An Empirical Study of the Adoption of Fintech in the Banking Sector of Saudi Arabia

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The unceasing evolution of technological innovations has lead to a new area of study called "FinTech". FinTech affected the shape of financial services and transformed the entire banking system from a branch-specific process to various digital channels, which are online, social, and mobile. In this context, our work aims to produce a survey of FinTech by collecting and reviewing contemporary achievements, by which a theoretical data driven FinTech framework is proposed. The methodology is based on face to face interviews with 10 bank managers that was concerned with the adoption of FinTech in Saudi banks according to Saudi Vision 2030. The findings confirm that despite a lack of budget and skills, they are continuously working to adopt the FinTech products and improve financial services in order to increase profit, market share, customers' confidence and competitiveness.

Key words: *Bank, digitalisation, FinTech, interview, innovation, technology.*

JEL classification: C83, G21, O33

INTRODUCTION

A new term in the financial industry, FinTech best describes how financial institutions are including new technologies in their services. This term covers a large scope of techniques, from data security to financial service deliveries.

A unceasing evolution of the investment has been driving the growth of FinTech in numerous areas, such as mobile networks (Wen et al., 2013; Gai et al., 2016a), big data (Yin and Gai, 2015), trust management (Zhang et al., 2016; Abawajy et al., 2016), and data analytic techniques (Lee and Kim, 2015).

FinTech is considered as a key term because of several factors, such us technical expansion, business innovation opportunities, cost-saving necessities, and customer demands. It is stated that FinTech is one of the main investments for most competitive banks and financial institutions (Wigglesworth, 2016).

Research on the development of FinTech proposes that financial technologies have a longer legacy than the term FinTech itself. For example, Lee and Shin (2018) link the roots of FinTech to the diffusion of the internet since the 1990s. Arner et al. (2016) paint a broader picture and recognise financial technologies already in the mid-nineteenth century. A historical perspective may even start earlier with the emergence of financial institutions (Rainer et al. 2018).

The first use of technologies in banks relied on physical media containing the information/value (e.g., paper, coins). The second phase of financial technologies involves analogue technologies, in particular, the visual and later the electrical telegraph. This phase lasted until the mid-twentieth century. After that, the age of digital financial technologies (also called "e-Finance") started according to Arner et al. (2016, p. 1282).

By the late 1980s, financial services were mostly a digital industry, depending on electronic transactions among financial institutions, financial market participants, and customers everywhere. In the banking sector, the technologies spread along the banking value chain, which has evolved to comprise four clusters (Bons et al. 2012): customers (e.g., retail, commercial, investment), channels (e.g., branches, brokers, web, mobile, social), financial service providers (e.g., banks, nonbanks) and interbank providers (e.g., exchanges, networks). In this paper we focus on the implementation of FinTech in the banking industry of Saudi Arabia according to Saudi Vision 2030. Thus, our paper tries to detect the challenges to Saudi banks in employing new technologies to enhance productivity and increase customers loyalty.

To answer this question, we use semi-structured in-depth interviews with managers representing different banks with profound insight in the banks' digitalisation process and its effects on profitability and competitiveness.

The paper is organised as follows. Section 2 illustrates the literature review and the evolution of FinTech in Saudi Arabia. Section 3 presents the methodology and data. Section 4 summarises the results; section 5 discusses our findings and section 6 concludes the paper.

1- LITERATURE REVIEW

Financial technology could play an important role in achieving the goals of the Saudi Vision 2030 but will require strong cybersecurity protection. Saudi Arabia has prioritised technological development as one of the key pillars of the Saudi Vision 2030 strategy to diversify the economy and create new jobs. The development of a fintech ecosystem is a

significant component of Saudi Arabia's Vision 2030 economic diversification strategy and is seen as essential for broadening the country's investment base and transitioning toward a cashless digital economy.

Recently, Saudi Arabia has taken steps to diversify its economy. Finance is one of the industries which has been selected for its future growth. In April 2018, in line with Saudi Arabia's Vision 2030 for the enhancement of financial technology services, the Saudi Arabian Monetary Authority (SAMA) launched the FintechSaudi initiative. The initiative seeks to realise a number of purposes, the most important of which are: starting the first version of the Kingdom's FinTech system; educating persons and moving them to progress their knowledge and skills in the FinTech field; and helping banks, and partners to launch varied FinTech activities in the Kingdom.

