates' Digital Cash Platform. Nonetheless the UAE government is raising efforts to drive digital transformation and create a cashless environment in the country. Also introducing Apple Pay shows the drive for a cashless offline society.

10.1.3 Stored value facilities

In order to add credibility to their operations and insure the application of international standards, certain companies are required to obtain licensing in a foreign country that is not in the Middle East.

CASHU, for example, is a company that offers stored value cards to people without credit cards in the Middle East, allowing them to conduct online transactions. The company managed to relocate to Singapore in 2016 and is now licensed by the Singaporean Monetary Authority (MAS). “CASHU has introduced a variety of operational improvements to its payment platform in accordance with MAS’s requirements for Stored Value Facility (SVF). These changes fall in line with global demands to enhance due diligence on wallet account holders and business partners to ensure compliance with new regulations and combat cybercrime.”[122]

Due to the introduction of improved rules, CASHU has committed to building a safer and more stable prepaid services industry. The MAS regulatory system also allows CASHU to collaborate with local regulators in various jurisdictions.[123]

Some stored value companies, on the other hand, have tried to work around the regulations.

For instance, "Beam Wallet", a digital wallet application available in the United Arab Emirates, allows users to pay in "Beam Credits" that are created specifically for that purchase at the point of sale reacting as a gift card. Beam might be able to circumvent any tougher credit-related legislation by using this form of framework.[124]

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[122] (n.d.). CASHU. www.cashu.com/about-us

[123] (2016, February 15). *CASHU moves its regulated business to Singapore*. Venture Magazine. www.venturemagazine me/2016/02/cashu-moves-its-regulated-business-to-singapore/

[124] (n.d.). *Beam*. Terms and Conditions. beamwallet.com/userterms/

10.1.4 Anti-Money Laundering considerations:

Although payment services are financial in nature and don't need a license, they require consumer due diligence or a KYC and special monitoring in several Middle Eastern jurisdictions for counter-terrorism funding and anti-money laundering.

10.1.5 Initial Coin Offerings (ICOs)

The UAE has established the emirates Blockchain technology initiative 2021, as well as the Dubai Blockchain initiative. Accordingly the government wishes to maximize the returns of Blockchain technology in order to convert by 2021, fifty percent of its transactional activities towards Blockchain platforms. However licenses are not granted to any firm to issue crypto-currencies.[125]

ADGM has introduced a regulatory framework for the regulation of spot virtual assets, including those done by multilateral trading platforms, brokers and asset managers. This framework does not apply to Digital Securities, Offerings or for other capital raising purposes.[126]

In the UAE Crypto-currencies are not specifically regulated, however they require certain regulatory authorizations .The Central Bank may face the same challenges as the rest of the world in attempting to control crypto-currencies because of their complex and ambiguous legal nature. It may also focus on components of an Initial

[125] (n.d.). *Blockchain in the UAE government*. The Official Portal of the UAE Government. u.ae/en/about-the-uae/digital-uae/blockchain-in-the-uae-government

[126](2020, September 27). *Virtual Asset Activities*. The First Jurisdiction In The World To Introduce A. www.adgm.com/setting-up/virtual-asset-activities/overview

Coin Offering that are compatible with preexisting regulatory mechanisms, like operating exchanges.

Consequently, the DFSA has alerted investors in the financial free zones about ICOs, expressing the riskiness of a cryptocurrency investment. According to UAE legislation, the DFSA does not control ICOs and will not license firms that engage in such activities.

The FRSA has issued regulatory guidelines for investors stating that ICOs are not restricted and certain of their aspects such as the selling of securities and units in funds, or trading in derivatives comply with the country's regulations. However investors should be aware of the lack of regulation regarding special transactions in virtual currencies such as Bitcoin or its counterparts.

Accordingly, Dubai has adopted a Blockchain strategy as a key component of the Smart City Initiative. Therefore using Blockchain in Financial Technology will take place in a supervised setting at first, and so is the case with other approaches around the world. Furthermore, the Blockchain initiative would indeed digitize all of Dubai's governmental operations, and also create tons of potential technological and business prospects. An interesting example would be of the Dubai government that is working on developing and implementing EmCash which is a digital currency that is encrypted and powered by Blockchain.

Thus, "EmCash reduces fraud, as well as inflation, since the currency is issued in real time, based on actual demand".[127]

[127] https://www huxley.com/en-gb/blog/2018/03/cryptocurrencies-blockchain-and-bitcoin-in-dubai/

a. Digital Signatures

The UAE Federal Law No. 1 of 2006 Concerning E-Transactions and E-Commerce (Electronic Signature Law) recognizes electronically created signatures and states that "it applies to civil and commercial transactions except for certain excluded transactions such as negotiable instruments, documents of title to immovable property, transactions relating to the sale and purchase of immovable property and others."[128]

10.1.6 Implementation of the Smart Contract Code

Contract automation will present obstacles for Emirati legislation and regulatory framework, notably in terms of notarization and Arabic translation requirements. To ensure contractual commitment certainty, substantial tests must be incorporated in such activities.

Moreover, International innovations, like the R3 initiative in the domain of derivatives, will lead to the rise of smart contract potential in the coming years. Major Banks operating throughout the UAE may use automated contract drafting by incorporating electronic standards and mechanisms, therefore enabling them to conduct basic operations on the Blockchain platform.

Under the UAE Civil Code, smart contracts are legally enforceable. The method of execution and the smart contacts irrevocability pose a challenge. Following an expert opinion, smart contracts are irreversible, which means once prerequisites are completed and execution has begun, further performances cannot be amended or terminated.

[128] The UAE Federal Law No. 1 of 2006

Finally the Electronic Signature Law doesn’t contain new technologies such as Blockchain.

10.2 BAHRAIN

FinTech in Bahrain is actively being developed. In June 2017, Bahrain's financial regulator, the Central Bank of Bahrain (CBB), worked on creating a regulatory sandbox , and modified it in august 2017 to accommodate FinTech testing. The kingdom’s Economic Development board wants to attract foreign investments.

10.2.1 Regulatory Sandbox

Bahrain’s Central Bank launched a FinTech regulatory sandbox that will enable financial institutions and other enterprises to try their services and products. This procedure is available to current Central Bank license holders such as financial firms with advanced technological innovations as well as other enterprises, whether from Bahrain or abroad.

