

# **The Challenges of Financial Technology in Libya** Applied study on the stakeholders of Financial Technology

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## **Abstract:**

This study aims to discover the challenges of financial technology in Libyan economy. To do so, the ecosystem of FinTech was presented in the first stage. In this regard, we propose and prove universities as a new element of the FinTech ecosystem based on the culture and characteristics of Libyan economic. In the second stage, we lay out the challenges of FinTech start-ups. Namely: Weakness of (1) regulations and policies, (2) support and investment, (3) venture capital, (4) technology cooperation and integration and last (5) Security and privacy. To illustrate the level of these challenges in Libyan economy, a survey had been designed and distributed electronically and physically to the most of the FinTech ecosystem, i.e., Central Bank of Libya, Jumhoria's main Bank, Entrepreneurial and Innovation Centre and Libyan Enterprise. In general, results reveal that the challenges of FinTech start-ups are existed in a moderate level. Therefore, this study provides two types of recommendations. First, universities have to raise the awareness of FinTech start-ups by exciting workshops, conferences and incorporate few courses among the education system to equip students with such information with respect to FinTech start-ups. Second and more importantly, we believe that it is of paramount importance to bring the players of FinTech ecosystem together in harmony and start working on national blueprint concerning the future of FinTech start-ups in Libya.

**Keywords:** FinTech, start-ups, ecosystem, blockchain, crowdfunding, venture capital.

## **1.1 Introduction.**

The Fourth Industrial Revolution (4IR) launched an amazing development in the world of accelerated digital economic transformation in all aspects of life, relying on the great achievements of the information revolution represented in the development of the Internet, the huge ability of information technology processing, data banking, the unlimited possibilities of access to knowledge and inaugurating a new economic era known as the digital -based economy based on the breakthroughs of emerging technologies such as: artificial intelligence, robotics, the Internet of things, self-driving vehicles, 3D Printing, Nanotechnology, Biotechnology, Quantum Computing and Blockchain Data and Big Data (Klaus Schwab, 2016). The 4IR plays unprecedented role in various fields such as, medical, industrial, agricultural, environment, marine life and first and foremost fintech. The latter has not only provided superior financial services but also has a significant impact on the economic growth (Nasihin Aziz, 2019). Thereby, In February 2020, start-ups were about 8,775 in USA, 7,385 in Europe, Africa and the Middle East and 4,765 in the Asia Pacific region (Statista, 2020).

## **1.2 Problem Statement.**

Digital development is considered of paramount importance in financial sector because clients and investors are increasingly demand FinTech services in order to execute their banking transactions. The beginning of this millennium inaugurating the emerging of FinTech Start-ups and they have been growing substantially (FinTech Global, 2018). International reports in this regard, discussed deeply FinTech in terms of its volume

investment, initiatives and the number of FinTech's start-ups (World Fintech Report, 2019) & (The Global Fintech Index, 2020)<sup>1</sup>. Developing countries such as: Tunis, Egypt, Morocco and Algeria appear in these reports. While, on the other hand, Libya was absent completely them. Based on that, this paper seeks to define the challenges of FinTech start-ups in Libya. The study problem can be summarized in the following question: **What are the challenges of FinTech start-ups in Libyan state?**

### **1.3 Importance and Aims.**

The main aim of this study is to define the barriers impeding the emerging of FinTech start-ups in Libya. It is of great importance to build a number of recommendations on the basis of which a national policy for investment in the fields of FinTech can be developed and lead to the building of an integrated system that includes the development of education and research programs development and embracing entrepreneurial ideas in this field through the entrepreneurship and innovation centres of digital financial technology (Fintech Innovation Hubs).

### **1.4 Hypothesis**

H0: There are challenges facing FinTech start-ups in Libya.

H1: There are no challenges facing FinTech start-ups in Libya.

### **1.5 Data and Methodology.**

Data will be collected by distributing surveys on the main parts of the fintech start ups' ecosystem in Libya during June 2020, i.e., universities, entrepreneurial and innovation centres, Libyan Enterprise, technology developers and banks. Descriptive analytical approach according to five-point Likert scale is used to analyse the surveys and reach a set of results and recommendations.

### **1.6 Literature review.**

Many studies have been implemented in the context of FinTech. For instance, (Carmen Leong et al., 2017), explored the development of FinTech company which offers microloans to college students In China. Findings shows five elements that organizations have to be aware of in order manage better the challenges and to leverage the opportunities: a good understanding of the regulatory requirements for designing products, a digital hybrid model, mounting analytical capabilities on risk assessment, educating users through digital financial participation and sustaining business growth with an ecosystem approach. (In Lee & Yong Shin, 2018), studied the historical view, ecosystem, business models, investment types, and challenges of FinTech. Results introduced six sorts of challenges: customer management, investment management, technology integration, regulation, security and privacy, and risk management. (Xiang Deng et al., 2019), analysed the relationship between FinTech and sustainable development based on data of peer-to-peer platforms in 31 Chinese provinces. Empirical results show the existence of a U-shaped relationship between FinTech and sustainable development, mainly determined by the pattern of extensive economic growth. Also, (Paola Castro et al., 2020) investigated the evolution of FinTech's ecosystem in six Brazilian and five Portuguese FinTech. Using the socio-technical system perspective, they proposed a new element for Lee and Shin diagram, identified the investors.