Banks and FinTechs in Saudi are collaborating to develop innovations that improve customer experience. For instance, Riyad bank partnered with Gemalto to introduce a range of contactless payment wristbands. Saudi Arabia is steering towards being a blockchain-powered nation:

• In October 2017, the research arm of the Islamic Development Bank, the Jeddah-based Islamic Research and Training Institute, said it had signed an agreement with local firm Ateon and Belgium-based SettleMint, to do a technical feasibility study with the plan to use blockchain technology to develop sharia-compliant products, aiming to support financial inclusion efforts across its member countries.

• In May 2017, Al Rajhi Bank completed a cross border transaction within a few seconds using Blockchain. In February 2018, Saudi Arabia's central bank made a deal with U.S. based Ripple to permit Saudi banks to use Ripple's software to immediately settle payments done inside or outside the country.

As part of their Vision 2030, presented in April 2016, the Saudi Arabia Government launched a Financial Sector Development program. The program seeks to achieve five objectives: Financial variety, depth, constancy, and digital revolution financial sector.

The main financial regulators in the country are Saudi Arabian Monetary Authority (SAMA) and the Capital Market Authority (CMA). In May 2017, SAMA issued the Cyber Security Framework, which defines principles and objectives for initiating, implementing, maintaining, monitoring and improving cyber security controls in Member Organisations.

The goal of CMA is to provide the appropriate support for capital markets in terms of new technologies. This support is translated into an easy regulatory context that is beneficial for the innovation of Financial Technology within Saudi Arabia. FinTechs can deploy and test their innovative FinTech products, services, and business models related to capital market within

specified parameters and timeframes. In January 2018, the CMA issued the Financial Technology Experimental Permit Instructions to provide a regulatory framework that is conducive for the innovation of financial technology ("FinTech") in capital markets within the Kingdom of Saudi Arabia. Companies apply for the permit in order to participate in the FinTech lab where they can use new FinTech products and services. They can also lab test the business models of capital market under specific conditions.

In 2018, Gulf Capital, an asset management firm, acquired a US$266.6m stake in electronic payment solutions provider Saudi Geidea. Saudi Arabia's Public Investment Fund (PIF) is an investor in the SoftBank Vision Fund. In May 2017, SoftBank Vision Fund announced that it had raised over $93 billion to invest in technology. Other members of the fund include Abu Dhabi's Mubadala Investment, which committed US$15b, Apple Inc, Qualcomm, Taiwan's Foxconn Technology and Japan's Sharp Corp. The fund targets long-term investments in companies and foundational platform businesses that seek to enable the next age of innovation. In Oct 2017, Saudi Arabia announced plans to create a $500bn new mega-city, called NEOM, in the country's north west region. The megaproject aims to attract investments from global finance players like J.P. Morgan and BlackRock and contribute $100bn to the gross domestic product by 2030. Its adjacent efforts to develop a FinTech hub in Riyadh, through the Vision 2030 initiative, will become a catalyst to create a thriving financial service ecosystem.

FintechSaudi is expected to launch a number of workshops, educational and awareness activities targeting university students, investors, companies and banks to introduce the initiative and its contribution to a qualitative shift in the provision of financial technology services. The Saudi British Bank (SABB) and King Abdullah University of Science and Technology (KAUST) established the KAUST-SABB University Entrepreneur Accelerator TAQADAM in Saudi Universities. The aim of the program is to help early stage university students and faculty entrepreneurs in developing their concepts into high-potential start-ups.

2- METHODOLOGY

This study conducted a qualitative, phenomenological study (Pietkiewicz and Smith, 2014). An exploratory study approach is employed to understand how bank managers from several major banks recognised the execution of FinTech and its influence on productivity.

Data was gathered through a series of interviews with respondents representing different banks. Interviewees were chosen using purposive sampling. We invited ten (10) participants via electronic channels. We guaranteed the anonymity of all provided information and that it will be used for the aim of this paper. In our selection, we focus on persons who have a managerial position in the bank, are involved in the digitalisation process and deal directly or indirectly with customers.