Further, the sandbox can comprise corporations from the financial industry and technology and telecommunication businesses who aim to try out a new service or product, as well as specialized service industries that collaborate with, or serve, financial institutions.

10.2.2 E-wallet

“Benefit pay” is the country’s mobile e-wallet that was launched in a collaboration between the Central Bank and a local payment settlement service provider named “BENEFIT Company”.

Customers will no longer use debit or credit cards or even cash to make or receive payments. The technology is currently in the early phases of implementation, and will ultimately be integrated with several other retail payment platforms in the Kingdom of Bahrain.

10.2.3 Crowdfunding

The Central Bank of Bahrain ("CBB") issued regulations regarding Crowdfunding. The regulatory framework for loan crowdfunding (including Sharia) offers regulation for financial technology or FinTech enterprises as well as client protection.

The laws are designed to assist start-ups, small and medium-sized businesses, and to provide accessibility to alternate sources of capital when more conventional finance options are unavailable. Consequently, all lending businesses that use an electronic platform must be licensed in Bahrain as 'operators of P2B Conventional Financing-based Crowd financing Platforms.'

According to the Central Bank of Bahrain Rulebook, "The minimum capital requirement for the CFC Platform Operators is Bahraini Dinars ("BD") 50,000 to be maintained on an on-going basis. This is new type of license. A CFC Platform Operator is not permitted to engage in Business to Business (B2B), Business to Person (B2P) or Person to Person (P2P) lending."[129] Also, only enterprises with paid-up capital that does not exceed BD250, 000 may use the Crowdfunding site.

[129] CBB Rulebook Volume 5 –"Financing Based Crowdfunding Platform Operator"

In order to limit the amount each borrower may borrow and the total exposure each lender can have to a single borrower, quantitative limits are imposed.

Furthermore, only highly experienced and authorized investors may use this service. And due to the adverse outcomes, individual investors are not eligible to get on it. Recently, the Central Bank of Bahrain has released draft rules related to equities that are based on Crowdfunding for public review. It is proposing a special licensing framework as an alternative for offered equities that are defined by the securities law.

10.3 EGYPT

FinTech start-ups in Egypt are on the rise due to the Central Bank and government officials' ambition to implement new payment methods by shifting to a digital economy with no cash involved. Payment systems, mobile currency, and smart wallets are the most developed industries.

10.3.1 E-wallets or Mobile wallets

The Central Bank of Egypt established new laws for smartphone-based cashless payments in 2016. FinTech businesses may cooperate with banks to provide the infrastructure and technology required to offer mobile wallets as issuing banks, by collecting deposits paid in cash and producing electronic currency in return.

Mobile wallets are thought to be user-friendly and convenient. Customers may use these systems to send or receive money, pay the bills and make contributions. Further, these solutions are open to both banked and unbanked customers.

10.3.2 Payment services

Egyptian FinTech firms that serve as payment processing providers for retailers have been growing in the online payment services sector via the use of gateways [130] mainly on e-commerce sites .They allow merchants to email, receive, handle, and send financial data to banks, as well as promote electronic payment by the customer to the merchant with no cash involved.

[130] **"Gateways** are payment **services** that process credit cards online through an e-commerce site or in-person through a credit card terminal."

Most online payment portal services have bank-provided card payment credit facilities for cardholders which enables retailers to identify and pay all purchases.

10.3.3 Egypt's ambitions

The Egyptian central bank is cooperating with ministries and government organizations to promote Egypt's booming FinTech sector.

Moreover, the Egyptian President established the "National Council for Payment" in February of 2017, in order to encourage electronic transactions. The council consists of the President, the governor of Egypt's Central Bank and the Chairman of the FSA (Financial Supervisory Authority).

Further, the country is witnessing a surge of reforms and new financial legislations in order to address the rise of online lending and crowdfunding.

Along with big institutions choosing to focus on FinTech investment opportunities, the Central Bank of Egypt decided to commit up to 1 billion EGP to a special Fund-of-Funds.[131]

Recently, an independent investment catalyst vehicle which promotes VC funds that focus on Technology/FinTech sectors is established in partnership with several large institutions for the express purpose of obtaining CBE's expertise and strengths and partnering with them in order to create a sustainable and independent investment platform to boost the development of Fintech.

On March 2019, the Central Bank of Egypt launched a strategy for supporting the FinTech ecosystem and positioning the country as a regional FinTech hot spot.

[131] (n.d.). *FinTech Fund to support startups in Egypt FinTech community|Fintech Egypt*. fintech-egypt.com/fund/

Accordingly, clearer regulations on enabling infrastructure such as open APIs, cloud and data sharing are to be developed in order to encourage the emergence of FinTech and investments in the sector.

Furthermore, the Central Bank established a FinTech and Innovation Unit within the bank to address regulatory and governance matters, facilitate regulatory updates, publish thought leadership and represent CBE at local and international FinTech events.

Also, new mobile wallet laws, such as the implementation of e-KYC, growing restrictions, digital lending and spending, and new payment regulations, such as digital authentication, show that enforcement is being improved. However, FinTech continue to face significant regulatory obstacles that must be tackled. One of the most important roadblocks is the absence of a consistent FinTech licensing scheme.

The lack of a consistent FinTech licensing scheme and general vague guidance on an applicable and standardized regulatory regime across the major regulators are the most important roadblocks. The roadmap's regulatory focus plan includes, but is not limited to, FinTech licensing, regulatory sandbox, and a study of related legal, labor, and fiscal legislation to improve ease of doing business for FinTechs.

Many foreign regulators and FinTech hubs have also signed Memorandums of Understanding (hereinafter referred to as "MoUs") with the CBE. Finally, in order to encourage collaborative work and information sharing, the Centre Bank of Egypt will continue to extend its international collaboration agreements with regulators and related stakeholders.

10.3.4 Regulatory Sandbox

The Egyptian Central Bank's strives to be on top of financial technology and push for an ideal balance between stability and consumer protection while also enhancing the banking and financial institution's ability to foster beneficial innovation.

The regulatory sandbox will serve as a test platform for FinTechs developing novel business models which are now constrained by stringent authorisation procedures and regulatory uncertainties.