The purpose of this paper is to define the challenges of FinTech start-ups among the major stakeholders in Libyan economy. This paper is the first of its kind in Libya as the subject is still in its fancy in the country.

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<sup>1</sup> For more international reports, you can see Datastream report ,2016; IMF,2017 and ITA Fintech Market Report, 2016.

The remainder of this paper is structured as follows: Chapter II presents a brief overview of FinTech. Chapter III describes the ecosystem of FinTech. Chapter IV discusses the basic challenges of FinTech. Chapter V displays the opportunities of FinTech. Chapter VI is dedicated to Results and discussion and Chapter VII concludes the results and recommendations.

## II. Financial Technology.

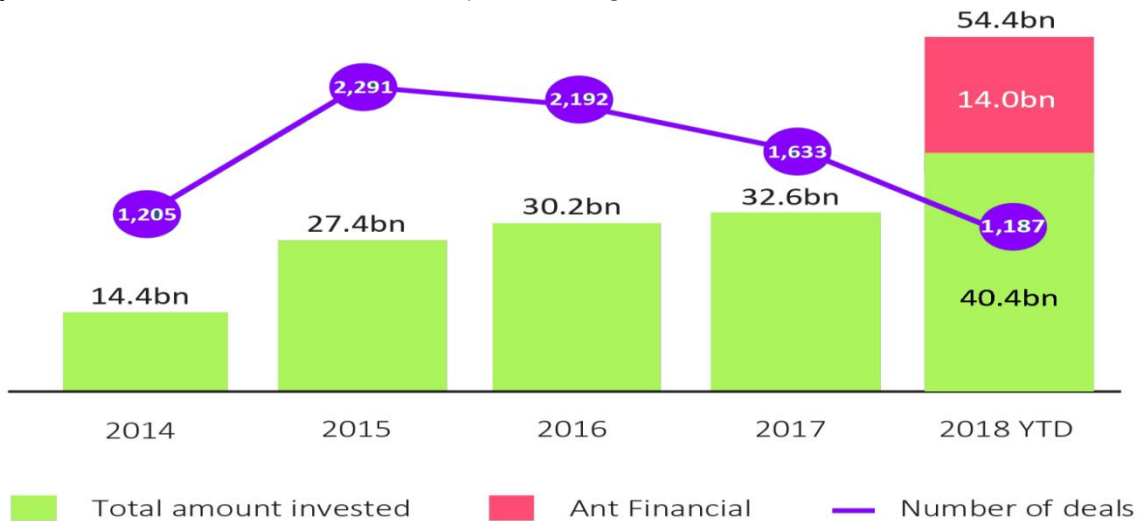
### 2.1 Definition of FinTech

The word FinTech is composed of the terms "financial" and "technology", and is intended to denote the use of technology to deliver a financial solution. Financial Stability Board defines FinTech as "technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services" (Financial Stability Board, 2019, p. 1). While, (Liudmila Zavolokina et al., 2016) defined as an application of innovative technological solutions in the financial services industry. On the one hand. On the other hand, the term "FinTech" is also used to refer to start-ups – which serve as enablers of such kinds of services.

### 2.2 Size of Investment in FinTech.

Figure 1 shows the global FinTech investment through the period from 2014 to the third quarter of 2018. In general, capital investment increased significantly year-on-year and the total growth in the period was about 277 per cent with 159 billion \$ and 8,508 deals. The largest growth recorded in the first 3Q of 2018 by 66.9 per cent compared to 2017.

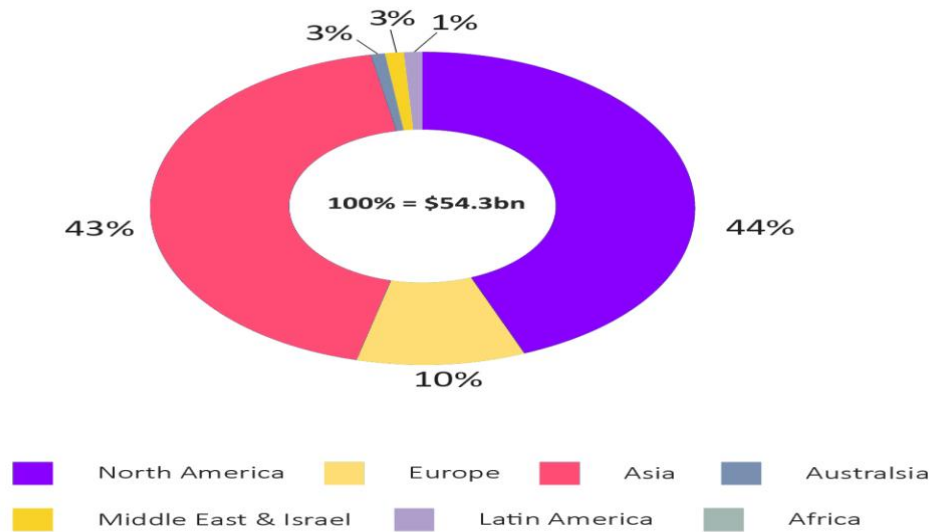
**Figure 1: Global FinTech investment, 2014 – 3Q 2018.**