Table 1. Study participants

N	Gender	Age	Bank	Title/Position	Years of experience
1	M	41-50	Riyad	Branch manager	20
2	M	20-30	NCB	Operations manager	7
3	M	31-40	NCB	Customers services	9
4	M	31-40	Riyad	Relationship Manager	11
5	M	31-40	Albilad	Customers services	4
6	M	31-40	Alrajhi	Product and placement manager	10
7	M	31-40	Sab	Customers services	4
8	M	41-50	Aljazira	Relationship Manager	5
9	F	20-30	alinma	Branch Manager	6
10	F	31-40	Alrajhi	Relationship Manager	7

Source: Author

Our sample is well diversified in term of banks, interviewee position, age and years of experience. the only inconvenience is that 80% of interviewee are male. Based on the characteristics of our sample, the researchers have assumed that the subject respondents of the sample are sufficiently mature and efficient to consider the significance of the results.

The interviews were semi-structured using open-ended questions, in which the respondents could clarify the topics. The interview was revised by an independent colleague unaffiliated to the study, in order to ensure the clarity of the interview questions as well as to estimate the length to the interview.

The interview questions sought to probe the respondents with different questions based on each and every one of these areas about the bank's digitalisation process and what possibilities and challenges the respondents perceived this had in regard to securing customer operations.

The interviews were conducted face to face by one of the authors during the months of September-October 2018. The interviewees were asked to provide their views of actual events as they had experienced them in regard to the banks' digitalisation processes. Follow-up questions were asked whenever necessary in order to provide for a deeper testimony. The interviews ranged between thirty minutes to one hour. All interviews were digitally recorded.

The main topics discussed in the interview were:

- Background on FinTech products (5 questions)
- Importance of FinTech (5 questions)
- Advantages of FinTech (5 questions)
- Obstacles against FinTech (8 questions)
- FinTech requirements (5 questions)

- Readiness of the bank to use FinTech (5 questions)
- The threat of FinTech companies on banking sector (4 questions)

3- RESEARCH RESULTS

The first question asked to participants was about their background in FinTech products. We found that they are moderately (blockchain) to extremely familiar with the products (virtual channels).
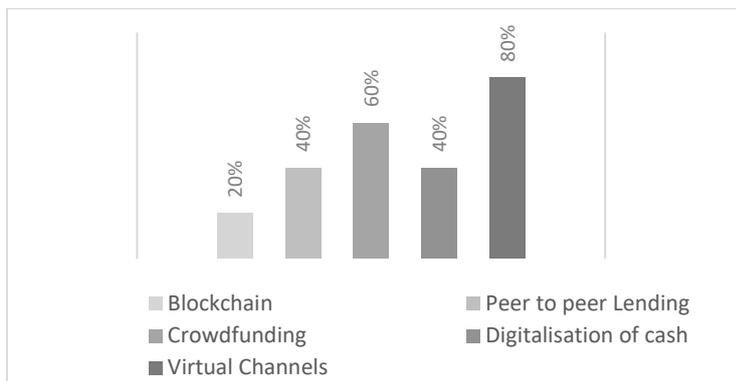

Figure 1. Background on FinTech products

All banking respondents say that they are at best slightly familiar with the technology. Nevertheless, this technology has immense potential, and cannot afford to remain in the dark. The FinTech companies certainly are not.

The second question was on the importance on FinTech in the banking industry. 60% of respondents confirm that it is a good tool to attract new customers.
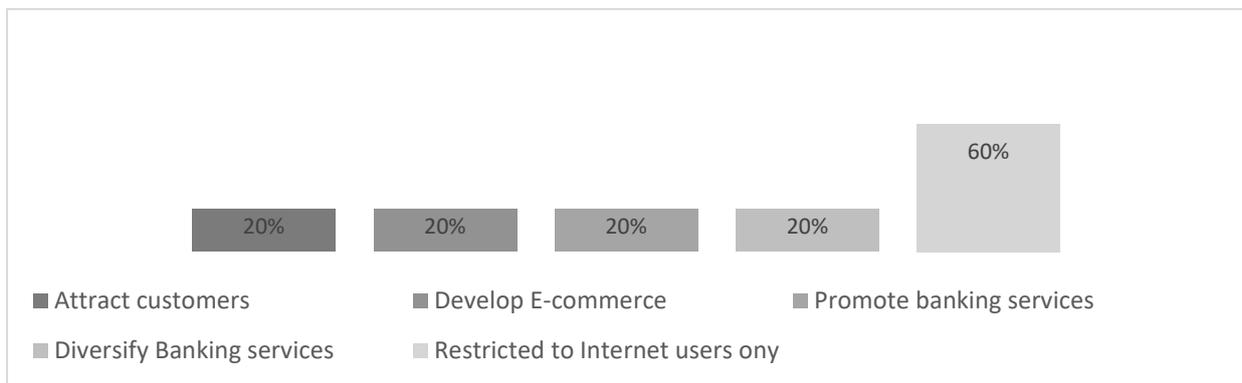