The objective of the Regulatory Sandbox is to facilitate compliance embedment and financial solution adoption, early on in the FinTech ecosystem. Allowing FinTech entrepreneurs to focus on their primary offering means there will be no interruption in the market.[132]

[132] (n.d.). *Highlights of The Central Bank of Egypt's FinTech Strategy December 2019,* efhambusiness.com/pluginfile.php/590/mod_page/content/2/Central Bank of Egypts FinTech Strategy_V15.pdf

10.4 LEBANON

The Lebanese financial market has seen a lot of growth in terms of FinTech. As a result, national banking institutions have developed "online and mobile banking, payment and deposit services, and money transfer platforms".

The Central Bank of Lebanon is the regulatory body in charge of online banking, whereas the Capital Markets Authority (CMA) is in charge of Crowdfunding.

Ensuring financial security and stability are the Lebanese authority's main concern. Therefore developing FinTech in the country was approached attentively with a lot of interest since this kind of achievement will reinstate the Lebanese banking system on the International Map.

10.4.1 Regulations

The BDL has taken a cautious but supportive approach to the FinTech sector. Several updates were made to the Central Bank's basic Circular 69/2000 on Electronic Banking and Financial Transactions to reflect technological advancements and developments.

Accordingly, circular 69/2000 covers "all the operations and activities concluded, performed or promoted through electronic means by banks and other financial institutions, thus they will require a specific license." However, the circular defines "Electronic financial and banking operations", as "all operations or activities concluded, executed or promoted through electronic or photo-electronic means (telephone, computer, internet, ATM, etc.) by banks or financial institutions or any other institution."

Before it's amendment, Circular 69 of BDL "**prohibited** the issuance or use of electronic money by any party and also the performance of banking operations via mobile and fixed electronic devices amongst customers of different banks, unless these operations are limited to the receipt of transfer requests from the customer, and provided that the operations are not instantly performed through the application or software used by the customer's devices but in the usual and conventional way (i.e. through the SWIFT system adopted amongst banks)."[133]

In fact, after its amendment in 2019, circular 69 has authorized "the performance of financial and banking operations through mobile or computer applications using bank cards and/or accounts, subject to certain conditions, including the BDL's approval."[134]

Moreover, "all non-banking institutions that are performing electronic transfer of cash domestically in the country are required to obtain a special license. The institution must be established as a joint-stock company with nominal shares and a minimum capital of five billion Lebanese pounds".[135]

A prior approval by the central bank should be incorporated on the institution's bylaws for special operations. Also, the Central Bank demands that "the institution be in possession of an efficient internal control system to face current and prospective risks, as well as an accounting system linked to the approved electronic transfer system in a way that permits the electronic retrieval of all incoming and outgoing transfers."

[133] Article 3 of circular 69/2000

[134] Ali, L. A. (2020, September 16). *FinTech Comparative Guide*. Lebanon. www mondaq.com/technology/924152/fintech-comparative-guide

[135] Article 5 of circular 69/2000

These are some of the requirements that allows the Central Bank to monitor and control the licensing of financial institutions. [136] However, electronic signature is not admitted unless certain conditions are concurrently met.

The central Bank demands a clear agreement between the concerned institution and the customer outlining the dangers connected with e-signatures and the appropriate processes to be taken to guarantee the highest level of safety to the concerned parties full responsibility ,also a PIN code of the signatory and a confirmation by the executing institution sent by e-mail within 24 hours at most from the execution of the operation, followed by regular mail within one week, unless the concerned customer requests that the mail be kept at the institution.

Also, FinTech companies that need a license or supervision from the Central Bank must abide by the Anti-Money laundering and Financing of Terrorism Law, as well as other laws and regulations that require the creation of a both a Board Committee and a compliance Unit for anti-money laundering and counter-terrorist financing (AML/CFT)

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10.4.2 Electronic Transactions and Personal Data Law

An important bill that governs electronic payments, digital payment, card payments, and e-checks was recently enacted. Also, BDL has a significant responsibility in regulating and issuing electronic and digital money.

The "E-Transactions and Personal Data Law" 81/2018 protects and regulates private data handling. However, processing personal data requires an authorization from the

[136] Bis

Ministry of Economy and Trade, though there are exceptions under the legislation. Further, FinTech must follow the E-Transactions and Private Data Law while collecting and processing personal data.

10.4.3 Crowdfunding

Crowdfunding is regulated by the Capital Markets Authority and is defined as "any activity directed towards the general public aimed at funding [SME] or startup companies through public investments in various equities or shares in these companies."

The Lebanese Capital Markets Authority will issue a crowdfunding license after completing a specific investigation called "Know Your Customer" and check for possible ties between the crowdfunding operation "the institution" and any suspicious businesses .

In addition, the CMA prohibits the "Institution"[137] from:

- "Providing any advice of any kind to the Investor or the Company, as its role is limited to facilitating the process of securing the necessary crowdfunding for investment."
- "Receiving any deposits of any kind whatsoever or even use the electronic platform to offer any financial products or derivatives to the public other than equities and shares."[138]

[137] "Institution": An institution specialized in providing "crowdfunding" services conducted through a crowdfunding electronic platform organized and managed by the "Institution" itself.

[138] Capital Markets Authority (CMA) Decision 3/2013 on Crowdfunding pursuant to Law No. 161 dated 8.17.2011 on Capital Markets.

- "Trading directly or indirectly in equities and shares on the electronic platform designed to provide Crowdfunding service."[139]
- "Providing advice of any kind to the investors or the company which will limit the institution's role in facilitating the process of securing the necessary Crowdfunding."

Accordingly, the CMA decision on Crowdfunding states that "the Institution shall ensure that all the Companies"[140] must follow specific regulations before providing them access to the electronic platform. Further, "The fundraising company must submit corporate identification documents, audited financial statements, a feasibility study covering the period of the next three years, a term sheet to be presented to the investor identifying the basic terms of the investment, and an investment agreement to be signed with the investor. Placements shall be deposited in an escrow account to be released upon reaching the targeted capital, or otherwise returned to the investors with the accrued interest." [141]

10.4.4 Lending

Online lending in Lebanon is not regulated explicitly. Lenders must obey all applicable lending rules and regulations stated by the central bank, including the Code of Money and Credit requirements.

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[139] Article 7 from Capital Markets Authority (CMA) Decision 3/2013 on Crowdfunding.