### 2.3 Global FinTech investment by region.

Figure 2 illustrates FinTech investment by regions. North American start-up companies dominated the global investment and deal activity of FinTech in the 3 first quarters of 2018, they account for 44%, 50% of total value invested and deal activities respectively in FinTech. In the same context, Asia represents the second largest value of global investment which was about 43%. However, it came third in terms of deal activity which made up just around 15.4% of total in the region. In contrast, EU represented 27% of deal activity with about 10% of FinTech global investment. While, Middle East & Israel, Australia, Latin America and Africa collectively recorded less than 9% in either of global investment and deals activities.

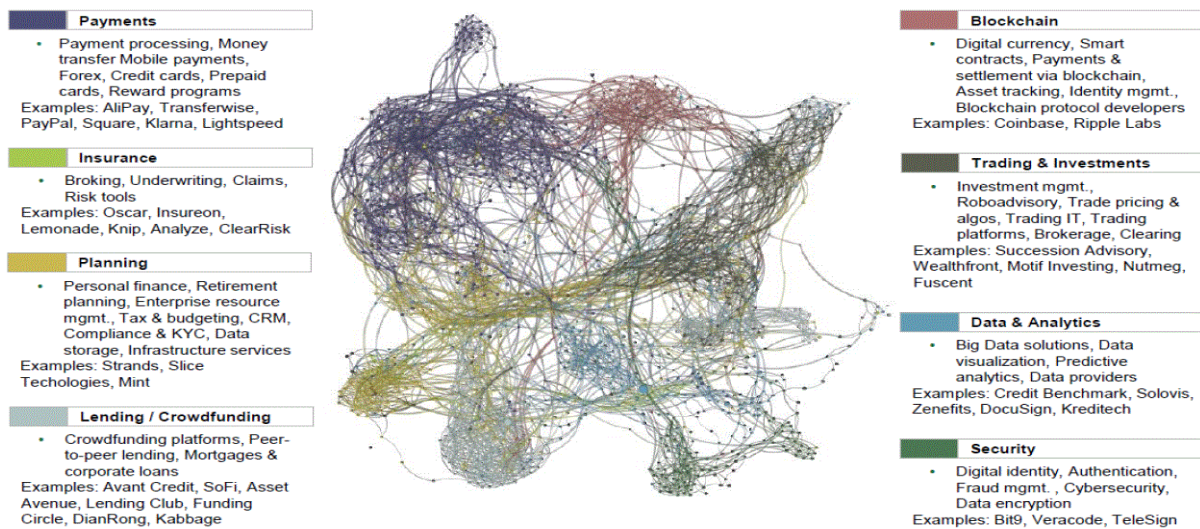
**Figure 2: Global FinTech investment by region, 1Q – 3Q 2018.**



## 2.4 Segments of the FinTech Industry.

FinTech Industry can be divided into many categories, for instance, (International Organization Securities Commission , 2017) published a Research Report on FinTech which mapped FinTech landscape across eight categories: Payment, Blockchain, Insurance, Trading & Investment, Planning, Data & Analytics, Lending & Growdfunding and Security (Figure 3).

**Figure 3: IOSCO's Segments of FinTech.**

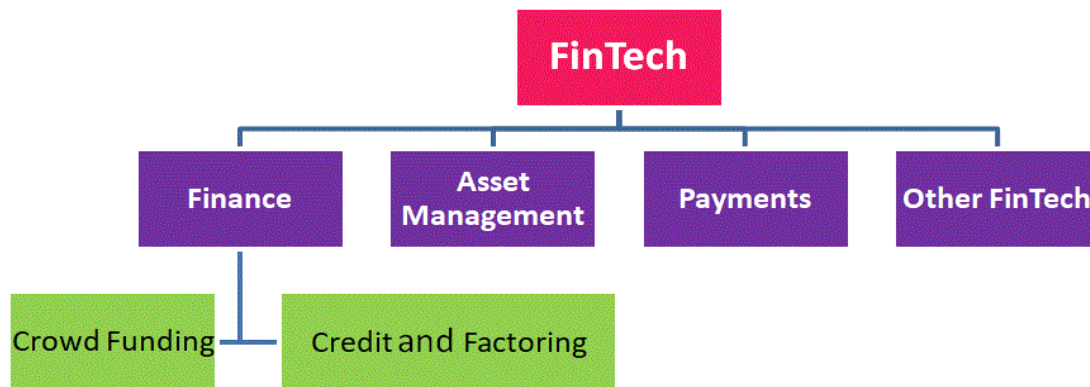


**Source: International Organization Securities Commission , 2017, p4.**

In the same vein, (Gregor Dorfleitner et al., 2017) divided Fintech industry into four major segments based on their distinctive business models. Namely: Finance, Asset Management, Payments and Other FinTech. Figure 3 clarify this categorization<sup>2</sup>.

