Characterization of the Fintech Industry for the Peruvian Market

Stefano Mejia-Trujillo, Rafael Daniel Hidalgo-Castilla, Marcos Fernando Ruiz-Ruiz, Alberto Flores-Perez*, Juan Quiroz-Flores, and Martin Collao-Diaz

Abstract—**Financial technology companies in Latin America and the world, typically known as Fintech, are growing at a significant rate. However, a detailed analysis on the main influencers on the success or survival of these technologies remains to be discussed. This research determines the variables and social actors that characterize the Fintech ecosystem. For this purpose, a descriptive design was employed under the methodology of structural analysis, making use of tools such as a panel of experts and the MICMAC software (Matrix of Crossed Impacts Multiplication Applied to a Classification). The results suggest that investment, customer management and behavior due to COVID-19 are considered key variables in the current Fintech market. While the SBS (Superintendency of Banking, Insurance and AFP), Peruvian Fintech companies and clients are considered as the preponderant social actors. The findings constitute a basis for the design and strategic planning of future scenarios aimed at minimizing risks and making the most of the opportunities offered by this industry 4.0 new market.**

Index Terms—**Fintech, structural characterization, Peruvian market, industry 4.0**

I. INTRODUCTION

The term Fintech is a neologism which describes "technology-enabled financial innovations that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions, and the provision of financial services" [1].

The Fintech industry is known for promoting the financial sector development, through innovations that enable simpler, safer, and less costly transactions [2]. According to a study conducted by the consulting firm Ernst & Young (EY), this industry encompasses several products and services classified into 8 verticals: payments, crowdfunding, financing, foreign exchange, personal finance management, business, credit scoring and insurance [3].

The industry 4.0 era, marked by the heyday of the internet and big data, has triggered a major involvement from companies in an increasingly competitive landscape. Automation and digitalization are presented as processes of importance for business survival in this emerging market. It is noted that obtaining high profit margins is a constant pressure and the financial sector is no stranger to this [4].

In such circumstances, the term Fintech and the new business models that come with it are expanding at an accelerated pace around the world. According to the Spanish Institution Funcas, around 30,416 Fintech companies are operating globally, divided mainly between the United States (15.6%), Europe (13.2%) and China (8.7%) [5]. Although most of them have settled precisely in those markets, several other territories have been identified as propitious for expansion due to their low levels of financial inclusion. According to a study conducted by leading analytics marketing platform AppsFlyer, the region with the most significant development in 2020 has been Latin America, with an increase of 80% in the number of finance app installations between the first quarter of 2020 and the first quarter of 2021, accompanied by a significant investment of US$541 million [6].

Regarding Latin America, Brazil tops the list of countries with the highest growth in the sector with 498 Fintech and an accumulated capital of 6.2 billion dollars, followed by Mexico with 249 Fintech and a capital of 1.3 billion dollars and Argentina with 118 Fintech and a capital of 295.9 million dollars [7]. Peru places a few positions below, with an average growth of 40% in the last 5 years, going from 24 to over 120 Fintech and aiming to reach the figure of 200 Fintech before the end of the year [8].

The 3 most developed sectors are payments (33), with Agente Cash, Izipay and PayU being the best-known apps; financing (33), with apps such as Independencia and B89; and foreign exchange (27), with Kambista and Rextie [3]. As a result, it is necessary to characterize the Peruvian Fintech market to determine the key variables and social actors from the ecosystem responsible for its development. Peru intends to achieve the ideal balance between regulation and innovation and be on par with Latin American and world powers.

II. EASE OF USE

A PEST analysis was conducted in order to understand the Peruvian Fintech market panorama in times of COVID-19. This tool showcases the political-legal, economic, sociocultural, and technological factors of the ecosystem [9].

A. Political-Legal Factors

Policies, decrees, resolutions, and laws are among the political-legal factors that influence the services provided by Peruvian Fintech. Regarding financial inclusion, the Peruvian State has in place a National Financial Inclusion Policy (PNIF), which aims to promote the use of financial services in the population by the joint actions of the public and private sector. In relation to transparency and protection of personal data, Emergency Decree No. 007-2020 establishes the measures needed to ensure the reliability of the end consumer in digital services [10].