[140] "Company or Companies: Small and medium enterprises (SME)/companies or startup companies seeking funding through "crowdfunding" by offering some of their "equities or shares" to the public. The minimum capital raised by the "Companies" should be 30,000,000 LBP (thirty million LBP) or $ US 20,000 (twenty thousand U.S. dollars) or an equivalent amount in Arab and foreign currencies."

[141] Article 8 Capital Markets Authority (CMA) Decision 3/2013 on Crowdfunding;

The BDL does authorize only financial firms and banks as well as specialized lending firms, to engage in lending activities.

Furthermore, the Banque du Liban "Basic Circular 124/2010 on Transparency, Conditions, and Means of Credit" imposes some restrictions on regulated lending institutions such as:

- " Any direct or indirect advertising for loan activities must be clear, thorough, and accurate, and must not mention any benefits or services that are not accessible (example: 0% interest, overdraft, weekly instalments).
- The institution's contract and application forms must be clear, comprehensive, and accurate.
- The institution must guarantee that specific criteria and requirements, such as the credit's currency and duration, are stated in the application forms."[142]

Also, licensed financial institutions that wish to conduct e - banking or business activities using applications or software on fixed electronic machines must register with the BDL and get its authorization to do so. In addition, the law of "Electronic Transactions and Personal Data" is applicable to online lending. But, the regulations aren't established yet.

10.4.5 Payment services

To transfer money electronically, Lebanon's Central Bank is in charge. Thus, BDL-licensed institutions exclusively execute electronic payments and money transfers.

In addition, inter-bank transactions via smart phones are restricted. Unless the transfer request is accepted by the bank as a transfer from a client, in which case the relevant

[142] BDL basic Circular 124/2010 on Transparency, Conditions, and Means of Credit

bank must confirm that the transfer request conforms with applicable rules and regulations and that the transaction is completed entirely using conventional means (via SWIFT).

10.4.6 Cryptocurrencies

The Central Bank of Lebanon took a negative position against cryptocurrencies and has urged Lebanese banks and financial institutions against using them unless proper rules and regulations are implemented.

10.4.7 FinTech’s structure in Lebanon

Local banks, as well as registered financial and insurance companies, provide fintech services and products that are licensed and recognized as a joint stock company (s.a.l).

Many unlicensed FinTech services and products are provided by emerging entrants to the market and mainly "start-ups” that are also structured as an S.A.L or a limited liability company.

Furthermore, Lebanese FinTech won’t pose any risk to existing banks and financial service providers. The Central Bank of Lebanon, on the other hand, appears to be encouraging FinTech start-ups and banks to collaborate with the release of “Intermediate Circular 331”.

Finally FinTech innovations are embraced by Lebanese banks, and FinTech startups are being invested in.

10.5 JORDAN

Jordanian FinTech is still in its adolescence, but it is increasingly rising. Local companies are putting in place programs to pay bills online or even accept payments from smartphones. Meanwhile, the government is working on a plan to digitize Jordanian currency in order to reduce the volume of cash in circulation.

FinTech is actively sought after in Jordan's governmental and private sectors, and the country encourages the use of FinTech in daily activities. Moreover, FinTech products are being integrated into governmental facilities and the financial system by Jordan's Central Bank (CBJ). This creates several prospects enabling FinTech companies to establish themselves throughout the region.

10.5.1 Regulation

E-payments and other categories of online payment systems are governed by the Central Bank of Jordan. In accordance with E-Transactions Law number 4, which was approved in 2015, Electronic payments are permissible, and e-signatures are allowed for the completion of business operations.

The Central bank has steadily provided legislation and guidelines governing FinTech services and their use, especially by local banks and financial services providers, in anticipation of the growth of FinTech in Jordan. This year, a new law aimed at regulating third-party payment processors will be issued.

10.5.2 eFAWATEER.com

In 2015, a collaboration between the CBJ and Madfoo'atcom FinTech firm led to the launching of eFAWATEER.com that enables Jordanians to continue using electronic payments. The CBJ owns it, and Madfoo'atcom manages and operates it. This method helps customers in managing and settling all kinds of invoices, using online and mobile banking, including ATMs.

As part of its vision to digitize Jordanian currency, Jordan wants all government taxes, fines and bills to be settled online.

10.5.3 Mobile wallets

Jordan's mobile financial services also saw significant development, with more than seven hundred thousand of e-wallets on smartphones in 2020, according to official figures. Also, this accounts for approximately ten percent of the cellular network subscriber's base, "with a total market value of 88.1 million US dollars, which constitutes a significant increase from 26.7 million in December of 2019".[143]

Another factor is the deployment of mobile wallet apps by telecommunications companies to enable their clients to conduct transactions such as "top-ups" and online bill settling. Jordan is mostly a prepaid smartphone market, with around 80 percent of the population using monthly contracts. As a result, the "top-up" operation is essential for maintaining users and keeping them linked.

As a result, the Jordanian Central Bank is attempting to provide financial services to the "unbanked" by launching the online smartphone wallet that encourages users to transfer money from their mobile wallets to the wallets of others.

[143] (2020, May 29). *Mobile wallets' rapid take up in Jordan driven by government worker's fund*. www.verdict.co.uk/mfs-mobile-wallets

Finally, users are able to benefit from a mobile wallet on any device to make payments or withdraw cash, by only contacting their local telecommunication service operator.

10.6 SAUDI ARABIA

The Kingdom of Saudi Arabia has the capacity of becoming a global FinTech center. It represents the MENA region's economic powerhouse and has a large, youthful population, as well as the world's highest smartphone usage rate (65 per cent).

Saudi Arabia's economic diversification is a primary objective of “Vision 2030 and the National Transformation Program 2020”, mainly to reduce its dependence on oil. Therefore, the approach will be based on the implementation of technology.

The surge in Fintech in Saudi Arabia has prompted the country’s Capital Market Authority and the Saudi Arabian Monetary Authority (SAMA) to launch new initiatives and rules to oversee Fintech firms' operations. To serve the Saudi Arabia's Vision 2030 and diversify the economy, SAMA launched applications for its sandbox initiatives in January 2018 to serve the digital market of the Kingdom.

Accordingly, in order to access the Saudi FinTech industry, FinTech businesses will be needed to secure the proper licensing from SAMA and/or the CMA.