**Figure 4: Segments of the FinTech industry**

<sup>2</sup> For deeper elaboration for the subsegments of FinTech industry, you can see Gregor Dorfleitner, Lars\_Hornuf, Matthias\_Schmitt and Martina\_Weber, 2017.



**Source: Gregor Dorfleitner et al., 2017.**

The finance sector makes financing available for both businesses and private individuals. It is divided into two parts, Crowdfunding which is the main subsegment and it is used as a tool to mobilize financial resources in which a large number of contributors provide finance to certain kind of projects. While Credit and Factoring segment is another online type of finance where the business owner can receive the total amount of the invoices once issued rather than waiting for the dedicated period and the payment done by involving a third part in the process. The second sort of segment is asset management, it includes FinTechs that offer advice manage the assets on investors such as robo-advice which function Logarithmically and widely automated investment advice. Payment is the third sort of segment. It is related to any FinTech applications enable digital payment transactions through mobile such as Blockchain and theorem virtual currencies. An example can already find in Starbucks companies. They had created and developed their own payment Apps so that mobile payments increased to 30% of transactions in U.S. company-operated stores (Kelvin Leong & Anna Sung, 2018). Last segment is other Fintech pillar. It consist of FinTech businesses that cannot be classified under the aforementioned three segments, for example, FinTechs that offer insurance and it is also called InsurTechs. The latter offer peer-to-peer-insurance, where by collective liability come together by a group of policyholders in the case of damages (Gregor Dorfleitner et al., 2017).

### **III. FinTech Ecosystem.**

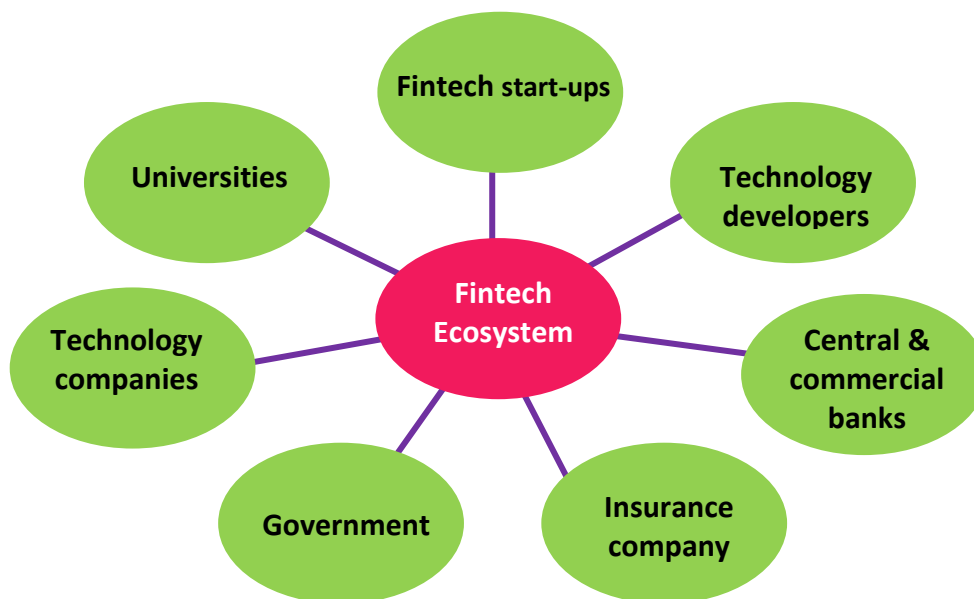
Establishing and fostering a FinTech ecosystem is of paramount importance not only to ensure that technological innovation is created but also to stimulate economics by attracting talented people and becoming a locus of creative thinking and entrepreneurship. According to (In Lee & Yong Shin, 2018), the ecosystem of FinTech composes of five elements: FinTech start-ups, Technology developers, Government, Financial customers, Traditional financial institutions. In the same vein, (Selim Yazici, 2019), defined 8 elements: "New technologies and tools that enable innovations; telecom and technology companies that create infrastructure for distribution; start-ups that create innovative business models; government and regulators that define the rules of the game; financial institutions that cooperate with start-ups; customers and users who benefit from innovations; investors, incubation centers and accelerators that enable both financial aid and space for innovators". Moreover, (Dan Breznitz et al., 2015) interviewed 54 executive directors of FinTech ecosystem in the Toronto Region based in 8 elements of ecosystem: FinTech, banks, professional services, venture capital firms, industry associations, insurance companies, government and incubators. Indeed, economics have different ecosystem of FinTech according to their necessities, attributions and stages. Examples of

this can already be found in Libyan economy where the FinTech is still in its fancy. Therefore, we have identified seven elements of the FinTech ecosystem which can suit and serve the current state of FinTech in Libya:

1. FinTech start-ups.
2. Universities.
3. Technology developers.
4. Central and commercial banks.
5. Insurance companies.
6. Government.
7. Technology companies.