Regulatory and supervisory bodies of the financial system have provided specific regulations for certain types of Fintech, such as: the Decree No. 013-2020 of the Superintendence of the Securities Market (SMV) about micro financing [11], the amending Resolution SBS No. 1201-2018, regarding the registration of exchange houses [12], and Law No. 29985, with its respective regulation on the characteristics that electronic money must comply with [13]. In addition, on February 1, 2022, the new Regulation of Novel Models of the SBS will be put into effect, which will improve the regulatory sandbox framework. It should be noted that, although Peru has been making progress in terms of regulation, there are laws of the traditional financial industry, such as the General Banking Law, to which Fintech may choose to adhere, ensuring the confidence of investors and regulators [3].

B. Economic Factors

About the economics, the country is currently in a recovery period. According to the National Institute of Statistics and Information (INEI), the Peruvian GDP registered a growth of 41.9% for the second quarter of 2021, due to a higher domestic demand, which grew by 44.8% based on increases in household consumption (30.7%) and gross fixed investment (157.1%) [14]. In this way the financial industry is perceived as an encouraging scenario.

The Fintech industry has had a remarkable economic growth in recent years. According to the Peruvian Association of Seed Capital and Entrepreneurship (PECAP), Fintech sector has remained as one of the 3 most attractive sectors for investors throughout 2019 and 2020, achieving a total investment of US\$11.56 and US\$8.28 million respectively. This is the result of increased confidence and risk-taking attitude from investors [14]. In 2018, movements with amounts under US\$5 million represented 81% of total transactions, while those over US\$20 million accounted for only 8%; however, as of 2019, transactions under US\$5 million decreased to 64% and those over US\$20 million increased to 17% [3].

C. Sociocultural Factors

According to a study conducted by Vocalink, MasterCard's research company, young Peruvians have a positive attitude towards financial technology. The research showed that 64% of people between 18 and 35 years of age use banking apps, a higher percentage than regional leaders such as Colombia (58%), Brazil (38%) and Argentina (29%). This is largely due to the personalized management of financial products and good customer service. Nonetheless, it was found that 59% feel more comfortable with technologies promoted by traditional banks compared to 19% of Fintech startups [15].

From a macro perspective, low financial inclusion stands out. According to the Financial Inclusion Index (IIF) 2020, prepared by the holding Credicorp, Peru ranks second to last in the entire region with a score of 37.9, being even lower than the average (38.3). Three main dimensions were considered for this rating: access (financial infrastructure, knowledge, and product ownership); use (basic transactions, income, and savings) and perceived quality. Peru has a total of 34.3, 22.7 and 56.8, respectively, which among other factors is related to a structural problem: The lack of basic financial education in schools and universities [16].

Moreover, COVID-19 and the changes it has generated in consumer behavior, promoting alternatives to avoid contagion [17]. Therefore, 2020 was a boom for 100% virtual payment and transfer systems in Peru thanks to the massive use by Micro and Small Enterprises (MSEs) and informal economy.

D. Technological Factors

Two main factors have been identified: the emergence of Fintech industry trends such as Open Banking in Latin America and technologies related to biometric identification. On one hand, Open Banking, was created in the United Kingdom in 2015 and allows the client to give consent to release their banking information to third parties, allowing a wider and better range of products or services [18]. On the other hand, identity verification has become a turning point where physical identity systems lose prominence and digital identity systems emerge as a solution. Technologies capable of processing and protecting the information of consumers in the Fintech industry should be prioritized. This will promote a trustworthy and secure image, making companies even more attractive [19].
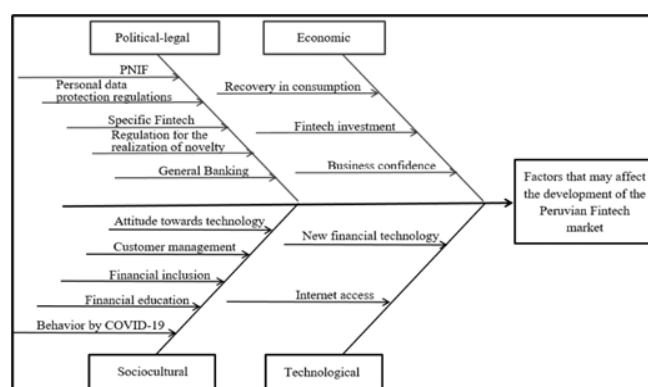

Fig. 1. PEST analysis of the Peruvian Fintech market.