In the last two years, licenses given by SAMA and/or CMA have only been in the format of letters with a brief permission to participate in FinTech activities.

Moreover, due to the extreme demand throughout the Fintech industry and the increase in applicants, as well as SAMA's attempts to enforce newer regulations in the Fintech sector, SAMA issued three licensing categories.

10.6.1 Digital markets

SAMA governs collective investment, which is typically permitted but subject to license and minimum capital limits. The Law on "Finance Companies Control, established by Royal Decree No. M/51 dated 02/07/2012", and its corresponding legislation govern all financing activities. Since the goal of collective investment is to fund firms, the Finance Companies Law shall be applied. According to the relevant provisions of the Finance Companies Law, financial operations in KSA are prohibited unless the relevant licenses are obtained from SAMA, and that the activity of the company complies with Shariah rules. As a result, every institution wishing to handle investments in order to finance other businesses would become subjected to SAMA licensing requirements.

In order to handle collective investments, the entity who manages the assets should attempt to get the relevant SAMA license. In addition, managing such an investment may subject the manager to further inquiry by the authorities for potential money laundering.

Accordingly, due to these concerns, SAMA will only permit people or businesses to gather sums on the condition that they can present sufficient proof of how they intend to supervise the transactions performed. To be eligible for license, a company should take careful care of any money laundering vulnerabilities as well as disclose those risks to SAMA.

10.6.2 Crowdfunding:

In Saudi Arabia, equity-based Crowdfunding is permitted under the existing legislation, regulated from the Capital Markets Authority. Every business should

request a time limited license for Crowdfunding operations using the Capital Market' platform. Since collecting money is a delicate operation, the institution intending to Crowdfund should offer information as to how it plans to closely watch suspected money laundering operations. After completing the experimental phase, the organization will be awarded a regular license that permits it to conduct equity-based Crowdfunding operations.

Rewards-based Crowdfunding platforms don't need any regulation by the financial regulators, provided that they do not engage in any activity governed by SAMA as well as the CMA. They must conform to the ministry of commerce's and other ministries' regulations.

Reward-based Crowdfunding sites for collecting and distributing money are monitored by SAMA and must meet with Anti-Money Laundering and Countering Financing of Terrorism requirements as well.

10.6.3 Peer to peer lending:

Peer-to-peer lending is also supervised by SAMA and the Finance Companies Law. The entity must have a license by SAMA and must adhere to Islamic sharia in order to carry out the operations linked to peer-to-peer lending.

The Capital Market Authority regulations apply whenever the business has a responsibility to manage the funds. And since "Management activities" are securities business operations according to the "Securities Business Regulation" promulgated by the Capital Market Authority.

Finally, when necessary licensing is acquired, the company can be authorized to conduct “lending and management operations” in the KSA.

10.6.4 Payment services

Saudi payment services must automatically apply the Banking Control Law, which is applicable on all banking institutions. Payment services operations would need SAMA license such as "PayPal, HyperPay and PayTab".

However, a licensed entity is only allowed to offer payment services if it obtains licenses from: “SAMA, Partners with an entity licensed by SAMA, Appoint a local agent who is already licensed by SAMA to conduct the payment services activities.”[144]

10.6.5 Laws ensuring data privacy

Regarding giving third parties access to clients' data, the implementation of the Open Banking Policy would allow users to safely exchange personal information with a third party for the purpose of developing novel FinTech services.

Aside from the open banking policy, the KSA has no legislation protecting the rights of customer data. However, the E-Commerce Law that was introduced in 2019 will require institutions to protect their client's and user's data whenever there is an Electronic transaction.

[144] (n.d.). *SAMA Application Maintenance*. www.sama.gov.sa/en-US/payment/Documents/PSPs Regulations 111.pdf

10.6.6 RegTech in KSA

Regtech is focused on using technology to enable financial institutions to comply with financial services laws. FinTechs may build "RegTech solutions" that help regulated financial institutions to enforce compliance.

Some of the RegTech services and products can be:

- "Software that uses external databases to automate the checks required for KYC / AML activities
- Data analytic tools that are operated by the financial institutions, which automate the analysis of data to find patterns to detect financial crime / fraud
- Software that automatically updates compliance officers on new regulatory requirements that need to be met by financial institutions and prepares compliance officers for upcoming regulation changes
- Tools that can automate the audit of operational data as parts of the internal audit process".[145]

RegTech solutions won't require any regulation if they don't serve in any regulated activity. Despite this, companies would still have to be in compliance with current laws like financial data regulatory compliance.

Nevertheless, RegTech solutions are more prone to be used by regulated companies, which requires accountability and regulatory compliance in their place of expertise.

[145] (2019, January 9). *RegTech The Next Big Thing In FinTech*. DataDrivenInvestor. medium.datadriveninvestor.com/regtech-the-next-big-thing-in-fintech-92901dd7b695

10.6.7 Regulatory Sandbox in KSA

The SAMA & CMA recently built their respective regulatory evaluation mechanism thatallow FinTech companies to conduct prelicensing tests of innovative products wit hin a simulated space.

This testing is meant to facilitate the implementation of innovative technologies and operations that are not clearly specified within current legislation.

Regulatory Sandbox is testing multiple products and services such as: “Digital Payments, Financial Information Aggregation, Payment Aggregators, Crowd-lending / Peer to Peer Lending, Digital Savings Associations, and Digital Banking Products”.

SAMA will be monitoring the firms that have been given the testing authorization in order to better regulate or modify current restrictions.
Whenever an activity is regulated. It doesn't qualify anymore for being tested in the Regulatory Sandbox and entities can request licensing.

SAMA's Regulatory Sandbox requires the following qualifying requirements:

- “Demonstrate the products and services provide genuine innovation for Saudi Arabia (differs from existing offerings, uses new technology, etc.)
- Ensure the products and services benefit consumers (and also ensure the risks to consumers have been considered) Ensure alignment to Saudi Vision 2030 and the Financial Services Development Program • Ensure the products and services are ready to be tested in the sandbox
- Have an exit plan in place out of the Regulatory Sandbox”

However, the Regulatory Sandbox is open to:

- “SAMA licensed entities such as banks, remittance companies, insurance groups, etc. that want to test an innovation solution that is not explicitly mentioned in the existing regulation or in an area not covered by their existing permissions.
- FinTech companies based in Saudi Arabia or international FinTech companies with proven technology that have a local presence in Saudi Arabia”.