Figure 2. Importance of FinTech

The perception that FinTech only poses a low risk of increasing customer attrition for banks may be due to the time it takes for start-ups to earn customers' trust and build the necessary

track record and brand reputation. However, FinTech start-ups can partner with established banks to shorten the process of building trust.

The third question is about the advantages of FinTech. All managers confirm that the use of new technologies will save time and effort and also enhance E-commerce activities.
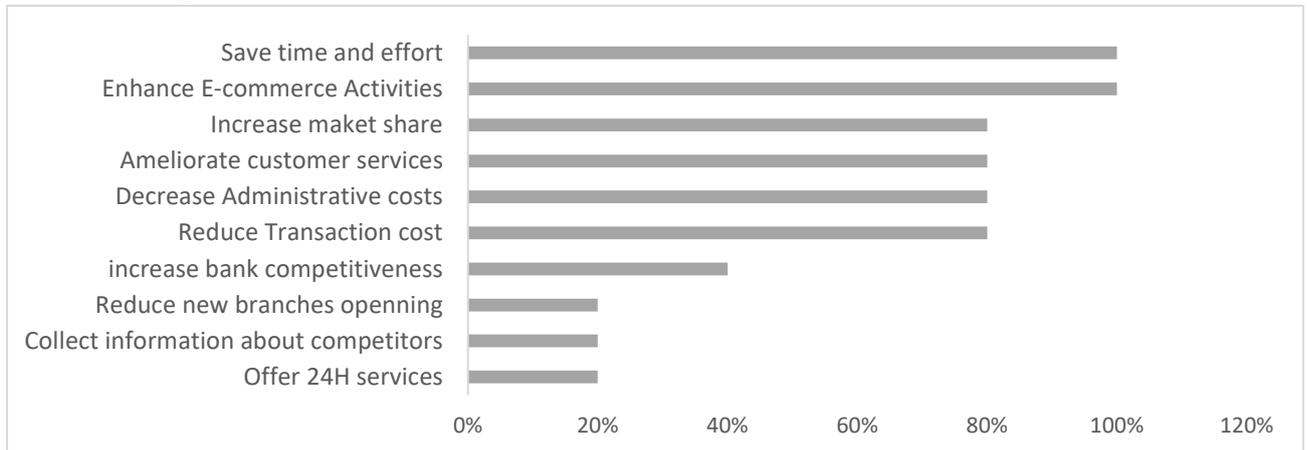

Figure 3. Advantages of FinTech

The interviewees also ennumerated other advantages for the adoption of FinTech such as the increase of market share, amelioration of customer services, the decrease of administrative cost, increased competitiveness, the reduction of transaction costs, the reduction of new branches opening and the availability of services for customers.