In comparison to the above ecosystems, we believe that Universities and Insurance companies must be included to the FinTech s' ecosystem in Libya in this stage. Universities are on the increase in recognizing the necessity to incorporate FinTech area to their curriculums. Imperial College London and Singapore management University, for example, are launching master degree entirely concentrate on FinTech. These courses cover entrepreneurial finance, payments, blockchain, digital currencies, robo-advisors, systematic trading and FinTech risk management (Henri Arslanian & Fabrice Fischer, 2019). While, Insurance companies can decrease the risk of the venture capital which dedicated to FinTech start-ups. Figure 1 shows the seven elements that formulate the FinTech ecosystem in Libya.

**Figure 5: The seven elements of the FinTech ecosystem in Libya.**



#### **IV. Challenges of financial Technology.**

In general, there are six domains that hinder the potential of establishing FinTech companies and can be summed up as follows:

##### **4.1 Universities.**

In a recent survey conducted by PricewaterhouseCoopers on Global Banking and Capital Markets, a vast majority of CEOs (93%) identified technology changes as a key contributor to transforming the sector over the next five years. The financial services sector must be able to respond to this transformation and therefore, will require labour talent that combines strong financial and digital skills (Nurul Jamil & Junaidah Seman, 2019). Besides, universities is the prime sector which provides not only HR in the field of FinTech but also for other fields. For instance, USA has lots of its universities in the top of

international ranks such as QS and Webometrics Ranking in 2019 so that it comes first globally in terms of FinTech advancement, while Libya has not appeared in FinTech global ranking because its universities has not appeared also among even the first 4000 universities in global university ranking (Global Fintech Index, 2020). In addition to this, inadequate educated work force was considered the third most problematic for doing business in Libya (Global Competitiveness Report, 2014-2015). More importantly, the researchers believe that stability remains first and foremost abatement to FinTech in Libya.

#### **4.2 Regulations and polices:**

Regulations and polices exist to protect and induce businesses, workers, public, and investments. But the lack of them or sometimes non-existent can paralyze the entrepreneurial and innovative activities and business growth. Doing business report, 2020 measures the improvements in regulations and legislations in 190 economies cross the world in the base of twelve business regulatory areas. It is aimed at assessing the ease of doing business in terms of conducive environment in each economy worldwide such as starting the business, getting location, paying taxes, accessing finance, and working in a secure business environment. The best three economies to do business in the world are: New Zealand, Singapore, and Hong Kong SAR, China with a score of 86.8, 86.2, 85.3 out of 100 respectively. Economies that scored within the 20 top performances share a common feature which is the soundness of business regulation and high degree of transparency. Saudi Arabia has improved the most within the report in comparison to last year's' report as its authority had done many reforms to the economic system like establishing a one stop shop, in addition to ease and merged pre- and post-registration processes for the establishment of new companies. Libya ranked 186 in the same report before just Yemen, Venezuela, Eritrea and Somalia (World Bank Groups, 2020). This demonstrates that regulations and policies are the basic challenges for starting business in Libya.

#### **4.3 Support and investment.**

Establishing incubators, accelerators and centres for entrepreneurship and innovation dedicated to FinTech are of great importance. These bodies afford basically capacity building, i.e., training, consultants. In addition, they provide logistic support such as co-working space, offices and internet. These facilities are still limited in many countries, especially in the developing countries. Albeit, some developing countries lunched initiatives over the past years. In particular, in 2017, Dubai International Financial Centre in cooperation with International Accenture Company launched the first FinTech accelerator. Furthermore, Egypt in 2016, launched "accelerator 1864", which seeks to enhance the space for financial technology innovation (saida kharshof, 2019). Moreover, about 10 centres for leadership and innovation were established in Libya in 2018 under the supervision of Ministry of Education. On top of that, a superior accelerator was found in Libyan in 2019. However, there are no incubators or accelerators dedicated to FinTech at present time in Libya.

#### **4.4 Venture capital.**

The lack of venture capital and private equity which are the foundation of FinTech in developed economics are impediments that hamper the growth of this technology in developing countries. To clarify this poing, the amount of all venture capital and private equity allocated to FinTech in the middle east and North Africa has stagnated at around 1 \$ billion during the period from 2011 to 2015, and it reversed to less that 600 \$ millions in 2016 as oil price plunged (International Monetry Fund, 2017).