In 2018, the Capital Market Authority released the “Financial Technology Experimental Permit Instructions” aimed to offer a regulatory environment favorable to FinTech innovation in the Kingdom's capital market.

After checking that their new FinTech service applies with the Instructions, the Capital Markets Authority will provide the Permit to the successful applicants.

The FinTech Lab is being utilized to explore many activities, including: “Equity Crowdfunding, Robo-advisory, social trading, and securities arrangement using distributed ledger technologies.”

Some candidates could have operations which are relevant to both the SAMA Regulatory Sandbox and the CMA FinTech Lab. And, any candidate, even International FinTechs, are welcome to apply to the CMA FinTech lab, provided that they have a business presence in the Kingdom.

10.6.8 Cryptocurrencies/Initial Coin offerings & security tokens

"Aber" is a novel Cryptocurrency launched by SAMA in collaboration with the Central Bank of the United Arab Emirates (UAE). Aber will enable Blockchain cross-border transactions & transfers between Saudi Arabia and the United Arab Emirates as part of its attempts to examine, develop, and get a better knowledge of Cryptocurrencies and Blockchain technology. Adopting "Aber" would also enable the KSA to compare its results with foreign central banks, ensuring that SAMA-issued Cryptocurrency overcomes whatever challenges that most other products face.

Furthermore, the Saudi Central Bank has signed an agreement with Ripple, a company located in the United States, to launch trial programs for Saudi banking institutions. This scheme aims to fundamentally alter Saudi Arabia's financial system by permitting transactions with digital currency.[146] Accordingly, the Saudi Arabia British Bank announced at the Financial Sector Conference in April 2019 that it would debut its Ripple-based cross-border payments through blockchain.

As a result, Saudi Arabia's aspirations to develop a digital currency are visible via agreements with the Central Bank of UAE and Ripple.[147]

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[146] (2018, February 14). *and Saudi Arabian Monetary Authority (SAMA) Offer Pilot Program for Saudi Banks*. Ripple. www.ripple.com/insights/ripple-and-saudi-arabian-monetary-authority-offer-pilot-program-for-saudi-banks/.

[147] (n.d.). *SABB Launches New Ripple Based Cross-Border Instant Payments*. Saudi British Bank. www.sabb.com/en/about-sabb/news-room/News-Year-2019/SABB-Launches-New-Ripple-Based-Cross-Border-Instant-Payments/

10.6.9 KSA’s ambitions

Saudi Arabia's ability to invest in FinTech projects all over the world is a key component of its FinTech ambitions. “The Public Investment Fund”, the world's largest sovereign wealth fund, was launched as part of Vision 2030 as the primary vehicle for these investments.

One of its most notable investments was a hundred billion US dollars investment in Softbank's "Softbank Vision Fund" in 2017. SoFi received US$1 billion in 2015 and PayTM received US$1.4 billion in 2017, showing that this Fund will be a big player in the FinTech industry for the foreseeable future.[148]

[148] (n.d.). www.wsj.com/articles/softbank-saudis-to-launch-100-billion-tech-fund-1495270854

10.7 KUWAIT

Kuwait witnessed limited regulatory developments regarding FinTech. A small number of companies operate in the banking and payment services sector in the country.

The financial sector in Kuwait is revolutionized by the "Law Number 20 of 2014 about Electronic Transactions", passed by the National Assembly to promote a technology-based economy.

The goal is to replicate conventional paper-based transaction processes in a digitized framework that is supervised, reliable, and stable. The "Electronic Transactions Legislation" regulates electronic binding arrangements and signatures, as well as e-payments.

The Law of 2014 states that, "no individual is forced to accept or authorize electronic transactions without a clear and concise consent that will be concluded through his positive behavior that the case circumstances shall leave no doubt in indicating." [149]

10.7.1 Electronic payments

The Central Bank of Kuwait has the jurisdiction to provide guidelines to its banks and financial institutions on E-payment regulations.

E-payments are permitted as long as they adhere to the Electronic Transactions Law and the provisions of Law No. 32 of 1968 by the CBK. According to the ET Law, financial institutions that accept electronic payments must ensure "the necessary procedures for the provision of safe services to the customers and maintain the banking

[149] Article 4 ,Kuwait Electronic Transaction law of 2014

secrecy in accordance with the legal standards followed" the safety and protection of their customers' services as well as maintain banking confidentiality.[150]

10.7.2 Electronic signatures

Under the ET Law, "The legal effect of the electronic signature shall not be disregarded in terms of its validity and applicability merely because it is in an electronic form". Thus Specific standards for e-signatures are required and the regulator has already defined the practical criteria.[151]

As provided by the "Law Decree No. 39 of 1980" on "Evidence in Civil and Commercial Matters", digital signatures are valid and can be admitted for proof as long as they comply with the stated law and are approved by a certified institution.

10.7.3 Data privacy laws

Both governmental and non-governmental agencies are expected to safeguard and protect personal data.

The Electronic Transactions Law considers that "governmental bodies, agencies, public institutions, companies, non-governmental bodies or employees cannot unlawfully access, disclose or publish any personal data or information registered in the records or systems of electronic processing related to positional affairs, personal

[150] Article 29 of the law n'32 of 1968
[151] Article 19, Electronic Transaction Law 2014

status, health status or elements of the financial status of persons or other personal information registered."[152]

Once the permission is given, businesses handling personal data should make sure that the information is correct, will be utilized only for the targeted purpose, and also secured against theft as well as release to the public .However, it's indeed unclear whether "personal data" applies exclusively to people or also to business entities.

[152] Articles 32 and 35 of the ET LAW of 2014

10.8 QATAR

10.8.1 Regulations

The central Bank is the main regulatory body and also serves as the coordinator of the country's FinTech agenda.

The aspects of the FinTech service provider license that are not subject to financial regulation and supervision are well-defined, as Qatar's Financial Center doesn't handle customer funds. FinTechs licensed as non-financial companies by the Ministry of commerce fall under this category. The regulation and supervision of FinTechs that handle client funds, such as digital banks and robo-advisors, are entrusted to the Qatari Central Bank. Nonetheless, FinTechs accepting to manage customers' assets are deemed businesses that are regulated and will be required to begin with restricted licenses in the Central Bank's regulatory sandbox.