The fourth question discusses the obstacles against FinTech. They all agree that the lack of budget is the main obstacle against the implementation of FinTech. There are also other factors such as the lack of regulation, and the issue of FinTech in Islam Shariaa (as cryptocurrency). Other problems are linked to lack of skills and customer trust.
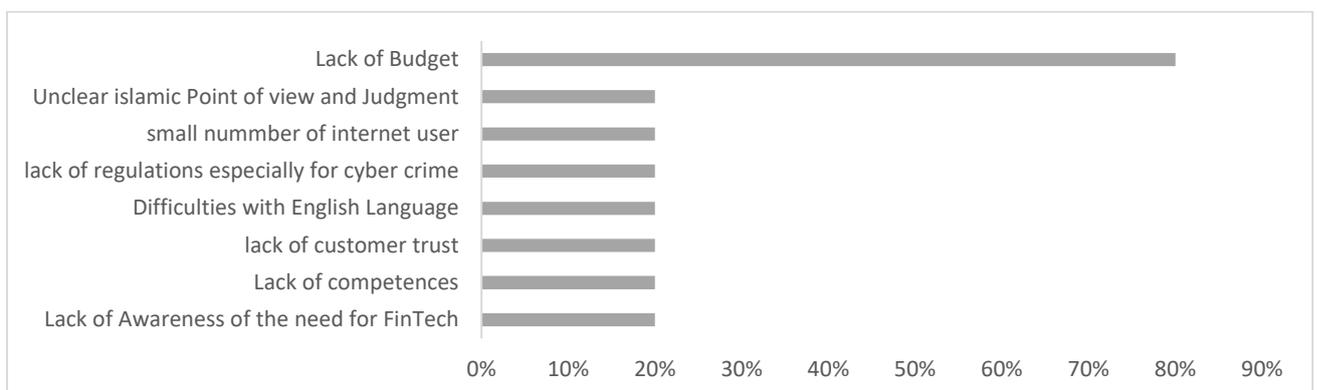

Figure 4: Obstacles against FinTech

The fifth question was about the requirements to adopt FinTech in the banking sector. The main requirements are necessary equipment and facilities and required funding.
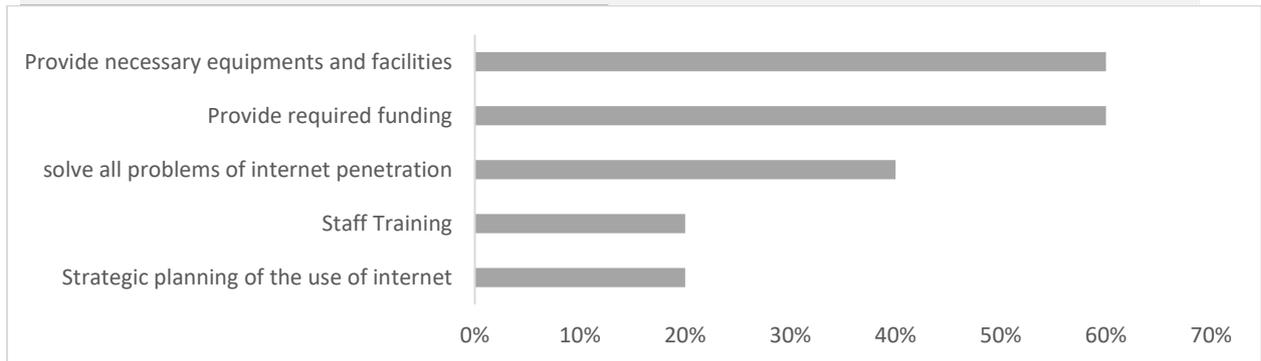
Figure 5. FinTech requirements

The adoption of FinTech also requires the training of staff and the amelioration of internet penetration and the preparation of an efficient implementation strategy.

The sixth question was: Is your bank ready for FinTech? The banks are trying continuously to increase the use of technology in financial services.
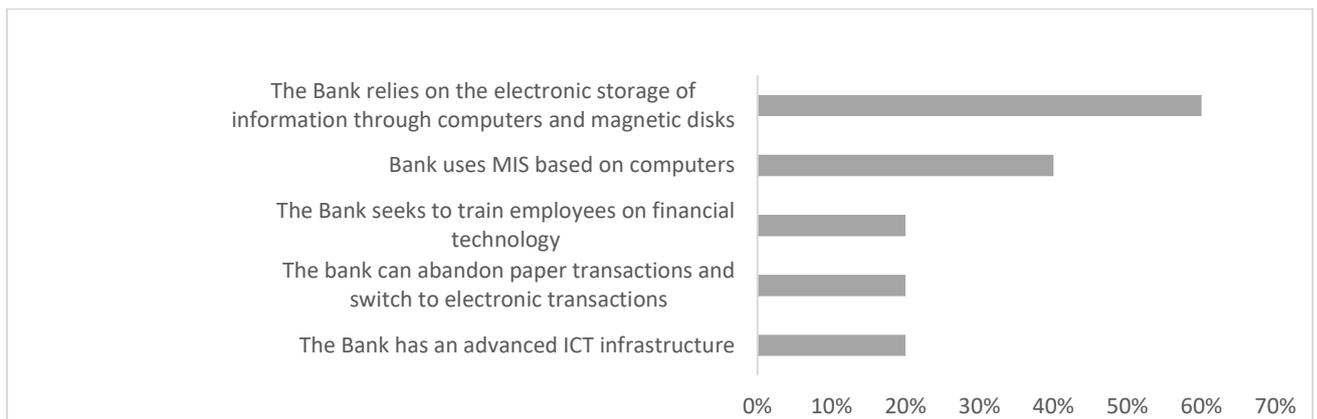