Lastly, growth of telecommunications sector and connectivity in Peru is considered. According to the Supervisory Agency for Private Investment in Telecommunications (Osiptel), the GDP of this sector grew by 12.41% in 2020, thanks to a significant increase in 3G+4G mobile network coverage, which was positioned at 86.3% of the Peruvian population, having Lima as the main bastion, with 9 out of 10 households with internet access [20]. Furthermore, in the fourth quarter of 2020, 87.7% of people who use internet networks do so through a smartphone [21].

III. RESULTS

The study is non-experimental, descriptive and was conducted in four phases. In phase 1, the aim was to propose and validate with 5 experts in the Peruvian Fintech market, both the variables, grouped into 4 dimensions according to the PEST analysis, and the social actors. Subsequently, in phase 2, the experts assessed influences in a double-entry confrontation matrix using a scale from 0 (no influence) to 4 (very high influence). In phase 3, the MICMAC software was used to obtain coordinates and a graph to show both direct and indirect relationships.
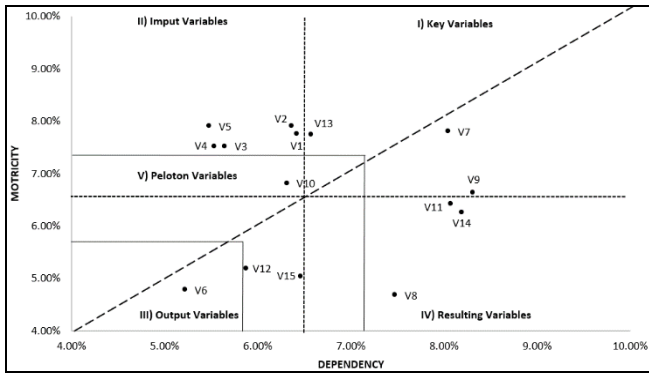
Fig. 2. Graph of influences between the system variables.

Based on the points found, the variables were classified into 5 types [22].

A. Key Variables

Also known as system challenge variables, they are in quadrant I and characterized by high levels of mobility and dependence, thus capable of destabilizing the system. According to the graph it the following 3 are included: Investment in Fintech (V7), customer management (V9) and behavior due to the COVID-19 (V13), belonging to the economic and socio-cultural dimensions.

B. Input Variables

Found in quadrant II, they are characterized by being more driving than dependent and can therefore act as drivers or containers of the system. In this zone, 3 variables were considered noteworthy for their high motricity: National Financial Inclusion Policy (V1), specific regulations for certain types of Fintech (V2) and general banking law (V5). Moreover, there are two with a lower degree of influence: Regulation for the temporary performance of activities in new models (V3) and personal data protection regulations (V4).

C. Output Variables

These are those with little mobility and dependence because they are related to past trends or are simply disconnected from the system. In this sense, they are not determinant for the future of the system. In this zone is located: Recovery of consumption (V6).

D. Resulting Variables

These are those found in the upper part of the IV quadrant. They are highly dependent and moderately driving, which makes them future objectives, since by influencing them, it is possible to achieve the desired evolution in the system. The following 3 variables were placed: Business confidence (V8), financial inclusion (V11) and new financial technology trends (V14).

E. Peloton Variables

These are located near the central axes of the cartesian plane and have medium mobility and dependence. Taking this into account, it is difficult to draw a conclusion from them. We found: Attitude towards technology (V10), financial education (V12) and internet access (V15).

Following the same principles of structural analysis, the social actors were classified according to 4 power hierarchies.

F. High-Powered Actors

They are located in quadrant II and characterized by their high level of independence and influence over the rest of the social actors. Three actors were found in this area: Superintendence of Banking, Insurance and AFP (A1), Peruvian Fintech companies (A8) and clients (A10).