#### **4.5 Security and privacy**

FinTech companies are anticipated to face a high level of disruption as FinTech online platforms services increase because of cyberattacks. Many countries develop and build strategy to strengthen security and confidence in the use of communication technologies. The strategy focuses on five pillars. i.e. Legal, Technical, Organizational, Capacity Building and Cooperation. In general, developed countries have demonstrated high improvement in all five pillars during 2018, while developing countries, especially African countries, have just started to initiate commitments in cybersecurity. More specifically, Libya was categorized in the level low of improvement and it is ranked 117 out of 175 countries with regard to Cyberattacks' strategy (Global Sybersecurity Index, 2018).

#### **4.6 Technology cooperation and integration challenge**

FinTech start-ups develop completely new agile and innovative services where almost all processes are functioning logarithmically. This could jeopardize banks and render their process obsolete. On the flipside, however, the growing competition between banks and FinTech represent opportunity. In other words, if banks work in partnership and integration with FinTech, profits can increase substantially as a result of novel models of business and services. Another avenue of cooperation is between corporate venture funds and incubators. For example, Deutsche Bank has invested approximately a billion euros in digital technology and it has been expanding innovative labs in New York, London and Berlin and has announced prominent partnerships with domestic financial technology companies (Daniel Drummer et al., 2016).

### **V practical side**

#### **5.1 Variables:**

Variables are used in this paper divided as below:

**5.1.1 Dependent variable**, i.e., FinTech.

**5.1.2 Independent variables**, i.e., Regulations and Polices, Support and Investment, Venture capital, Technology cooperation and integration, Security and privacy Human Capital and Universities.

#### **5.2 Tool of analysis:**

We use the five-point Likert scale to allow the individual to express how much they agree or disagree with the statements of the study which extracted from the challenges of FinTech and table 1 shows more details about the scale.

Table 1: five-point Likert scale

<b>N</b>	<b>Range</b>	<b>Affect</b>	<b>Scale</b>
1	1.00-1.80	Not effective	Totally Disagree
2	1.81-2.60	Little effective	Disagree
3	2.61-3.40	Moderately	Moderately agree
4	3.41-4.20	Effective	Agree
5	4.21-5.00	Very effective	Totally Agree

#### **5.3 First Sample:**

Universities are the prime source of human resources. Accordingly, we have identified universities in Libya as a new element of the ecosystem of FinTech. Furthermore, we choose Economic and Finance and Banking departments at Faculties of Economic as proxy of Libyan universities. Subsequently, we had designed and distributed a survey based on one dimension to these departments. The ultimate goal of this survey is to discover whether Universities and its staff academic at the mentioned departments are aware of FinTech. Between 17 of June and 5 of July 2020, we received 21 valued surveys. Demographic information is in appendix 1.

##### **5.3.1 Reliability Analysis:**



The value of cronbach's alpha of this dimension is about 73% and that proves a good internal consistency among the answers of the respondents.

Table 2 shows the results of Cronbach's alpha s' test for reliability

Item	N of Items	Value of cronbach's alpha
Universities	7	73%

### 5.3.2 Results and discussion.

Table 3 shows the results of Libyan Universities.

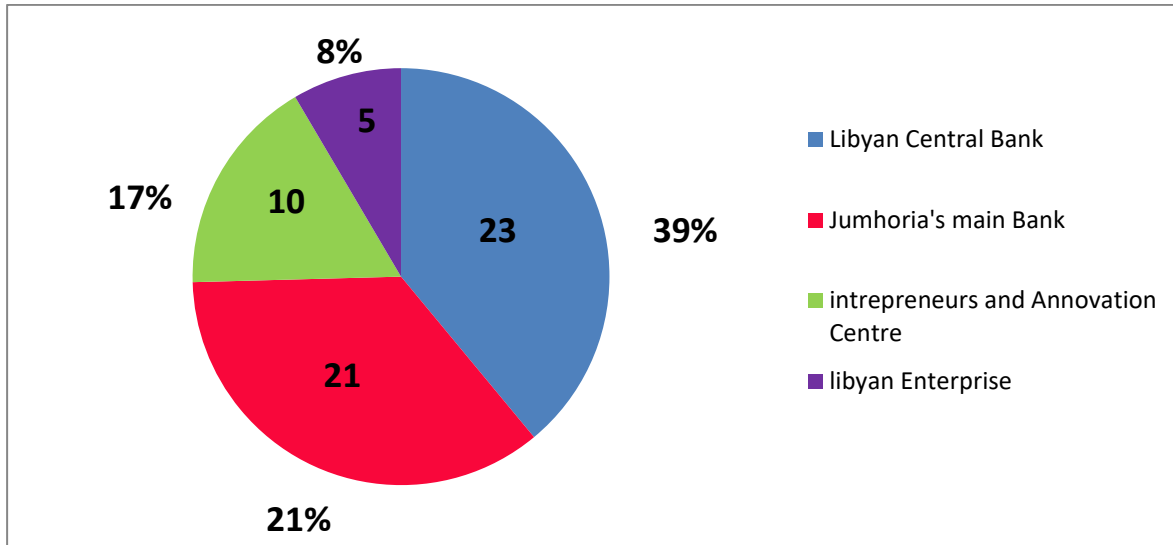
N	Items	Mean	%	S.D	Sig
1	You have abundant knowledge about FinTech topics, such as: Blockchain, Peer to Peer, and Crowdfunding.	2.48	0.50	1.33	0.12
2	Your institution provides financial technology training programs.	1.33	0.27	0.80	0.00
3	Your institution executed workshops in FinTech.	1.29	0.26	0.78	0.00
4	The college has a department dedicated to FinTech	1.19	0.24	0.40	0.00
5	The department has a subdepartment dedicated to FinTech	1.29	0.26	0.64	0.00
6	The department has a course on FinTech.	1.48	0.30	1.03	0.03
7	There are some topics dedicated to FinTech within some courses in the department	2.57	0.51	1.29	0.06
<b>The overall score of Security and privacy</b>		<b>1.45</b>	<b>0.29</b>	<b>0.78</b>	<b>0.03</b>