Figure 6. the readiness of banks to adopt FinTech

Nowadays, banks are relying on the electronic storage of information, and are continuously making training for staff towards this end.

The last question was about FinTech companies and if they represent a threat for banks. The interviewees agree that FinTech firms are new competitors for banks and this will have impact on the profit margin, but they also suggest that there are ways to collaborate and work together.
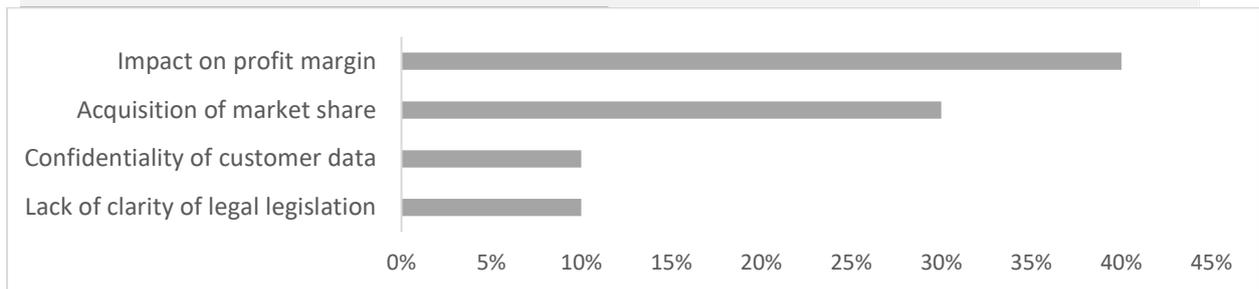
Figures 7. FinTech companies VS banks

4- DISCUSSION

Banks are not only recognising the challenge posed by FinTech and the new realities they herald but are also striking back. Their responses are built around strategies of internal innovation, self-disruption and capitalising on their advantages.

In our analysis of the impact of FinTech Saudi banks, we note that FinTech has provoked a competitive response, pointing to markedly improved customer experiences at Saudi's biggest banks and their changing business models. The biggest lesson of all, it claims, and one that may well have greater application in other territories, is that: it is not upstarts versus incumbents but rather a question of how banks absorb the FinTech innovations blossoming around them.

FinTech has led financial services to become the most intensive users of data. Innovation and experimentation in data mining and analytics, including in relation to personal data, are both defining characteristics of FinTech and the backbone of FinTech services.

From the results of our survey, the perceived disruption emerging from FinTech trends within the banking sector related to improving internal operations and new business models is fairly moderate.

However, based on the pattern of likelihood of investing in the different trends, our survey respondents generally prefer to focus investment on FinTech trends that are less "re-imaginative", that is to say, they are more likely to invest in those that will improve operations instead of the ones that will result in new business models.

Preference markedly leans towards investing in FinTech to improve operating activities, for example by investing in trends that:

• Increase sophistication in methods to reach, engage and retain customers;
• Implement solutions that will integrate, improve and simplify operations; and
• Enhance credit underwriting and decision making.

Among the potential uses of FinTech to improve operations, it is surprising that our respondents say they are unlikely to invest in technologies that can improve compliance functions, or what is known as "RegTech". RegTech could offer considerable advantages seeing that the financial services sector is highly regulated, with substantial compliance costs. It could also help banks address mounting regulatory pressures.