G. Medium-Powered Actors

These are found in quadrant I; they are characterized by being highly dependent on each other and have great influence over the other social actors. Four actors were found in this zone: foreign Fintech companies (A9), investors (A11), incubators and accelerators (A13) and financial institutions (A15).

H. Low-Powered Actors Variables

These are located in the fourth quadrant; they are very dependent on each other and have a low power of influence over others. The following 6 actors were placed: Central Reserve Bank of Peru (A3), Ministry of Economy and Finance (A4), Congress of the Republic of Peru (A5), credit bureaus (A6), Peruvian Fintech Association (A7) and schools and universities (A12).

I. Very Low-Powered Actors

These are those in the III quadrant, they are characterized by exercising low influence and having low dependence. Within this classification, 2 actors were considered: SMV (A2) and telecommunications companies (A14).

Finally, in phase 4, the impacts of the variables and social actors on the system were analyzed and discussed in depth.

IV. DISCUSSION

The results of the previous section had convergences and divergences with the studies presented in the state-of-the-art and with other complementary studies. On one hand, regarding the variables, a system with a certain degree of stability was obtained presenting a minimum number of link/key variables, also known as conflict/challenge variables, since any action on them has repercussions on all the others and turns back on itself [22]. Previous research has already formulated such challenges to be faced by the Fintech sector over the years, including both the growing investment in Fintech (V7) and customer management (V9).

The ability to accurately estimate the value of projects is critical in an increasingly competitive business environment. In addition, Fintech have the difficult task of understanding the niche they are in and striving to provide the best possible service with high responsiveness and primary attention to complaints, as word of mouth is crucial for success [23]. Therefore, the financial challenge is to understand the real needs of users and provide appropriate financial products in a context of big data [24]. The latter being important for the Peruvian market, where, as mentioned in the PEST analysis, the capital city has greater internet connectivity than the rest of the regions, which will have different requirements in relation to their degree of access to the network.

In addition, COVID-19 is considered as a variable that destabilizes the system due to its dependence and influence on consumer behavior (V13) in more recent studies. It should be

recalled what Al Naywaseh [2] pointed out, regarding a higher probability that customers perform Fintech transactions when they perceive high benefits, social value and trust, and low contagion risks. Moreover, it is interesting to analyze cases such as Bulgaria, an Eastern European country with severe structural deficiencies, which has exponentially increased its use of mobile payment applications during the first waves of the virus [25]. This is similar to the Peruvian panorama throughout 2020, a period in which the number of Fintech grew 16% mainly due to the massive use of digital wallets to prevent the spread of the virus [26], as mentioned in the sociocultural section of PEST.

Furthermore, all 6 variables considered in the political dimension were classified as input variables or drivers of the system, which is logical considering the characteristics of the sector analyzed. For a sustainable growth of the ecosystem, Fintech need to possess and transmit legal certainty to stakeholders, avoiding risks such as the creation of parallel banks, money laundering, terrorist financing, etc. [27]. However, hand in hand with such supervision by the public authorities, it is needed to advocate for a level of completeness that meets the requirements of the principle of legality and in turn allows the innovation characteristic of this technological phenomenon. In this sense, it is necessary for the Peruvian government to aim for a consistent regulation that is seen as a boost to the system rather than a barrier.

On the other hand, in terms of social actors, the system is considered stable, as it has a minimal presence of high-powered actors, which can cause conflicts as they exert great influence on the rest of the system [22]. Although Fintech ecosystem has been used in previous studies; they considered limited groups of actors, being Fintech startups, government, customers, traditional banking institutions, and technology developers the most common [23]. The study considers 15 actors, a higher figure, but certain similarities can be appreciated, such as the case of Peruvian Fintech startups (A8) and customers (A10).

The Peruvian Fintech sector has grown significantly over the last few years, as mentioned in the PEST analysis. This expansion has been strongly influenced by entrepreneurs who wish to revolutionize the financial system through technology and by a change in the preferences of financial consumers. On one hand, Fintech, regardless of their type, provide more personalized and agile financial services compared to traditional banking customers, traditional banking institutions, and technology developers [23]. In this sense, they are the main drivers of the unbundling phenomenon of financial services, which has had a disruptive impact on traditional banking services [28]. On the other hand, clients, who are the main source of income for Fintech, have shown a great attraction for this sector. Although only 11% of Peruvian citizens are aware of Fintech, 54% are interested in using such services, which is considered an encouraging outlook for the growth of the Fintech sector in the coming years [3].