It is explicit from the above table that the whole dimension lays on the area of not effective according to likert scale, regardless of staff academic's culture of in terms of FinTech topics such as bockchain and crowd funding which lays in Little effective area. More specifically, there is a scarcity of implementing training programs and workshop of FinTich in order to raise the awareness of staff academic. Also, all economic faculties in the sample do not have FinTech department. In the same manner, Economic and Finance and Banking departments do have neither subdepartment nor courses in FinTech discipline. Statistic results is robust as the significance level is 0.03.

### 5.4 Second Sample:

The stakeholders of FinTech and their integration is a key factor to start first wave of this industry. In this essence, we had designed a survey based on a five-point Likert scale and in appropriate with the six dimensions which represent the challenges of FinTech. Subsequently, it was distributed electronically and physically to the individuals of most components of FinTech's ecosystem at the level of high management. Between 17 of June and 3 of July 2020, we received 79 surveys. It includes Central Bank of Libya, Jumhoria's main Bank, Entrepreneurial and Innovation Centre and Libyan Enterprise. Figure 5 lists the distribution among the ecosystem of Fintech, categorized by type. Demographic information is in appendix 2.

### Figure 5: Distribution of surveys



#### 5.4.1 Reliability Analysis:

Reliability of the survey was checked by using cronbach's alpha test. Results show an excellent internal consistency among the answers of the respondents, regardless the first diminution of the study which was neglected because of its weak result. Table 4 shows the individual and collective results related to the dimensions of the study.

Table 4: Results of Reliability Analysis

Dimensions	N of Items	Value of cronbach's alpha
Human Capital	4	36.
Regulations and Polices.	8	93%
Support and Investment.	3	82.5%
Venture capital.	3	94.6%
Technology cooperation and integration.	4	94.5%
Security and privacy.	2	96.9%
<b>Total</b>	<b>20</b>	<b>92.3%</b>

#### 5.4.2 Regulations and Polices.

Table (6) Results of Regulations and Polices dimension.

N	Items	Mean	%	S. D	Sig
1	There are legislations of electronic transactions.	3.09	0.62	1.20	.000
2	There are legislations of FinTech.	2.86	0.57	1.18	.000
3	There are explicit legislation and policies in place to support entrepreneurs and start-ups of FinTech.	2.65	0.53	1.13	.000
4	There are legislations which support business environment of FinTech.	2.67	0.53	1.24	.000
5	There are legislations concerning the support of venture capital to finance and invest in FinTech companies.	2.63	0.53	1.16	.000
6	There are legislations related to electronic security.	3.00	0.60	1.21	.000
7	There are legislations that protect the confidentiality and privacy of bank accounts.	3.39	0.68	1.34	.000
8	There is explicit legislation to support and invest in FinTech companies.	2.70	0.54	1.10	.000
The overall score of Regulations and Polices dimintion		2.87	0.57	1.20	.000

Table 6 shows that the mean of total diminution is about 2.78 and its percentage is around 75%. This refers to the moderately agree in the answers of the respondents about the existences of a few legislation concerning FinTech start-ups. Nevertheless, these regulations and polices need to be evolved because the overall score of the mean barely pass the little effective area. Also, the value of t student test proves that there is a significant nexus between regulations and policies and FinTech.

#### 5.4.3. Support and Investment.

**Table (7) Results of Support and Investment dimension.**

N	Items	Mean	%	S.D	Sig
3.1	Your institution has technically supported at least one FinTech project.	2.75	0.55	1.22	0.00
3.2	Your institution has financially supported at least one FinTech project.	2.73	0.55	1.53	0.00
3.3	Your institution has an investment in financial technology.	2.35	0.47	1.08	0.00
<b>The overall score of Support and Investment</b>		<b>2.61</b>	<b>0.52</b>	<b>1.28</b>	<b>0.00</b>

Table 7 shows the results of items with regard to support and investment diminution where the total score of the mean is about 2.61. The latter lies in the moderate area and that mean the effectiveness of the Support and Investment of FinTech by the stakeholders in the sample are moderate.