5-CONCLUSION

FinTech firms are setting the benchmarks for the financial services industry. Their offerings are attractive to under-served consumers, and usage will only rise as FinTech awareness grows, consumer concerns fall and technology advances to reduce switching costs.

Established firms will be required to offer similar propositions to remain competitive — which creates opportunities for collaboration between start-ups and incumbents. Investors and regulators will continue to play a stabilising role.

The perspectives of FinTech in Saudi Arabia:

- Vision 2030 recognises that small and medium-sized businesses are key to the development of the fintech sector
- Authorities were set up with the aim of helping young entrepreneurs through business-friendly regulations, easier access to funding, international partnerships and a greater share of national procurement and government bids.
- Another important element of Saudi Arabia's fintech ambitions is the King Abdullah Financial District, a massive new business area in the heart of Riyadh.
- It is also expected that there will be regulatory initiatives in the fintech sector that will enable and encourage further developments.
- There are plans in discussion between SAMA and The Saudi Capital Markets Authority (the CMA) to create a regulatory sandbox, initially for incumbent firms, to promote fintech innovation in Saudi Arabia in the coming years.

This paper has added great value for the literature of FinTech because it is the first study that directly addresses the point of view of bank managers and staff regarding the adoption of FinTech. The study can be improved in future research by enlarging the sample to other banks and also by investigating the point of view of customers and regulators.

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Conceptualisation: Amina AMIRAT and Taghreed ALSULIMANI
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REFERENCES

Abawajy, J., Wang, G., Yang, L., Javadi, B., 2016. Trust, security and privacy in emerging distributed systems. *Future Gener. Comput. Syst*. 55, 224–226, (C).

Arner, D. W., Barberis, J., & Buckley, R. P. (2016). The evolution of FinTech: A new post-crisis paradigm? *Georgetown Journal of International Law*, *47(4)*, 1271–1319.

Bons, R. W. H., Alt, R., Lee, H. G., & Weber, B. (2012). Banking in the internet and mobile era. *Electronic Markets*, *22(4)*, 197–202. https://doi.org/10.1007/s12525-012-0110-6.

E.Z. Milian, M.d.M. Spinola, M.M. de Carvalho, Fintechs: A Literature Review and Research Agenda, *Electronic Commerce Research and Applications (2019)*, https://doi.org/10.1016/j.elerap. 2019.100833

Gai, K., Qiu, M., Tao, L., Zhu, Y., 2016a. Intrusion detection techniques for mobile cloud computing in heterogeneous 5G. *Secur. Commun. Netw. 9 (16)*, 3049–3058.

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons, 61(1)*, 35–46. https://doi.org/10.1016/j.bushor.2017.09.003.

Lee, T., Kim, H., 2015. An exploratory study on Fintech industry in korea: Crowd funding case. In: *Proceedings of 2nd International Conference on Innovative Engineering Technologies, Bangkok, Thailand*, pages 58-64.

Pietkiewicz, I. and Smith, J.A. (2014), "A practical guide to using interpretative phenomenological analysis in qualitative research psychology", *Czasopismo Psychologiczne – Psychological Journal, Vol. 20 No. 1*, pp. 7-14.

Rainer, A., Roman, B., and Martin, T. S. 2018. FinTech and the transformation of the financial industry. Electronic Markets. 28, 235–243 https://doi.org/10.1007/s12525-018-0310-9

Wen, S., Zhou, W., Zhang, J., Xiang, Y., Zhou, W., Jia, W., 2013. Modeling propagation dynamics of social network worms. *IEEE Trans. Parallel Distrib. Syst. 24 (8)*, 1633–1643.

Wigglesworth, R., 2016. Fintech: Search for a super-algo, January. url=⟨https://www.ft.com/content/5eb91614-bee5-11e5-846f-79b0e3d20eaf⟩.

Yin, H., Gai, K., 2015. An empirical study on preprocessing high-dimensional class in balanced data for classification. *In: Proceedings of the IEEE International Symposium on Big Data Security on Cloud*, New York, USA, pp. 1314–1319.

Zhang, Q., Yang, L., Chen, Z., 2016. Privacy preserving deep computation model on cloud for big data feature learning. *IEEE Trans. Comput. 65 (5)*, 1351–1362.