Currently, Peru is characterized by a limited access to information and poor financial education that generates distrust in financial institutions [29]. The main regulator of the Fintech ecosystem, the Superintendency of Banking, Insurance and AFP (A1), has an influential role within the Peruvian market and is expected to be an innovation-promoting body that inspires confidence in the population. However, a series of exhaustive regulations, unfriendliness towards technological innovations and ignorance of this new industry, generate an authority that regulates and halts instead of supervising and promoting [29]. This is how the SBS becomes an actor that hinders the growth of the Fintech industry; nonetheless, if it changes its approach, it could become one of the best allies of this sector.

It is important to note the presence of a player considered to have little power but that could become highly influential in the future: telecommunications companies (A14). They are mainly responsible for the expansion of connectivity within the country and internet is how Fintech grow and develop. Peru is a market highly concentrated in urban areas, with insufficient infrastructure and reduced connectivity [29]. If in such an unfavorable scenario more than 100 Fintech were able to emerge over the last few years, once it is possible to migrate a larger population that is already digitalized, accompanied by a supporting regulation, and increasing investment, the priority will be to increase this number of potential customers through telecommunications companies.

Even though the study was approached from the Peruvian context, it is important to have a look at the opportunities and challenges of the industry in the future from a global perspective. This is analyzed at the Latin American and European levels. Regarding Latin America, Open Banking, mentioned in the PEST analysis, appears as an immediate trend since Chile, a nearby example, is already starting its implementation. The evaluation of a country's potential for Open Banking success considers 4 variables: regulatory environment, consumer reception, level of innovation and adoption potential [18]. For Peru, the regulatory environment and adoption potential are the main challenges to be faced.

Moreover, cryptocurrencies and blockchain are 2 terms increasingly used daily because despite their great volatility. According to the Statista Global Consumer Survey 2021, Argentina is the largest user of cryptocurrencies in South America, with 21% of citizens claiming to use them, followed by Colombia with 15%, Chile with 14% and Peru with 13% [30]. In the case of Central America, on September 7, 2021, the president of El Salvador, Nayib Bukele, approved the adoption of the cryptocurrency called Bitcoin as legal tender through the Bitcoin Law [31]. Thus, the use of Fintech related to cryptocurrencies will be a trend in the future.

With respect to most countries in Europe, the Fintech ecosystem is largely made up of young customers, between 18 and 34 years old, who have high incomes. This provides a favorable scenario for the coming years where, due to generational change, most of the economically active population will tend to use Fintech services [32]. Likewise, because the growth of this sector has been exponentially higher than in Latin America, consumers are not satisfied with the use of 1 or 2 Fintech in their day-to-day, but resort to a wide number of applications depending on the financial service they need [23]. In this sense, the same customer, adapted to the Peruvian market, may use B89 to obtain financing, followed by PayU to make payment for some service and finally Kambista to exchange to another currency the surplus in soles. This European scenario is expected to become a reality in Peru in the next few years.

V. Conclusion

As expected, the research was not free of some limitations. Regarding the theoretical framework, we found, on one hand, a scarce number of scientific articles on the Latin American and specifically Peruvian Fintech industry in databases such as Scopus or Web of Science. On the other hand, the term COVID-19 generated some difficulty in the selection of articles for the state-of-the-art section, since the information contained varied considerably in both objective and methodology. For this reason, the articles were divided into pre-pandemic and post-pandemic, the latter being understood as after the declaration of the health crisis in March 2020. Additionally, regarding the selected participants, although both private and public perspectives were considered, we worked only with experts in the main Fintech fields, leaving out insurtech (insurance) or proptech (real estate).

Nonetheless, despite the limitations mentioned, the evidence allowed to achieve the objective of finding which variables characterize the Peruvian Fintech market. Investment, customer management and behavior due to the COVID-19 are the challenges to overcome. While the political dimension is a catalyst for the Fintech boom, only if the Peruvian government achieves an environment where it can regulate without limiting innovation. In addition, the ecosystem where the business operates and the social actors that make it up were identified, from those with high power such as the SBS and its regulatory role, the Fintech companies themselves and customers, to those with indirect influence such as the SMV and telecommunications companies.