This mean that there has been weakness with respect to the investment in FinTech within most of the component consist of FinTechs' stakeholders. However, there has been a humble technical and financial support to the FinTech project.

#### 5.4.4 Venture capital.

**Table (8) Results of Venture capital dimension.**

N	Items	Mean	%	S.D	sig
1	Financial support is provides to venture capital for the sake of financing and investing in FinTech companies.	2.45	0.49	1.09	.000
2	Technical support is provided to venture capital in FinTech companies.	2.63	0.53	1.21	.000
3	Financial or technical support is provided at least on time to venture capital for the sake of Financing and investing in FinTech companies.	2.39	0.48	1.11	.002
<b>The overall score of Venture capital</b>		<b>2.49</b>	<b>0.50</b>	<b>1.13</b>	<b>.002</b>

Table 8 depicts the total mean score of venture capital dimension which was about 2.49. This value is located in the little effective. Also, t value is valid and it reflects the significant relationship between venture capital and FinTech start-ups.

#### 5.5.5 Technology cooperation and integration.

**Table (9) Results of technology cooperation and integration dimension.**

N	Items	Mean	%	S.D	sig
1	There is a real partnership between your institution and at least one of FinTech's stakeholders.	2.76	0.55	1.27	.000
2	There is a memorandum of understanding between your organization and at least one of FinTech's stakeholders.	2.80	0.56	1.34	.000
3	There is cooperation between your institution and at least two of FinTech's stakeholders.	2.80	0.56	1.31	.000

4	There is cooperation between your institution and all of FinTech's stakeholders.	2.59	0.52	1.30	.000
<b>The overall score of Technology cooperation and integration</b>		<b>2.74</b>	<b>0.55</b>	<b>1.30</b>	<b>.000</b>

The overall score mean of technology cooperation and integration dimension record 2.74 and this reflect the moderately agree about the momerundum of understanding and cooperation among the stakeholders of the FinTechs' ecosystem. However, this cooperation needs to be accelerated and move to the next stage because the score of the total mean barely pass the modernity. T value is significant and that proves the nexus between technology cooperation and integration and FinTech.

#### **5.5.6. Security and privacy.**

Table (9) Results of Security and privacy dimension.

N	Items	Mean	%	S.D	sig
1	There is confidence in electronic transactions in terms of safety and security of transactions.	3.41	0.68	1.18	.000
2	There is confidence in electronic transactions in terms of maintain privacy.	3.33	0.67	1.12	.000
<b>The overall score of Security and privacy</b>		<b>3.37</b>	<b>0.67</b>	<b>1.2</b>	<b>.000</b>

The overall score of Security and privacy is about 3.37. This reflect that There is a moderate confidence in electronic transactions in terms of safety and security of transactions in addition to privacy from the perspective of respondents. T value is significant as it is less than 0.05 per cent and we can say that there is a nexus between Security and privacy and FinTech.

### **VI. Conclusion.**

The emerge and growth of the FinTech is crucial to Libya's future economic success because it increases and mobilizes finance which Libyas's economy is lack of. The Financial Technology industry currently faces a growing number of challenges in Libya. So, this article aims at identifying the challenges of FinTech among its ecosystem. For this, we first presented the stakeholders of FinTech start-ups. The ecosystem of FinTech is vary according to the cultural and economic characteristics of economics. Based on this, we propose a new element of the FinTech ecosystem in Libyan economic identified the Universities. To prove the latter as a vital new element of FinTech ecosystem, a survey is designed and distributed to the head of Economic and Finance and Banking departments at Faculties of Economic to discover the reality of FinTech sturt ups. Results shows that these departments are not effective in terms of FinTech start-ups. Also, we lay out the challenges of FinTech start-ups. Namely: Weakness of (1) Regulations and Polices, (2) Support and Investment, (3) Venture capital, (4) Technology cooperation and integration and (5) Security and privacy. To prove the level of aforementioned challenges in Libyan economy, a survey was conducted includes most of FinTechs' stakholedrs, i.e., Central Bank of Libya, Jumhoria's main Bank, Entrepreneurial and Innovation Centre and Libyan Enterprise. In general, results illustrate that the challenges of FinTech start-ups are existed in a moderate level. Finally, we recommend that universities have to raise the awareness of FinTech start-ups by exciting workshops, conferences and incorporate few courses with respect to FinTech in the first stage. More importantly, we believe that it is of paramount importance to bring the players of FinTech ecosystem together in harmony and start working on national blueprint concerning the future of FinTech start-ups in Libya.

- **Limitation of the study.**

Further studies can be implemented in each element of ecosystem itself. Besides, research may consider the private sector such as private banks and accelerators.

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