After going through the regulatory sandbox, companies can obtain a permanent business license.

According to a report released by the Qatar Financial Centre Authority and Refinitiv, "around 80% of FinTechs do not require regulation, as they build technology like APIs (application programming interfaces), AI (artificial intelligence), and Blockchain, as long as they deliver these products straight to banking and financial firms."[153]

[153]" (n.d.). www.qfc.qa/-/media/project/qfc/qfcwebsite/documents/insights/publications/research-insights-2021/qatar-fintech-report-2021.pdf"

10.8.2 Regulatory Sandbox

The central Bank of Qatar is aiming to establish a regulatory sandbox in 2021, by offering a lenient regulatory setting for companies to test their fintech products.

FinTech companies will be able to operate in the sandbox for up to twelve months, and they will be granted a restricted license that limits: "The number of customers or application users, the number of daily transactions, the maximum value per transaction, the value at risk, and the value of funds held by the i nstitution".

Also, Qatar's Fintech Hub can admit promising FinTechs straight into the Central Bank's regulatory sandbox, bypassing the incubator and accelerator programs.

10.8.3 Blockchain:

The Qatari Central Bank, "is exploring the use of blockchain within the existing regulations."[154]

10.8.4 Payment services:

Payments services is the fastest-growing market in the area, and it is a priority in the Nation's FinTech Agenda. As a result, the Qatar Central Bank has targeted the Payments industry and launched a sophisticated payment system in 2019, including a smartphone e-wallet and QR code-based solutions.

[154] Faridi, O. (2020, May 10). *Qatar Central Bank Is "Actively Working" on Fintech Initiatives, and Exploring Blockchain Use Cases*. Crowdfund Insider. www.crowdfundinsider.com/2020/05/161203-qatar-central-bank-is-actively-working-on-fintech-initiatives-and-exploring-blockchain-use-cases/

While payment platforms in Qatar are still in their adolescence, digital and contactless payments are quickly expanding. Payment solution providers have an opportunity to get access to the country's growing market of online merchants and e-commerce platforms.

10.8.5 Qatar’s position

The Central Bank announced various measures aimed at regulating the FinTech sector in Qatar, all while prioritizing customers and the stability of Qatar's banking and financial sector. We’ve also noticed the country’s interest and focus on Islamic FinTech and Islamic RegTech. Thus, incorporating Islamic law into innovative technologies.

Accordingly, the Qatar Fintech Hub has established global ties with FinTech centers that were highlighted before in this study. The authority also benefits from FinTech bridges or MoUs with FinTech regulatory bodies worldwide.

Qatar is following the lead of other Middle Eastern states such as the UAE, the Kingdom of Saudi Arabia, and the Kingdom of Bahrain in implementing similar rules. However, the Fintech revolution is still in its early phases.

10.9 OMAN

The FinTech sector in Oman is on the rise. It is being adopted gradually since it provides a big potential for developing financial services in the Sultanate. However, the steady pace of FinTech development is attributable to a weak consumer understanding and confidence in the industry.

10.9.1 Regulations

In the Sultanate of Oman, there is no specific FinTech Law. Oman's commercial, civil, banking, electronics, anti-money laundering, and consumer protection laws regulate the industry.

Despite the laws presumably applicable to FinTech activities, no legal precedent describes the standards for FinTech operations, since they are until now not explicitly defined.

The Electronic Transaction Law regulates most types of e- transactions and defines them as “Any act or contract drawn up, fully or partially, using electronic information communicated via electronic means is an electronic transaction”. Accordingly, all payment transactions made via smartphone applications and digital wallets will be subject to the stated law.

Furthermore, the ET Law requires that every digital payment must adhere to specific evidential, authenticating criteria and special operating protocols to be considered "legitimate".

Also, as part of a drive to increase transparency in the country's online transactions, it requires the IT Authority and the Central Bank to jointly create a system and framework for handling e-payments.

On the other hand, the Anti-Money Laundering law carries repercussions on FinTech businesses since all financial organizations need to execute a series of procedures that include AML controls throughout all their activities.

However, all financial institution services (including FinTech transactions) will be governed by the Consumer Protection Law, which establishes guidelines for balancing the customers and provider’s rights and responsibilities while limiting their risk.

Although these general laws control some aspects of FinTech, Oman needs a comprehensive FinTech regulatory framework.

Finally a regulatory initiative for this industry does not seem to be on the horizon.

Chapter Eleven

Challenges and solutions

Middle Eastern countries sometimes take time to adopt international standards or to update their legislative frameworks, which eventually causes some uncertainties about how rights and responsibilities can be enforced regarding the implementation of FinTech. The differences in language and culture would also constitute a barrier to the development of an economy.

Accordingly, Shari'a law has been adopted to different extents by several Middle Eastern countries, and it is considered the foundation for their laws, as well as the legislation in the Kingdom of Saudi Arabia.

However, Islamic Law imposes stringent penalties for a wide range of "decency" related offenses, like limitations on certain online content.

On the other hand, unique licensing regimes have been established throughout the MENA region to address uncertainties in the finance industry. For example, the Emirates has created a special framework that adopts Common Law rules in its free zones, which will definitely ensure greater trust in business transactions.

Furthermore, as Islamic financing regulations evolve, they can now be applied to FinTech products and services.

Some Central Banks in the various countries we are researching require licensing from banks in order for FinTech activities to take place and fall under their jurisdiction. In others, FinTech firms can operate without a specific license.

Certain jurisdictions in the region do not require special licensing for the establishment of FinTech activities, while other countries require a banking license for FinTech businesses to be fully operational. This will enable Central Banks to keep this kind of activity under their control and supervision.

A financial services license provides the confidence and legitimacy needed to achieve accessibility to newer marketplaces and consumer platforms.

Similar to "sandbox" models employed by many countries, the financial regulatory body in the United Arab Emirates' financial free zones has created a pathway where unique regulatory frameworks are given to FinTech businesses with a trial license to test the offered products or services.