It is necessary to comment that the structural analysis presented here constitutes the base pillar for planning and designing future scenarios, where the evolution of the system in the medium and long term can be traced from the use of probabilistic statistics. Furthermore, based on the external environment presented here, the leaders of both traditional banks and Fintech companies can design their market studies and propose profitable strategies. Finally, this paper opens new lines of research that will be a trend in the next 10 years, such as Open Banking or Blockchain technology and its application in cryptocurrencies.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Stefano Mejia-Trujillo carried out the PEST analysis, and the categorization of the results through the MIC MAC software. Rafael Hidalgo-Castilla applied the categorization to the scenario approach and provided the introduction. They analyzed the data, drafted the manuscript, and supervised the research. All the authors had approved the final version.

References

[1] Basel Committee on Banking Supervision. (2018). Implications of fintech developments for banks and bank supervisors. [Online]. Available: https://www.bis.org/bcbs/publ/d431.pdf

[2] M. Nawayseh, "Fintech in COVID-19 and beyond: What factors are affecting customers' choice of fintech applications?" *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 6, no. 4, pp. 1–15, 2020. https://doi.org/10.3390/joitmc6040153

[3] EY. (2020). Guía Fintech Perú 2020/2021: Panorama legal y regulatorio para la inclusión financiera. [Online]. Available: https://assets.ey.com/content/dam/ey-sites/ey-com/es_mx/topics/law/ey-law-guia-fintech-peru-2021.pdf

[4] BBVA. (2019). The Fintech Universe through the Eyes of the Media and Social Networks. [Online]. Available: https://www.bbvaresearch.com/wp-content/uploads/2019/02/Fintech UniverseReport_FV-2.pdf

[5] Funcas. (2021). La localización geográfica del fenómeno Fintech. [Online]. Available: https://www.funcas.es/wp-content/uploads/2021/02/IFGrafico2-2021.pdf

[6] AppsFlyer. (2021). Fintech App Marketing Insights: LATAM. Edición 2021. [Online]. Available: https://www.appsflyer.com/sp/fintech-app-marketing-insights-2021/

[7] KoreFusion. (2020). 2020 LATAM Fintech Report. [Online]. Available: https://imgcdn.larepublica.co/cms/2020/10/09182602/KoreFusion-2020-LATAM-Fintech-Report-2.pdf

[8] E. López. (2020). La expansión de las Fintech en el Perú. La Cámara: Revista de la Cámara de Comercio de Lima. [Online]. Available: https://apps.camaralima.org.pe/repositorioapps/0/0/par/edicion914/revista_digital_914.pdf

[9] D. Martínez and A. Milla. (2012). Análisis del Entorno. Editorial Diaz de Santos. [Online]. Available: https://www.editdiazdesantos.com/libros/martinez-pedros-daniel-analisis-del-entorno-L27004030106.html

[10] Decreto de Urgencia N.°007-2020, Decreto de Urgencia que aprueba el marco de confianza digital y dispone medias para su fortalecimiento. [Online]. Available: https://busquedas.elperuano.pe/download/url/decreto-supremo-que-aprueba-el-reglamento-del-decreto-legisl-decreto-supremo-n-007-2020-in-1865739-5

[11] Decreto de Urgencia N.° 013-2020, Decreto de Urgencia que promueve el financiamiento de la MIPYME, emprendimientos y Startups. (2020). [Online]. Available: http://sice.oas.org/SME_CH/PER/Dec_Urg_No_013_2020_s.pdf

[12] Resolución SBS N.° 1201-2018, Resgistro de casas de cambio, préstamos y empeños. (2018). [Online]. Available: https://www.sbs.gob.pe/Portals/0/6338_2012_R_pd.pdf

[13] Ley N.° 29985, Ley que regula las características básicas del dinero electrónico como instrumento de inclusión financiera. (2018). [Online]. Available: https://www.bcrp.gob.pe/docs/Transparencia/Normas-Legales/ley-29985.pdf