Furthermore,financial technology companies (FinTechs) have to face substantial regu latory hurdles. They will need to wait for a good period of time and spend a large sum of money to obtain a banking license. Partnership opportunities with existing banks, on the other hand, remain widely publicized in the Arab World and are commonly regarded as a way of obtaining regulatory approval. Many banks now offer digital platforms, allowing them to collaborate with FinTech startups. There are also international licensing options that enable companies to acquire a license abroad to enhance the user's experience and guarantee the product’s or service’s integration into new market places.

11.1 Limited Regulatory Frameworks:

It should be noted that, few are the countries in the region that possess laws targeting FinTech innovations besides e-payment services.

Furthermore, although there are regulatory frameworks that support this kind of financial technology, like free zones in the United Arab Emirates, expanding the established FinTech companies is challenging since it would need acquiring a separate local license in order to successfully reach prospective consumers.

11.2 Difficulty of engagement:

11.2.1 Language barriers and slow Government action

Many companies have struggled in the past to find the right audience to help them enter Middle Eastern markets due to language barriers and limited resources.

Therefore, governments and their institutions are quickly reacting and moving quickly to show their support for FinTech, especially in the UAE.

This reflects the importance of FinTech in governmental policies to ensure the development of new technologies as well as the necessity for the transition towards an economy based on business investments rather than natural resources such as petrol.

The Middle East's youth demographic means that new technologies are strongly endorsed in the region.

Some governments in the Middle East have devoted resources to forming FinTech networks and endorsed the adoption of that industry, they showed readiness to collaborate with both new and existing participants.

11.3 Foreign ownership laws: a barrier to foreign investors

Non-national (or non-GCC) shareholders are only allowed to own a certain percentage of a company in some nations. As a result, entrepreneurs will hesitate in spending their money to invest if they have no trustworthy national partnerships and connections.

Nevertheless, foreign investment is increasing in many countries, such as the UAE and Qatar including Saudi Arabia, and restrictions have been lifted in a few sectors. In reality, most investing companies seek to deal with regional stakeholders when doing business.

Additionally, in the UAE, incorporating in a free zone is considered an option but is necessary since business activities taking place beyond the free zone will face arising challenges.

11.4 Cyber and privacy laws

Cyber incidents are making headlines around the globe and can create considerable disruptions as well as destroy credibility. These risks are taken into consideration by executives around the world.

Due to the Arab countries' geographic proximity to regional instability, there is a heightened sense of interest by the media which is stressing that business would be vulnerable in the region. Therefore, in order to combat that vulnerability, privacy laws have been created for the preserving of national security. Furthermore, financing of terrorism is still a major issue throughout the area, and legislation addressing these concerns would impede FinTech development.

It should be noted that, multiple countries in the region have enough resources to shield themselves like any developed country.

Furthermore, we observe that local businesses regularly use foreign data hosting services, such as Amazon Web Services, within the EU.

Moreover the scarcity of effective data protection regulations will help keep compliance expenses down during setup process while ensuring adequate disclosures to consumers and financial institutions on data uses. Finally, data storage should conform to worldwide solutions in order to keep it safe and secure.

11.5 Intellectual property hurdles

11.5.1 Undeveloped Intellectual property legislations and their enforcement:

In the Middle East, there are IP protection laws in place, and brand rights are well recognized. Also patents that cover the entire GCC region are available.

In comparison to several other countries, the inspection and enforcement regime for copyright, industrial design, and patents is still under development. Consequently, FinTech entrepreneurs might refrain from investing money in decentralized systems.

The widespread of “open source code, the use of third-party developers, and the collaborative environment”, contributed in making intellectual property a major concern for FinTech engineers.

Furthermore, it is likely that entrepreneurs will look at patents in industrialized nations such as the United States, the European Union and Japan. This would provide them better protection against international piracy. Also, Innovators may use other techniques to safeguard their IP like “trade secret protection”[155] as well as “digital rights management” [156]

11.6 Anti-Money Laundering laws (AML) and Sanctions Risk

Due to the rapid innovation that is happening and the development of Blockchain and increased use of crypto currency, countries around the world and especially in the Middle East are facing challenges in tracing the money. As a result, compliance costs are rising, and business owners will have to endure substantial expenses regarding "KYC/CDD" inspections and also mitigate any risk exposure.

Accordingly, regulators are faced with a risk to be sanctioned when it comes to complying with AML.

Therefore, governments are working towards, the adoption of new technologies to ensure transparency and the prevention of financial criminal activities. RegTech is also being implemented in several projects in the area to achieve that goal.

[155] Pamela Passman ,WIPO magazine, Eight steps to secure trade secrets, https://www.wipo.int/wipo_magazine/en/2016/01/article_0006 html

[156] What Is Digital Rights Management (DRM)? by Molly Hamm, https://www.widen.com/blog/digital-rights-management

Chapter Twelve

Conclusion

In the last few years, we have witnessed the booming of FinTech activities throughout the MENA region.

Worldwide officials are attempting to build a conducive regulatory system for FinTech businesses and help in the development of platforms through innovative regulations based on State- led attempts to broaden their economies away from dependency on government expenses.

As a result, a key component of this approach is to create an environment that is able to attract and support international firms within their respective countries.

Based on the mentioned earlier in our study, the Emirates and the Kingdom of Bahrain are in the early phases of their aspirations in becoming the powerhouse of Financial Technology of the region. Other countries of the Middle East are following their footsteps and it is yet to be seen if Bahrain and the UAE's policy objectives and FinTech initiatives will successfully be able to develop a flourishing FinTech environment. Moreover, stakeholders are collaborating with regulatory agencies from all over the world to share information and discoveries on FinTech developments, and also assist startups and help growing firms evolve in their countries and expand into other jurisdictions.

The establishment of direct links between regulatory bodies and governments are becoming more frequent, and regulators are busy conducting Memorandums of Understanding (MoUs) on FinTech policy.

The “Financial Conduct Authority” of the UK and the “Monetary Authority” of Singapore are top regulators in the world when it comes to forming meaningful FinTech relationships with other regulatory organizations utilizing these bridges. Certainly, information sharing between countries will aid in the development of a prominent local FinTech industry.

Finally, the MENA region has a lot of potential when it comes to implementing FinTech regulatory frameworks, which will enable these countries to attract foreign investments and provide assurance to companies interested in doing business there.

Efficient, innovative, and progressive regulations are critical to guaranteeing a business-friendly and appealing innovation hub.

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