[14] INEI. (2021). Producto Bruto Interno Trimestral. [Online]. Available: https://www.inei.gob.pe/media/MenuRecursivo/boletines/02informe-tecnico-pbi-i-trim-2021.pdf

[15] Vocalink. (2019). Young peruvians and their money. [Online]. Available: https://www.vocalink.com/news-insights/research-reports-white-papers/young-peruvians-and-their-money/

[16] Credicorp. (2020). Índice de inclusión financiera de Credicorp. [Online]. Available: https://www.grupocredicorp.com//assets/pdf/Libro_IIF_Credicorp.pdf

[17] M. Jakhiya, M. M. Bishnoi, and H. Purohit, "Emergence and growth of mobile money in modern india: A study on the effect of mobile money," in *Proc. 2020 Advances in Science and Engineering Technology International Conferences [ASET]*, no. 1, 2020. https://doi.org/10.1109/ASET48392.2020.9118375

[18] EY. (2019). Open Banking: Una oportunidad para Chile. [Online]. Available: https://assets.ey.com/content/dam/ey-sites/ey-com/es_cl/topics/open-banking/open-banking-presentacion-final.pdf

[19] A. Torres, "Identidad digital," *Fintechgración*, vol. 2, no. 1, pp. 3–19, 2019.

[20] Osiptel. (2020). Retos para cerrar la brecha digital en Perú [Online]. Available: https://www.osiptel.gob.pe/media/uaxgb32q/ppt-retos-cerrar-brechadigital.pdf

[21] INEI. (2021). Nota de prensa respecto al incremento de la población que utiliza internet a diario. [Online]. Available: https://www.inei.gob.pe/prensa/noticias/se-incremento-poblacion-que-utiliza-internet-a-diario-12806/

[22] M. Godet, "De la anticipación a la acción: manual de prospectiva y estrategia," *Alfaomega-marcombo*, 1995.

[23] I. Lee and Y. J. Shin, "Fintech: Ecosystem, business models, investment decisions, and challenges," *Business Horizons*, vol. 61, no. 1, pp. 35–46, 2018. https://doi.org/10.1016/j.bushor.2017.09.003

[24] Y. Xian, "Analysis of how to meet the challenges brought by the development of internet finance and the era of big data," in *Proc. presented at the Journal of Physics: Conference Series*, vol. 1792, no. 1, 2021. https://doi.org/10.1088/1742-6596/1792/1/012041

[25] I. Vasenska, P. Dimitrov *et al*., "Financial transactions using fintech during the covid-19 crisis in Bulgaria," *Risks*, vol. 9, no. 3, pp. 1–28, 2021. https://doi.org/10.3390/risks9030048

[26] Número de fintechs en Perú crece 16% en 2020, según la Universidad del Pacífico. (2020). Gestión. [Online]. Available: https://gestion.pe/economia/numero-de-fintechs-en-peru-crece-16-en-2020-segun-la-universidad-del-pacifico-nndc-noticia/

[27] EY. (2021). Guía de negocios Fintech 2021/2022. [Online]. Available: https://www.ey.com/es_pe/law/guia-fintech

[28] S. Walchek, (2015). The unbundling of finance. *TechCrunch*. [Online]. Available: https://techcrunch.com/2015/05/29/the-unbundling-of-finance/

[29] J. Zamalloa, (2019). Radiografía de la industria Fintech en Perú. [Online]. Available: https://www.ayllufintech.org/static/Fintech2018.pdf

[30] M. Mena. (2021). La adopción de las criptomonedas en el mundo. Statista: Global Consumer Survey 2021. [Online]. Available: https://es.statista.com/grafico/18425/adopcion-de-las-criptomonedas-en-el-mundo/

[31] G. Sergio. (2021). El papel de los criptoactivos como moneda de curso legal: el ejemplo de El Salvador. Banco de España: Eurosistema. [Online]. Available: https://repositorio.bde.es/bitstream/123456789/18991/1/be2104-art35.pdf

[32] Holland FinTech. (2015). The future of finance: The socialization of finance. [Online]. Available: http://hollandFinTech.com/the-future-of-finance-the-socialization-of-finance